URBANIZATION AND OPEN SPACE IN THE NARRAGANSETT BAY REGION

A Thesis

Presented to the Faculty of the Graduate School

of Cornell University for the Degree of

Master of Regional Planning

by

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THESIS ABSTRACT

In the Narragansett Bay Region, suburbanization and scatterization is changing the pattern and relationship of open land and urbanized land. The form or non-form of this urbanization is a critical concern. It will be necessary to accommodate an increasing regional population in the future and yet preserve the assets of the region, particularly its scenic unique resources, environmental features of the land, fertile agricultural lands, and historical areas.

The present form of decentralization is not only endangering the open space assets of the region but is fostering a degeneration of the urban core. In the metropolitan area a significant population loss has occurred. Some businesses and industries have also decentralized along with three college campuses. The resulting loss of economic base, cultural climate, and the affluent middle class has been influential in creating many of the physical and social problems found in the core.

In this study, reasons for decentralization and development of valuable open space within the Narragansett Bay Region were identified. They can be briefly stated as follows:

- No regional authority controlls urbanization.
- All land is considered potentially developable.
- Insufficient urban open space and recreational amenity.
- Improved infrastructure and accessibility.
- Economics
- Land tax and revenue.

- Key facilities location: naval bases, industrial parks, college campuses.
- Social reasons.
- Recreational Movement Patterns.

These development pressures have effected a form of urbanization in which open space is for the most part residual undeveloped land and not planned reserves of desirable land. At the present time however, much of the land is undeveloped. Of this open space there may be considered the following generic types:

- Metropolitan Area - a few parks and a deteriorated waterfront.
- Suburban Zone - a limited amount of dispersed agricultural and wood land.
- Transition Zone - the belt of land changing from agricultural use to scattered suburban development.
- Military Lands - reuse of the large naval bases.
- Accessible and Endangered Scenic Farms and Woodlands.
- Remote Unexploited Land.
- Scenic Resources of Limited Area - topographical features affording scenic vistas, located throughout the region.

An overview of land suitability in the region was illustrated in the study to reinforce the hypothesis that scenic open space can be productive. An inventory of land formations, soils, and historic use of the land was compiled. The historical development of the region offered several viable alternatives to the existing land use, transportation modes, and recreational areas. An examination of the region at the turn of the century demonstrated a significant attitude toward landscape and scenic ameni-

ties within the region and is responsible for much of the documentation of significant features of the bay.

A survey of other regional policies and programs concerned with open space and urbanization was influential in developing the concept of an open space infrastructure for the Narragansett Bay Region. The generalized plan of open space and urbanization was based on the following objectives:

- Inhibit decentralization and provide order to urbanization.
- Develop urban patterns and open space patterns simultaneously.
- Encourage urban revitalization.
- Encourage urban concentrations supporting a cultural atmosphere.
- Provide open space and recreational amenities within population concentrations.
- Meet deficit of urban and rural recreational open space.
- Protect endangered scenic open space and preserve significant features of the land.
- Preserve fertile agricultural areas and woodlands.
- Make open space economically productive.
- Preserve historic districts/towns and restore the linking routes.
- Reinforce seasonal resort towns.
- Prevent intrusions of incompatible land use.
- Eliminate commercial strip development.
- Preserve the scale and spatial relationships of the Narragansett Bay Region.

To implement the generalized plan, new legislation and creation of a regional authority with the capacity to practice progressive land use controls were recommended.

BIOGRAPHICAL SKETCH

Jeffrey A. Chmura was born in Pawtucket, Rhode Island on November eighth, nineteen hundred and forty-eight. While an undergraduate at the University of Notre Dame he studied in Rome and traveled through Europe and the Near East, receiving his Bachelor of Architecture from the same institution in 1971. In 1972 he enrolled in the urban design studio, at Cornell University and in 1974 received a Master of Architecture in Urban Design after completing an urban design thesis titled "Central Boston Redevelopment." In the fall of 1973, Mr. Chmura was a teaching assistant in Visual Communications. During the spring of 1974 he taught a course in the same subject area and was a Rome Prize Finalist in environmental design. In the fall of 1974 while enrolled in the Urban Planning Department at Cornell, he functioned as a teaching assistant in Environmental Design and completed an independent fieldwork study on historic renewal which was published in its entirety by a public agency the following semester. In the spring of 1975 the author was again chosen as a Rome Prize Finalist and elected to Phi Kappa Phi Honor Society.

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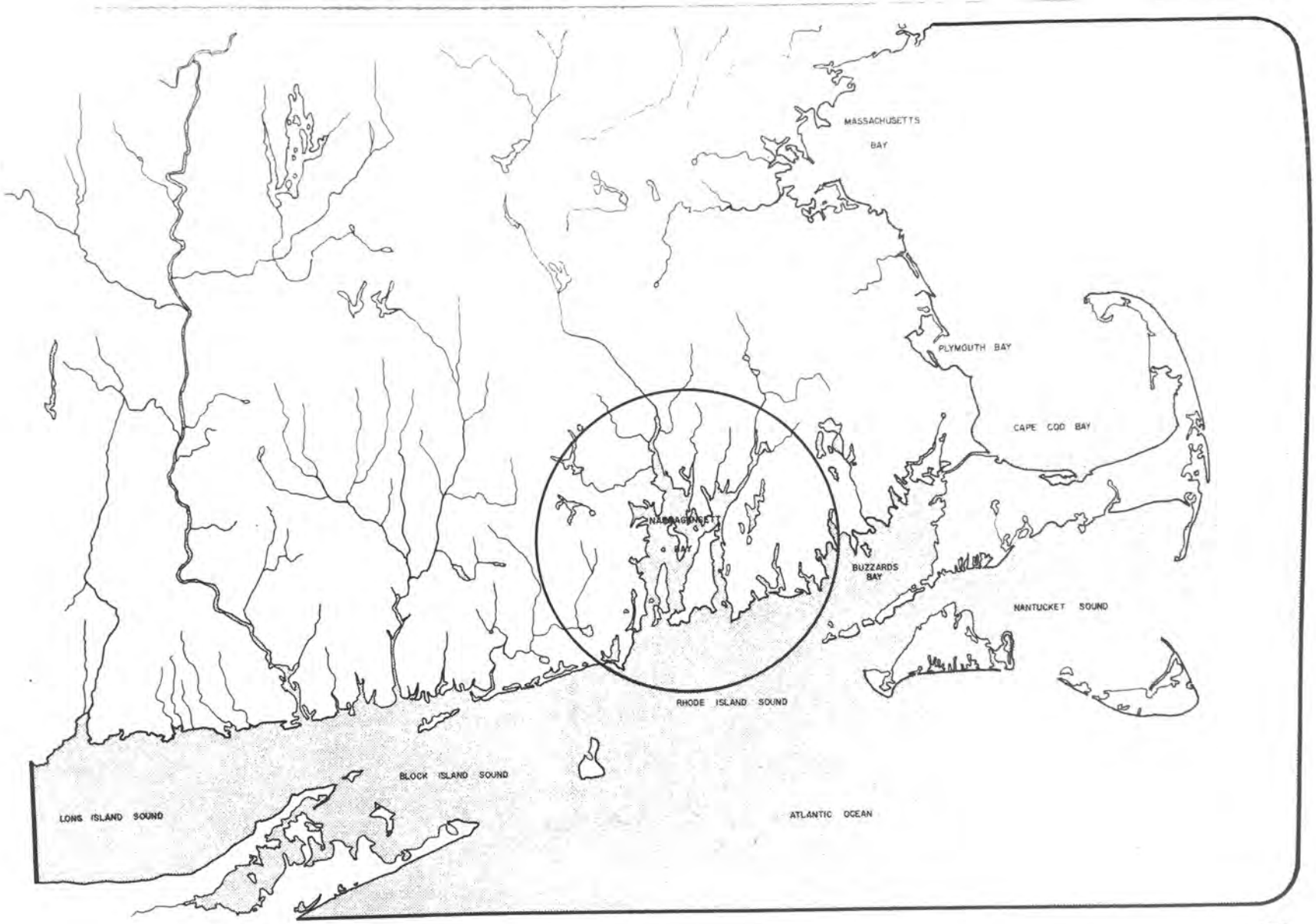
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I. STATEMENT OF THE PROBLEM

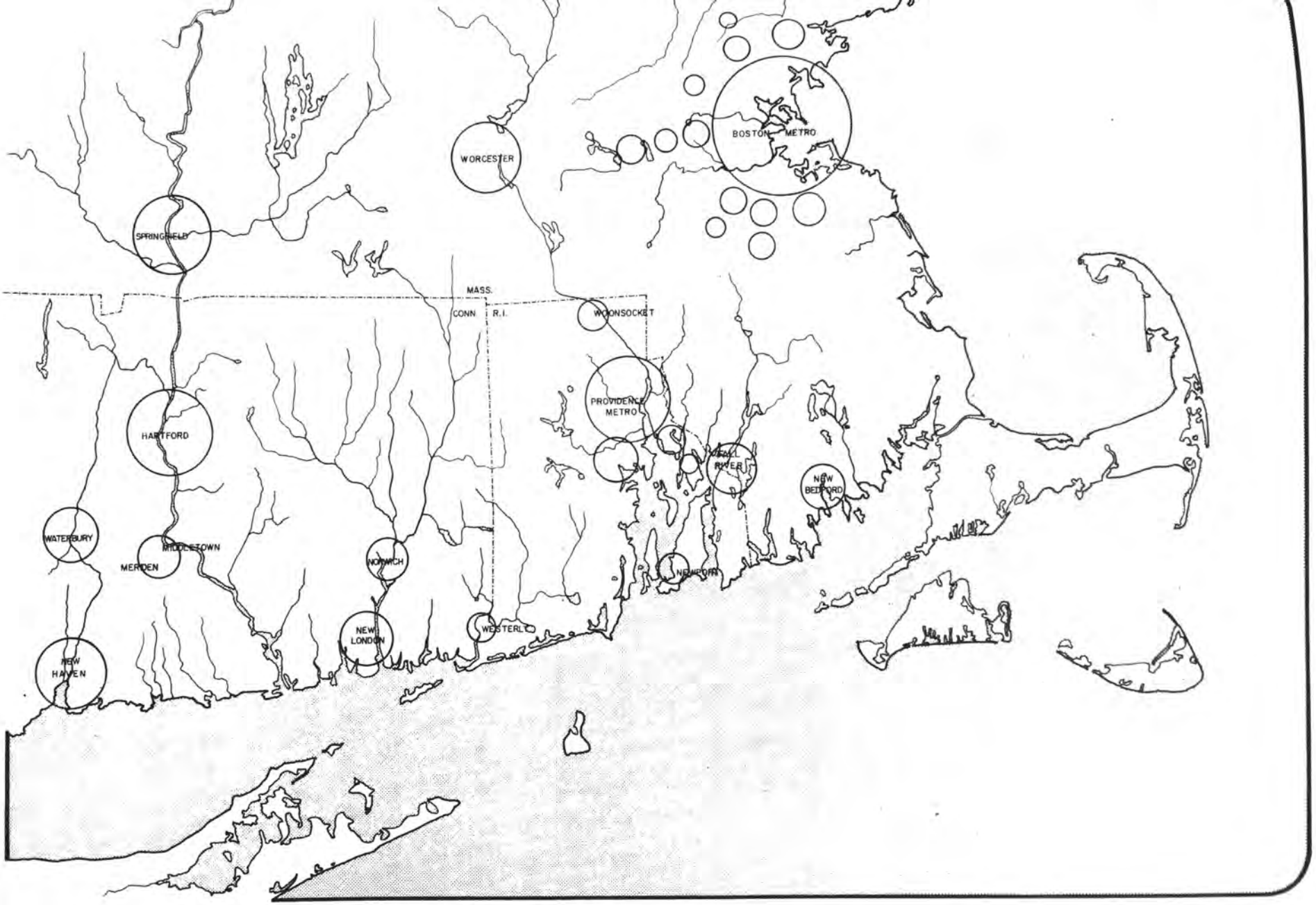
Narragansett Bay is the major natural resource in the State of Rhode Island. The negative space of the water body in conjunction with the irregular coastal formation provides the strong imagery and identity of the state itself. This spatial definition along with a polynuclear arrangement of historic towns reinforces the imagery of the bay. Also within the bay region, a portion of Mt. Hope Bay and the urban areas of Fall River and Taunton are in the jurisdiction of Bristol County in the Commonwealth of Massachusetts.

Water transportation and bay economics constituted the lifeblood of the early urbanizing forces in the region. Present socio-economic conditions and patterns of urbanization continue the development of bay lands. Narragansett Bay will be used to define a region in terms of spatial, social, economic, and ecological dependencies. A circular feedback system relating lands influenced by the bay and their change and influence back upon the integrity and evolution of the bay and Bay Region will be a preliminary effort in understanding some planning priorities for land management in this region.

Narragansett Bay with the Seekonk and Providence River extensions measures approximately 15 by 26 miles. Within the dimensions of the bay are three major islands; Aquidneck (Rhode) Island from which the state takes its name, Coanicut Island, and Prudence Island. Nine smaller islands are easily discernible dotting the waters of the bay. A multitude of irregular land formations of peninsulars, points, protected harbors, rivers,



NBR LOCATION OF STUDY AREA



NBR MACRO REGION

URBAN CENTERS

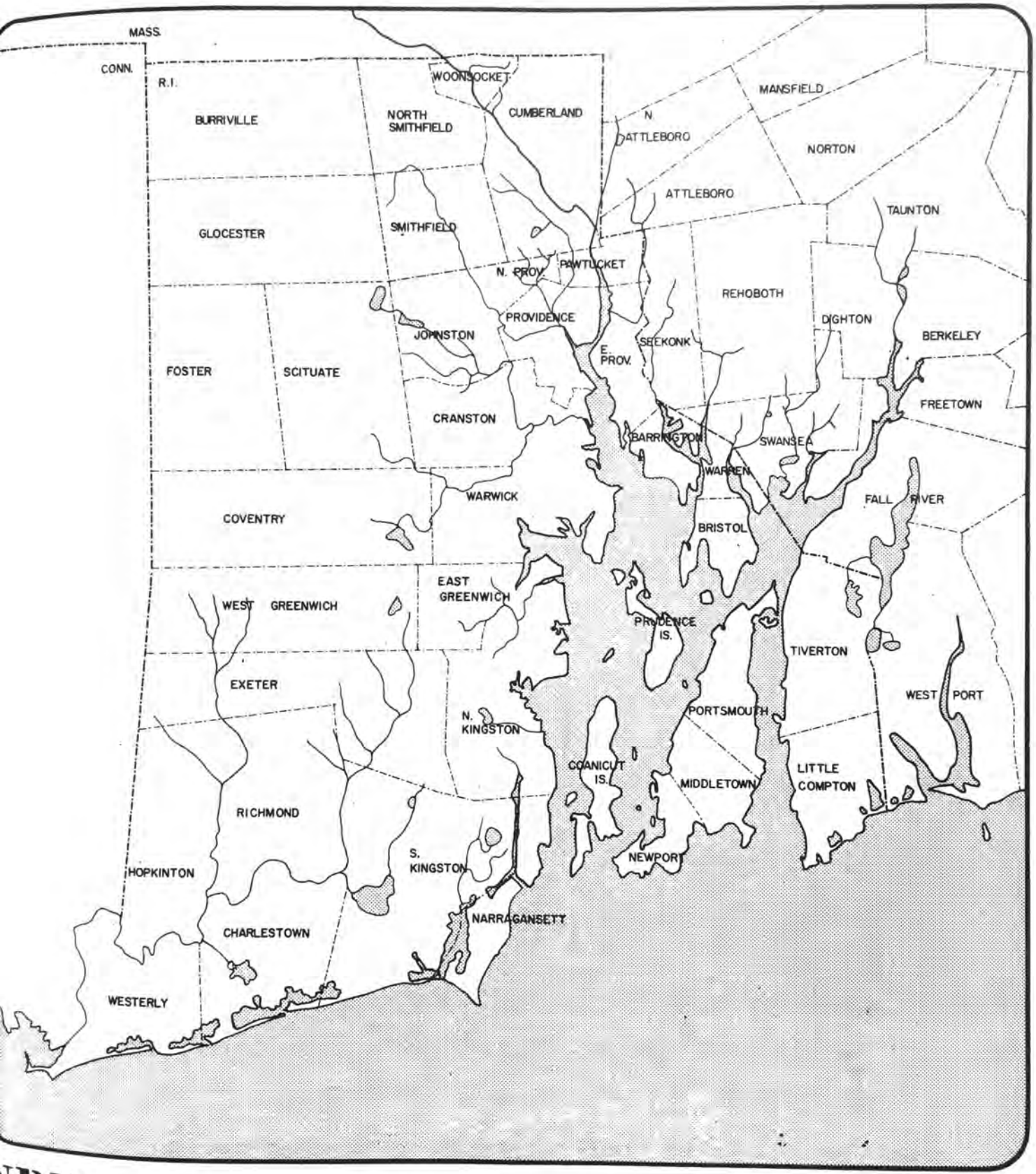
beaches, marshes, and cliffs incorporate to form a tremendous amount of surface exposure in a relatively small area. The water area is approximately 170 sq. miles with more than 300 miles of waterfront.[1]

Due to the irregularity of the shore area, communication routes between places infrequently follow a linear path. Lengthy land routes have been used predominantly in the past 50 years to circumvent the component bodies of water comprising Narragansett Bay. Major bridges considerably reduce the circumventing distance of the land route and subsequently reduce the scale of the bay. To illustrate the point, the Sakonnet River separating Middletown from Little Compton is about a mile and a half wide but the auto route is twenty miles long and requires one bridge crossing. Inaccessibility formed closed fields of development strengthening the urban core and protecting rural amenities. It is for exactly this reason that a good deal of Rhode Island's magnificent water oriented land areas had been indirectly protected against the vicissitudes of urban sprawl. In effect the urbanization of bay lands consisted of a polynuclear arrangement of independent closed fields of development.

As we all know, a straight line is the shortest distance between two points in contradistinction to another more lengthy arrangement. But as straight line communcations are applied to the bay, the spatial arrangement of the bay region changes, and thus the entire scale of such an area is thrown out. Picking

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[1]Niels Rorholm, Harlan C. Lampe, Joseph F. Farrell, A Socio-Economic Study of Narragansett Bay, Rhode Island (Kingston: University of Rhode Island, 1969), p.4.



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TIES AND TOWNS

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up the pace of movement along the linear path only intensifies the decreasing scale.

As has been apparent throughout the country, accessibility and multiplicity of choice have characterized complex relationships, resulting in decentralization and scatterization. Automobiles, highways, and bridges have provided unrestricted access to the lands in the Narragansett Bay Region. Speculation and federal home and highway loans have furthered the movement. At the same time the degeneration of the urban core has occurred with unstable environments and social problems. When the closed field of limited access opened up via the automobile, the dissipation of the forces of central city had begun. The Providence area on the northern part of the bay has been significantly losing population while the communities of the southern bay area have been gaining.[2]

The original train lines through the state linked the polynuclear arrangement, and virtually all parts of the bay were served by steamer lines. They provided accessibility among cities, towns, and resorts, but not to the interim open undeveloped land. The new open dispersal pattern formed by the automobile while generating a shift in population, has not reinforced the older towns along the bay in contained growth but has resulted in massive scatterization along the shores of the bay. Presently the efficient road network to the South Shores of the bay, particularly the North Kingstown-Narragansett Corridor, is exerting great development pressures. The diversity of scale, location, and types of urban/rural forms are changing to spread city with a thinning of core population.

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[2]Ibid. p. 13.

In 1962 the population of North Kingstown was 87,561 but based on the current zoning regulations, the holding capacity of the town is 281,904 people.[4] This allows for 100,000 people more than the existing population of Providence. The present zoning system does not allow planned or orderly growth. Practically all land is considered potentially developable. This is the rule and not the exception. The speculative patterns fostered become irreconcilable. It is not so much the low densities of single family housing that spoil the land but the speculative pattern of land development. The spread city bay grouping devastates rural amenities - the residual space in the polynuclear arrangement.

A search for amenity has been a major cause of decentralization. Narragansett Bay and the Seekonk River penetrate deeply into the urban core although little public access, few municipal facilities, and polluted water in the metropolitan area push the recreation orientation further south. Close-in resorts, as Oakland Beach, have frequently been subjected to commercial vicissitudes and fallen out of fashion. Instead of developing metropolitan recreational facilities, the better state facilities are located in the southern part of the state. Great movement patterns of recreation seekers exist on any summer weekend, even though people may be living within walking distance of the bay in the metro area. Provision of amenities in older residential areas may increase the desirability of those areas, stabilize

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[4]Planning Division, Rhode Island Development Council Land Use Controls in Rhode Island: A Comparative Study of Municipal Zoning Ordinances and Their Effect on Future Development, Publication no. 6. (Rhode Island: State Planning, 1963), p. 40.

Selected Population Statistics for the Narragansett Bay Region

	1765*	1800	1850	1900	1950	1970
BRISTOL CO. R.I.						
Barrington	....	650	795	1135	8246	17554
Bristol	1109	1678	4616	6901	12320	17860
Warren	959	1473	3103	5108	8513	10523
KENT COUNTY						
E. Greenwich	1416	1775	2358	2775	4923	22947
Warwick	2159	2532	7740	21316	43028	83694
NEWPORT COUNTY						
Jamestown	475	501	358	1498	2068	2911
Little Compton	1219	1577	1462	1132	1556	2385
Middletown	825	913	830	1457	7382	29290
Newport	7004	6739	9563	22034	37564	34562
Portsmouth	1397	1684	1833	2105	6578	12521
Tiverton	1675	2717	4699	2977	5659	12559
PROVIDENCE CO.						
Central Falls	....	....	....	18167	23550	18716
Cranston	1621	1644	4311	13343	55060	74287
Cumberland	1402	2056	6661	8925	12842	16605
E. Providence	....	....	....	12138	35871	48207
Johnston	....	1346	2937	4305	12725	22037
Lincoln	....	....	....	8937	11270	16182
N. Providence	....	1067	7680	3016	13927	24337
Pawtucket	....	....	3753*	39231	81436	76984
Providence	3749	7614	41513	175597	248674	179116
Woonsocket	....	....	....	28204	50211	46820
WASHINGTON CO.						
Narragansett	....	....	....	1523	2288	7138
North Kingstown	2363	2794	2971	4194	14810	27793
South Kingstown	2360	3438	3807	4972	10148	16913
BRISTOL CO. MASS.						
Berkley	659	1013	908	949	1284	2027
Dighton	1174	1666	1641	1802	2950	5931
Fall River	....	....	11524	104863	111963	96808
Rehoboth	3960	4743	2104	1840	3700	6512
Seekonk	....	....	2243	1673	6104	11116
Somerset	....	1232	1166	2241	8566	18088
Swansea	1840	1741	1554	1645	6121	12640
Taunton	2735	3860	10441	31036	40109	43756

* The 1765 Rhode Island population figures were calculated and are not census figures.

** Prior to 1862, Pawtucket was part of Bristol Co. Mass.

3Robert F. Burne, Manual with Rules and Orders for the Use of the General Assembly of the State of Rhode Island 1973-1974 (Providence: State of R.I., 1974) pp. 469-474.

Commonwealth of Massachusetts Decennial Census 1955; Population and Legal Voters of Massachusetts (Boston, Mass.: Secretary of the Commonwealth, 1956) p. 12.

Massachusetts General Court, Manual for the General Court 1973-1976 (Boston: Massachusetts General Court, 1973) p. 286.

Massachusetts General Court, Manual for the General Court 1906 (Boston: Massachusetts General Court, 1906) p. 239.

Horace G. Wadlin ed., Population of Bristol County, Massachusetts, by Towns, 1765-1885; Census of the Commonwealth of Massachusetts: 1895 (Boston: Wright and Potter, 1896) Vol.I, Part I, pp. 66-67, secondary source-Herbert Allen Whitney, The Narragansett Region Concentrations of Population 1635-1885 (Ann Arbor: University of Michigan, 1961) Appendix B, p. 107.

segments of the population, discourage deterioration, and eliminate some of the pressures for development in other areas.

The form development takes is also a critical concern. In several cities belonging to the Providence area; Providence, Cranston, Warwick, and East Providence; consciousness of the bay exists only for those in immediate proximity to the waterfront. The most illuminating example of urban form negating water bodies is Manhattan. Two blocks away, the waterfront ceases to have any meaning. Examples of water bodies walled off by undesirable edge development are found throughout the country.

High elevations permit direct visual reference of water bodies and promote water consciousness as is the case in San Francisco. This consciousness is more than a matter of scenic vistas although this is the easiest manner to relate the hinterland to the water. The open lands in the Bay Region carry this conscious relationship for several miles. Physical barriers, changes in iconographic images and vernacular architecture, and other incongruous elements may break the awareness and image of water orientation. Crossing twenty miles of rural farmland to approach the sea is entirely different from traveling the same distance through urbanized land.

One of the major issues to be dealt with in land management is stabilized and controlled development implemented by the encouragement of contained growth rather than the open dispersal pattern currently in progress. The farmlands, woodlands, natural areas, and water quality of the Bay Region are clearly endangered by the existing laissez-faire policies and infrastructure determinism. On the west side of the bay, the time/distance relationships esta-

blished encourage mobility with more facility than the eastern lands of the bay. Control of public utilities and land use policies may control, inhibit or organize this projected growth.

The issues of spatial location, scale, land suitability, significant features of the land, and infrastructure will play an important part in the development considerations of the physical environment. At the same time, socio-economic forces and ecological considerations will be included in an understanding of general man-environment relationships as significant determinants in the pattern of desirable physical development, and the associated quality of life within the finite parameters of the Narragansett Bay Region.

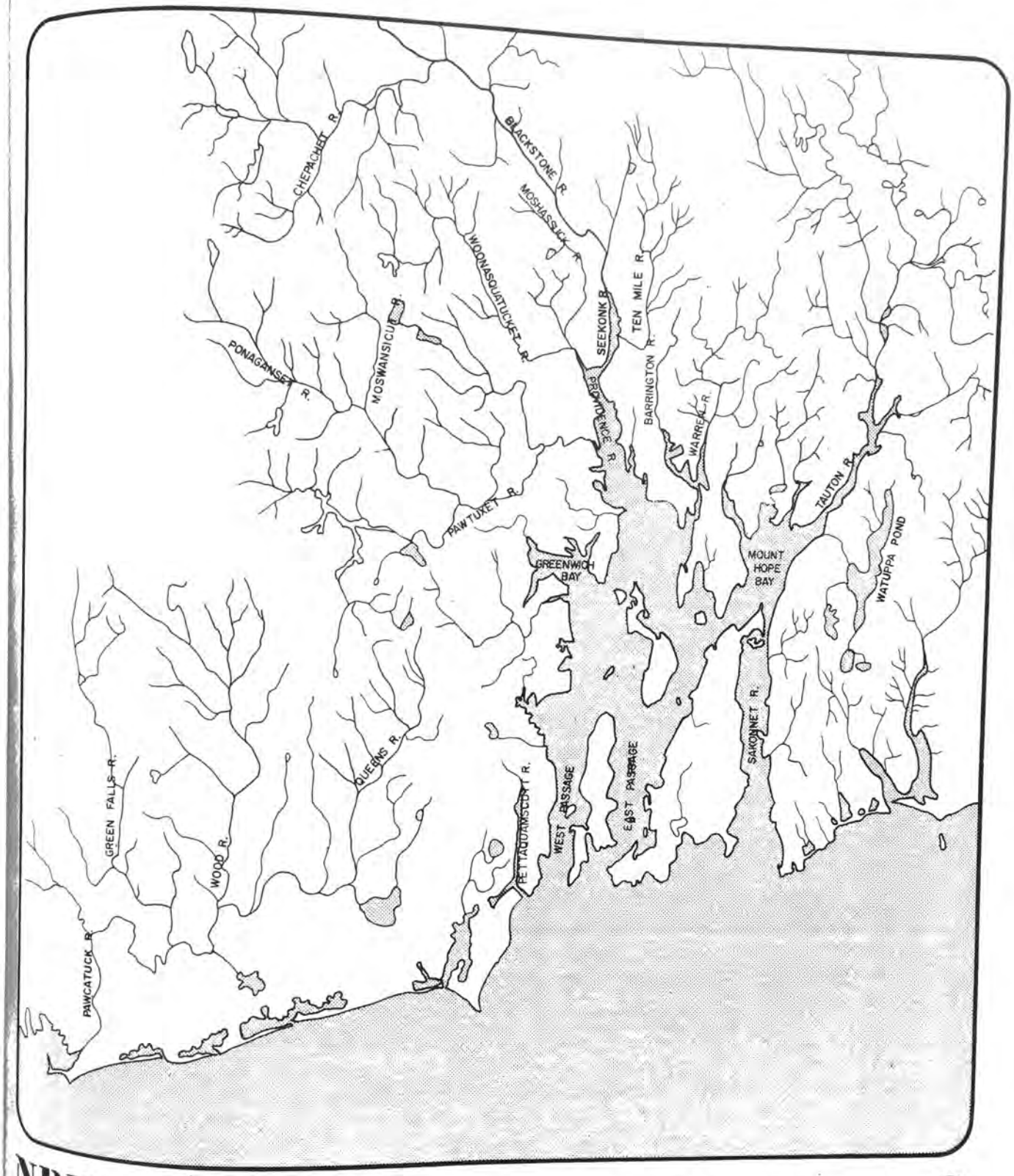
II. THE NARRAGANSETT BAY BASIN

The "Narragansett Basin" extends from the Atlantic Ocean on the south to Wachusett, approximately 100 miles north. The east-west extensions of the basin cover about 40 miles. However, the entire state of Rhode Island measures only 33 miles by 45 miles, east-west by north-south respectively. In this way the Narragansett Basin exists far beyond the state borders of Rhode Island. More than 50 miles of tributary extensions exist north of the state and Bristol County to the east in Massachusetts fronts directly on Mount Hope Bay, one of the several bodies of water comprising the bay proper. The lands which drain into and feed the tributary rivers are part of the basin and constitute the larger context of the region. The rivers which are part of the basin and eventually flow into the bay are:

Blackstone River
Taunton River
Pawtuxet River
Moshassuck River
Woonasquatucket River
Cole and Lees River
Palmers and Warren River
Runens and Barrington River
Kickemuit River
Ten Mile River
Abbott's Run

Many of the rivers and streams are not flat bottomed but flow over broken formations of bedrock, forming natural waterfalls.

The highest elevation in Rhode Island is 805 ft. in Gloucester but in Wachusett, Massachusetts; the summit of the region is 2,108 ft. The extreme elevations are rocky compared with the fertile soil deposits of the more southerly and lower



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RIVERS AND DRAINAGE SYSTEMS

SOURCE: Index Map: Topographical Atlas of the State of R.I. and Providence Plantations. U.S. Geological Survey, 1891.
George H. Walker & Co., Boston, Mass.

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lands in the basin.

The land formations in this region are glacial morain. The glacier was responsible for elevations of 805 ft. at Gloucester in the north and 120 feet below sea level in the south by Coanicut Island. The basin, fairly much a bowl arrangement, has relatively consistent inclines rising away from the bay and its tributaries. The face of the bowl has an elevation of 800 feet along the north and west sides and 600 feet on the northeast side.

The state "water-shed" starts at Woonsocket Hill at an elevation of 588 feet continuing south to Wyunkeog Hill (557 feet) through Moswansicut Pond and down Bald Hill (501 feet). At River Point the flowing water is now called the Pawtuxet River and descends to the northeast to mean sea level at Pawtuxet, one of the 18th century settlements in the state.

By the time the Blackstone River has reached Woonsocket, changes in elevations have brought considerable movement and force to the river. There are six sets of falls, one each at:

Woonsocket
Manville
Lonsdale
Valley Falls
Central Falls
Pawtucket

Flowing toward the bay and enlarging to form the Seekonk River, the Blackstone River is the largest and most significant river in the region.

The many hills sloping to the bay have effected the building of rich soils in that area. Significant hills in the Bay

Region follow:

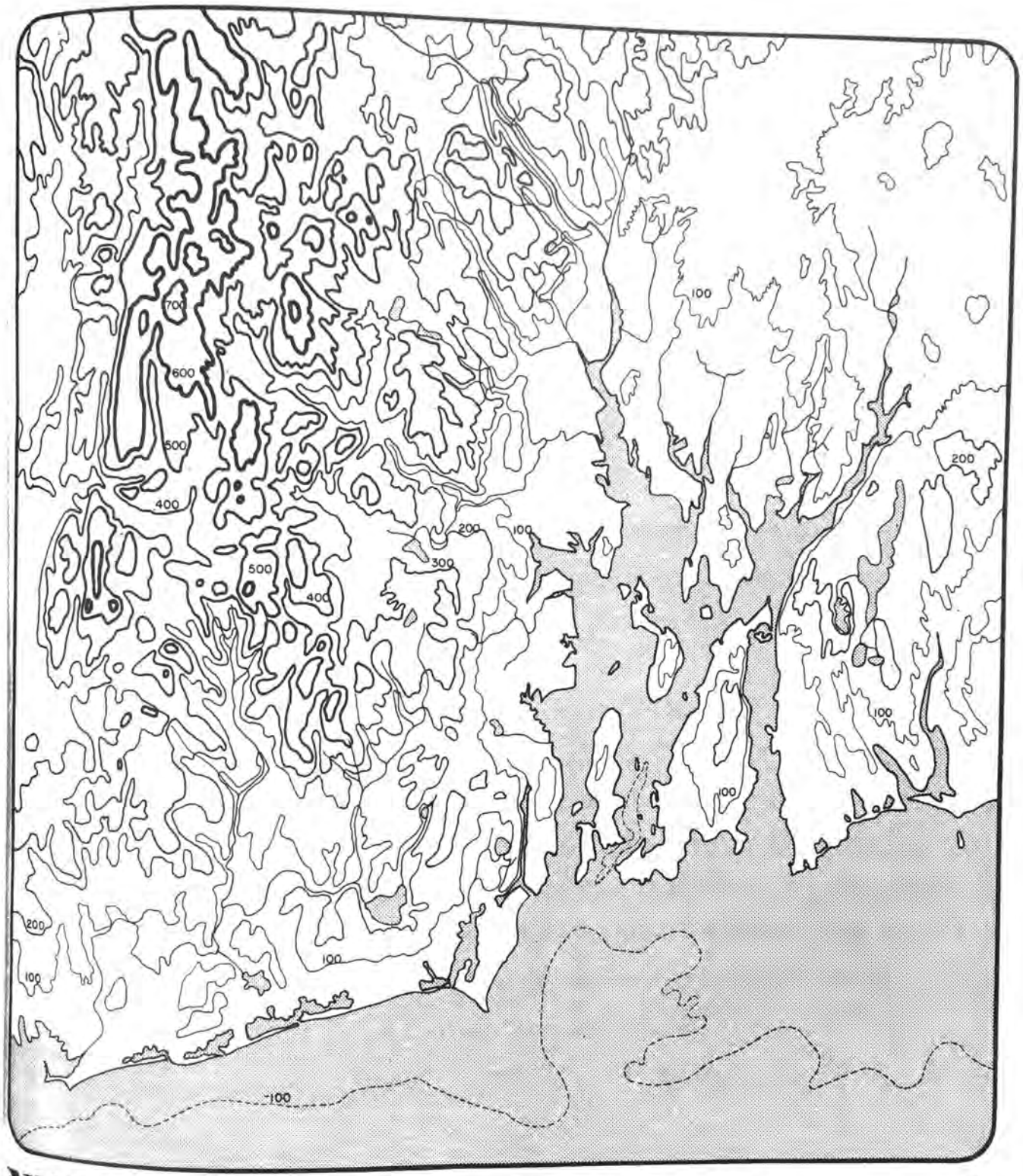
Jerimoth Hill (799 ft.) Foster
Chopmist Hill (625 ft.) Scituate
Bowen Hill (605 ft.) Coventry
Raccoon Hill (602 ft.) West Greenwich
Woonsocket Hill (588 ft.) Woonsocket
Wyunkeog Hill (557 ft.) Smithfield
Beacon Pole Hill (556 ft.) Cumberland
Pine Hill (543 ft.) Exeter
Escoheag Hill (541 ft.) West Greenwich
Break Heart Hill (299 ft.) Providence
Beacon Hill (200 ft.) Providence
Mount Hope (199 ft.) Bristol

In total more than 80 hills in the state range from 200-800 ft., although those south of River Point seldomly exceed 300 ft. These hills and their water run-off or drainage feed the tributaries and effect the flowing rivers responsible for water power and early industrialization.[5]

The many hills sloping to the bay have effected the building of rich soils in that area. In the lower lands between higher elevations are found rich soils which oriented the early colonists to this land and influenced settlement patterns. The fertile land is found in the river valleys, the islands, and the lands surrounding the bay. This contrasts with the northern and western portions of the state which are rocky but well suited to vital timberlands. The early settlements and land use followed the suitability of the land.

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[5]Thomas Williams Bicknell, The History of the State of Rhode Island and Providence Plantations (New York: The American Historical Society, Inc., 1920) v. 1, pp. 1-5.



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TOPOGRAPHY

SOURCE: County Map: Topographical Atlas of the State of R.I. and Providence Plantations. U.S. Geological Survey, 1891. George H. Walker & Co., Boston, Mass.

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The glacial movement which formed the deep ravines, river valleys, alluvial valley deposits and great depths of water in the bay around the Dumplings on Coanicut Island, also stripped bedrock areas forming rocky cliffs and irregular, picturesquely beautiful rock formations. With the rise of the sea, much of what is now the Rhode Island Sound was probably land and it has been proven that Block Island, twelve miles off Pt. Judith Light was once part of the mainland.[6]

The geology of the Narragansett Region has much to do with a future land suitability inventory and very basic land use. In the Narragansett Bay area, the alluvial soils do not have the abundant alkalies found in the northwestern portions of the state traditionally used as timberlands and orchard lands. Around the bay, the soil exists on top of shale and sandstone and prospers well when fertilized.[7]

The climate is superior to the rest of the state and all of New England. Temperatures are relatively mild due to the Gulf Stream and the elimination of arctic currents by the protecting arm of Cape Cod.

The western and northwestern sections of the state are frequently called upland because of the higher elevations. This area comprises over 60% of the land in Rhode Island. The remaining land in the state belongs to the Narragansett Basin. The upland area has irregular features formed by the carving action of the glacier and is the forested area of the state. Ex-

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[6] Ibid. pp. 5-9.

[7] Ibid. p. 26.

posed ledge, ponds, and creeks abound. The elevations generally range from 400 to 800 ft. above sea level. Five varieties of soil are found in this area:

Gloucester Stony Loam
Alton Stony Loam
Warwick Sandy Loam
Miami Stony Loam
Norfolk Coarse Sand

The first of these exists over the majority of the land. The original soils of this area were moved to the basin by the glacier and the soils listed are for the most part comprised of particles from deteriorating rock surfaces and gravel-like in consistency.[8]

The irregularity of the upland district and protruding rock formations make it rather unsuitable for general agricultural purposes but it is well suited for orchards and timberlands. Cultivation of the soil may only occur on the limited amount of depressed land where soils have deposited. Large scale intensive farming is thus impeded.

The upland area is approximately 500 square miles and in the 1920's was estimated to be capable of producing more than 100 million board feet of pine per year. The finiteness of the timberlands was not understood and exploitation, quick profit and ruination has frequently occurred because seed trees were not left to naturally replant the forest. Less desirable and less marketable growth resulted.

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[8] Ibid. pp. 38-51.

The soils in the upland forests also receive their nourishment from the decaying process of the growth they sustain. This typically forms a layer on the forest floor. If this apparently fertile land were cleared for agriculture or other purposes, it may not long sustain any vegetation.[9] "Without this humus, some of the soils are merely dry barren sands."[10] Purchase of forested land has traditionally been cheaper than the cost of replanting abused forest land, so there has been little concern for woodland maintenance and selective cutting of timber to insure a future supply and prevent exploitive patterns.

The remaining land in R.I. belongs to the Narragansett Basin. The soil in the basin is termed "Miami Stony Loam" because of its composition of coal, shale, and sandstone along with the alluvial soil brought by the glacier.[11] If a land suitability inventory were executed, this region would be considered agricultural. Historically this area has remained the active agricultural area of the state.

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[9] Ibid. pp. 53-54.

[10] Ibid. p. 54.

[11] Ibid. pp. 38-51.

III. HISTORIC USE OF THE LAND

In the colonial days, Rhode Island was described as an agricultural colony and not merchant. The land was thought more suitable for grazing than growing grain and large dairy farms prospered. "Rhode Island Cheese" was considered the best in New England and shipped abroad. What was called the "Narragansett Country" was comprised of very large farms and in a similar manner to the southern plantation, these were worked by slave labor. The smaller and poorer farms were located in the "upland" country. The Narragansett Planters were considered aristocratic and not an agricultural working class. The "Narragansett Pacers" derived from a Spanish breed of horses were actively bred in the North Kingstown area and exported.[12]

The fertile lands along the bay were reinforced by fishing industries and water transport. The bay region in the early colonizing period encouraged agriculture, fishing, and water transport. This allowed agriculture and commerce to be conducted simultaneously and compatibly.

In the 17th century the entire economy of the colony was agricultural. During the 18th century, agriculture was still profitable although other industries were developing. Agriculture was still the economic base of the region through the early nineteenth century, supporting 90% of the population.

Outside of the lands of the Narragansett Planters, farming was a less than informed method of caring for the soil. Con-

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[12] Ibid. pp. 38,39.

temporary methods of England were only practiced in the Bay Region and not in the northern or western portions of the colony. In the non-progressive areas outside the Bay Region, various forms of fertilizer were not used. Crop rotation was infrequent if any, and the northern part of the state was subject to neglect, presenting a contradistinction to the more prosperous bay area plantation owners.

In the Bay Region, quality cattle breeding was emphasized and sheep provided much needed raw wool for the now developing woolen mills. Hogs were also an important product. Animal husbandry was of particularly high quality and focused upon improving livestock breeds.

Throughout the state, the crops were: corn, grass, barley, oats, buckwheat, and potatoes. Agriculture flourished much more in the coastal region attributed largely to the more progressive attitude of the people, land better suited for agriculture, communications, and exchange of ideas provided by bay transportation. The inland farmers were subject to backward ideas and methods. Superstitions were carried into the next generation and the farms were seldomly more than subsistence farms.[13]

Many factors have influenced the Bay Region's development from an agrarian to a merchant to an industrial economy.

The West Indies provided much of the early market for R.I.'s excess production of agricultural goods. This particular market needed animal products, influencing the development of the region's dairy, beef, sheep, hogs, and poultry. Livestock prospered to the

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[13] Ibid. pp. 38-51.

point that grain was imported from Connecticut and Massachusetts and when the Erie Canal was constructed, grain was imported from the mid-western states. Similarly when the railroad was established, grain was purchased from the more western states.[14]

With the development of the steamboat and the steam locomotive, Providence developed. Shortly thereafter the manufacturing industries took an enormous leap forward and many inland towns developed. At the same time the influx of immigrants fed the increasing demand for factory labor. After 1820, agriculture became a business providing agricultural and forest products for the increasing industrial segment of the population. This continued through the Civil War.

From 1802-1855, the coastal farmers organized as the "Society for the Promotion of Agriculture and the Useful Arts" encouraged better farm practices. However, this had little control or influence on the upland farmers. After 1855 these duties came under state authority and became the "State Board of Agriculture."

In 1869 the Union Pacific Railroad started the westward movement of the cattle and wheat industries.[15] As the west established their own cattle and hog farms, utilizing the enormous amounts of corn fodder which they were able to produce, and with the development of refrigeration, the Bay Region's significance as a livestock producer diminished. Western horses also brought stiff competition to the Narragansett horse trade. The remaining market

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[14]Charles Carroll, Rhode Island: Three Centuries of Democracy (New York: Lewis Historical Publishing Company, Inc., 1932) v. 1, pp. 885-889.

[15]Bicknell, History, pp. 38-51.

demand was for truck gardening, poultry products, and dairy products. For the next 50 years, tilled farms went fallow and reverted to woodland. Much of the remaining non-urban population was absorbed by the larger mill towns. The smaller manufacturing settlements which depended partly upon agriculture also suffered.

In the 1920's a renaissance of the New England agricultural industry was foreseen due to the large efforts of the U. S. Department of Agriculture and the efforts of educational institutions in improving agricultural practices.[16] Many of the problems found today also existed at that time. The findings of the Commission on Country Life stated,

> "The Commission on Country Life, in discussing special deficiencies, refers to intemperance; to the inequalities of taxation of farm property; the scarcity of farm labor; speculative land holdings; the fringe of cities as low-grade communities..."[17]

As early as the 18th century in Rhode Island, legal restrictions protected fishing areas. In the early part of the next century plans were made to protect select varieties of fish in the Blackstone River. Migratory fish such as salmon, shad, and herring; all profitable fishing crops; need unobstructed access to inland spawning areas.

Whaling was a profitable industry in the Narragansett Region for about 130 years. Centered principally around the 18th century towns of Newport, Bristol, Warren, and Providence, it equaled that industry in the acclaimed whaling towns of New

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[16] Ibid.

Carroll, Three Centuries, v. 1, pp. 885-889.

[17] Bicknell, History, p. 50.

Bedford and New London.

During the rise of manufacturing in the state, little care was given to the delicate natural requirements of fish and the damming of rivers and streams did much to ruin the migratory fishes. For over two hundred years, fish were so abundant in the region, they were considered an unfaltering basic datum like sunlight or rain.

Before 1800 permanent oyster beds were chartered for fishing in the bay. By 1822, unlike other fisheries, legal restrictions and harvest regulations protected oyster beds. Cultivation of oysters was practiced not only throughout the bay but also the Providence River to Fox Point and the Seekonk River.

In 1879 a land suitability inventory was undertaken for all esturine environments capable of sustaining an oyster crop within the region. Soft shell clams, little necks, quahaugs, and scallops are also indigineous to the Bay. Lobster and crab have been for many years one of the more lucrative harvests of bay waters. The fishing industry historically has played an important part in the region's economy.

In 1904 the development of the Providence River port facilities and the large amounts of petroleum brought to the port for storage and distribution began the demise of shellfish in the northern bay and of course, the rivers. In 1930 pollution of the oyster beds and general shellfish industry, in the northern segments of the bay, restricted leased oyster beds to those waters south of Nyatt Pt. and Conimicut Pt.[18]

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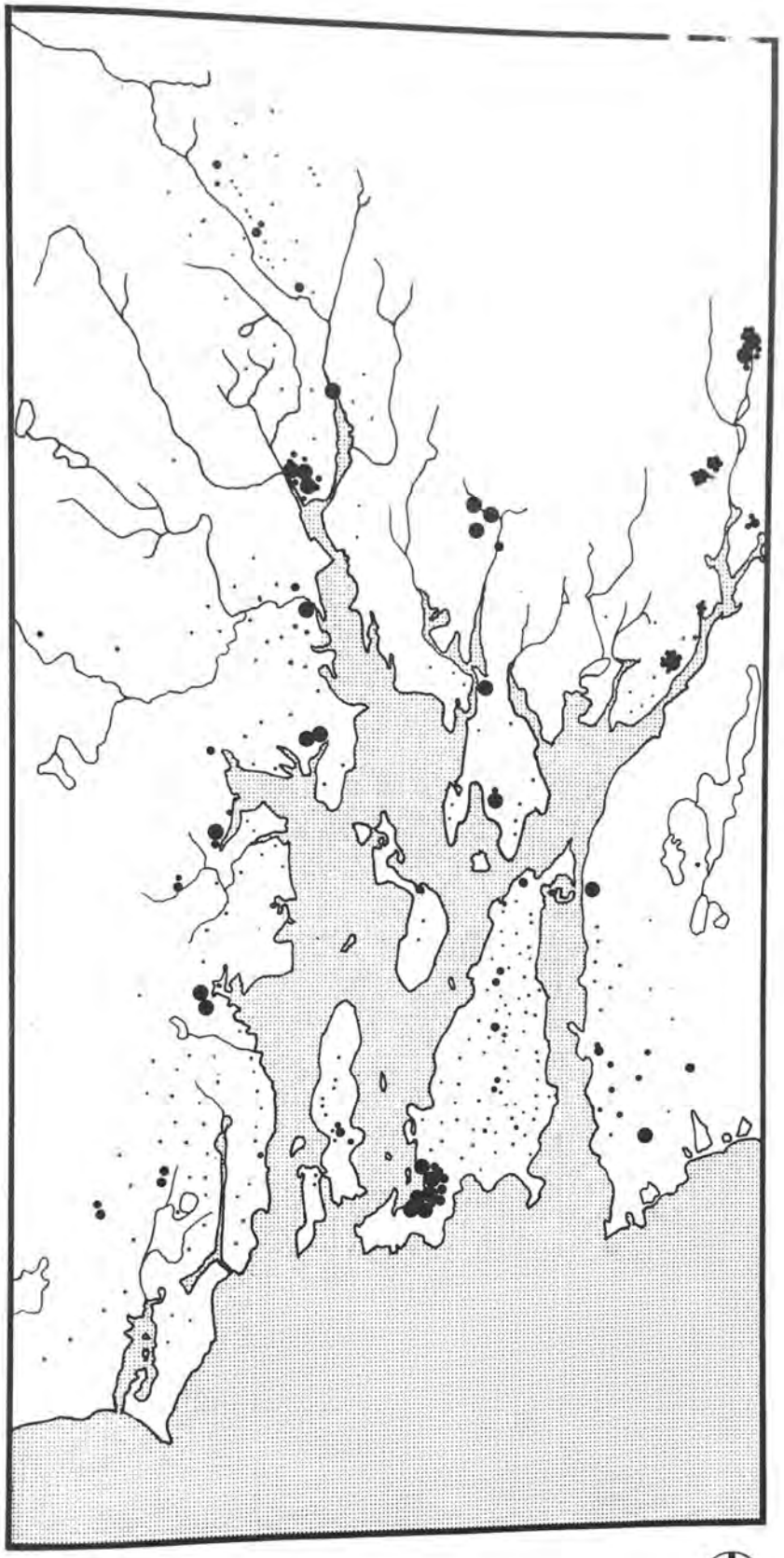
[18]Carroll, Three Centuries, pp. 899-906.

Population Distribution. The two major commercial ports in the Bay Region during the 18th century were Newport and Providence. Newport with an excellent harbor and adjacent fertile lands, prospered. Providence became the crossroads of communications between Boston and New York, and soon rivaled Newport. At the same time, other towns developed around the natural harbors of Narragansett Bay and formed a polynuclear arrangement of bay oriented towns. This pattern of urbanization continued until the establishment of the factory system which generated small mill towns along rivers and streams inland from the early settlements. Providence soon became the industrial center of the region, and Newport diminished in significance.

Historic Fortifications of Narragansett Bay. In early colonial days, the strategic importance of Narragansett Bay had been recognized. Due to the weak colonial navy, many revolutionary fortifications were constructed in the region in order to protect the bay, adjacent lands, and virtually the colony itself. The lack of colonial naval defenses was advantageous to the British, who with a strong navy, utilized the bay. A list of fortifications around Narragansett Bay in 1777 follows:

Upper Bay Fortifications.

Providence Fort	Providence
Fox Pt.	Providence
Sassafras Pt.	Providence
Field's Pt.	Providence
Kettle Pt.	East Providence
Bullock's Pt.	East Providence
Poppasquash Battery	Bristol
Bristol Fort	Bristol
Batteries at either end of Bristol Ferry	Bristol, Portsmouth
Warwick Pt.	Warwick

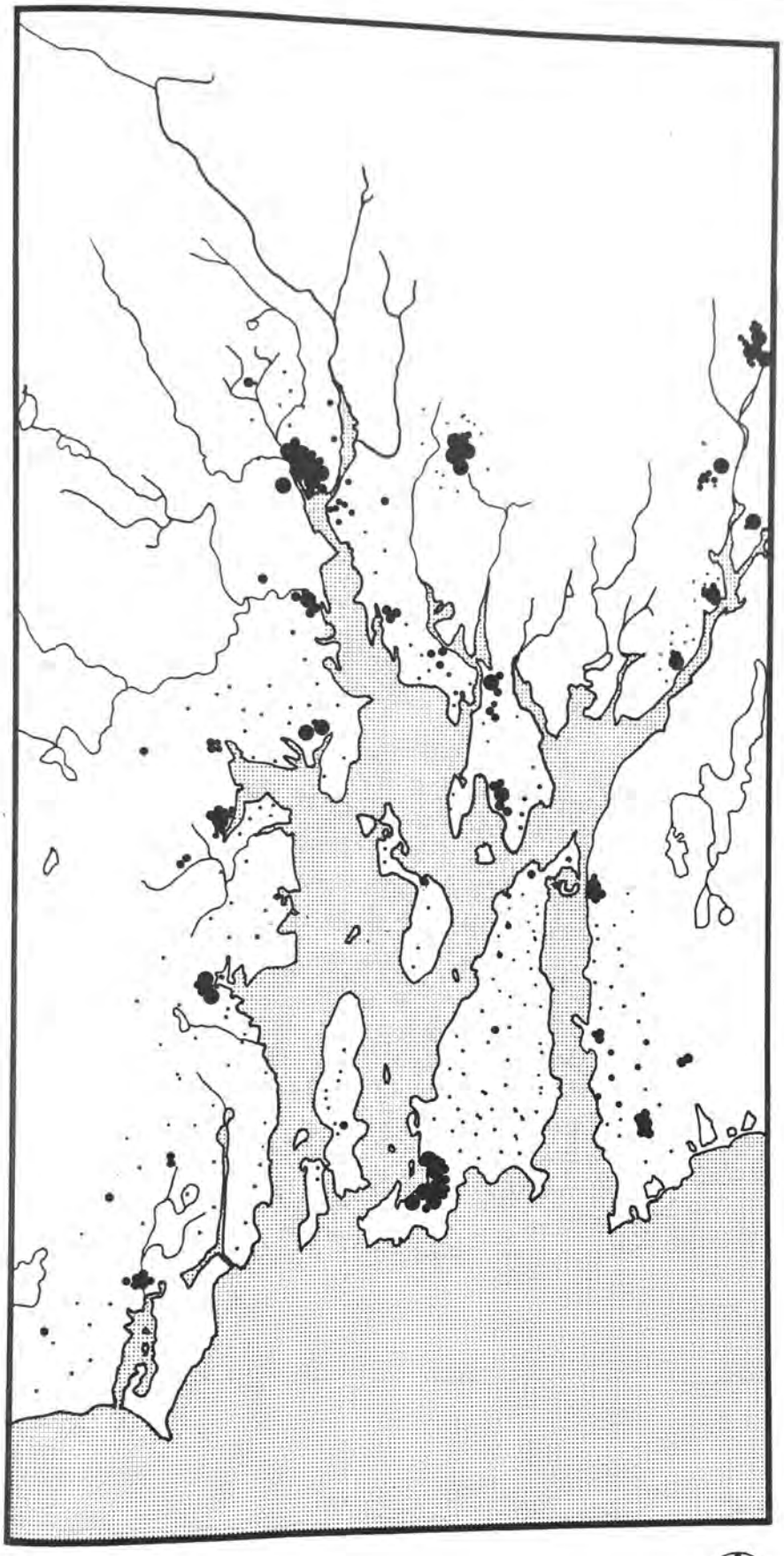


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POPULATION DISTRIBUTION 1765

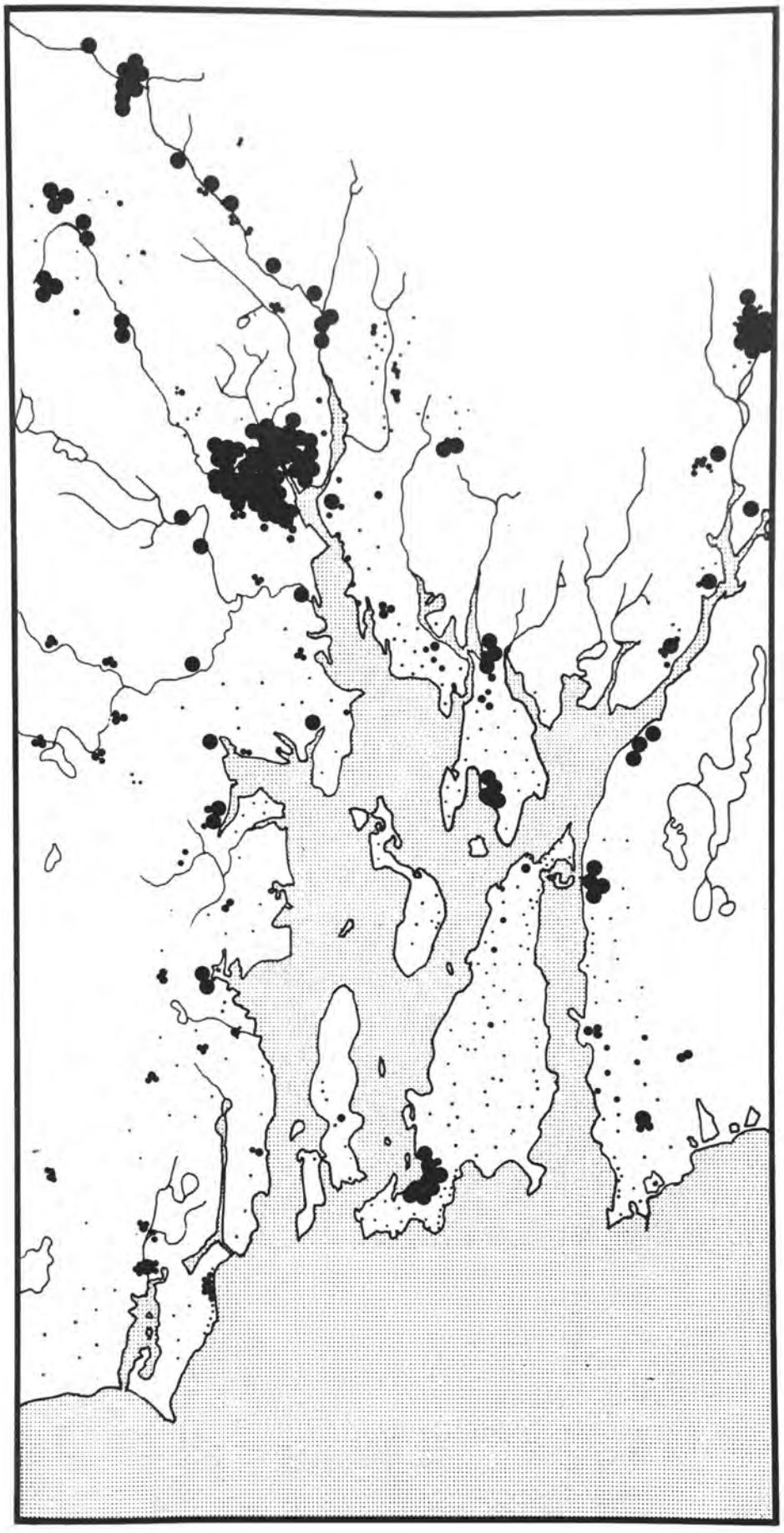
NOTE: For all Population Distributions see NBR Population Statistics, p. 8.



NBR

POPULATION DISTRIBUTION 1800

0 1 2 5



NBR

POPULATION DISTRIBUTION 1850

0 1 2 5

Lower Bay Fortifications.

Bonnet Pt.	South Kingstown
Fort Barton	Tiverton
Barker's Hill	Sakonnet
Coanicut Island Batteries (2)	Coanicut Island
Dumpling's Rock Battery	Coanicut Island
North Pt. Battery	Coanicut Island
Fort Liberty	Goat Island
Castle Hill	Newport
Brenton's Pt.	Newport
Howland Ferry Defenses	Little Compton
Fogland Ferry	Middletown
Lawton's Valley	Middletown
Butt's Hill	Newport

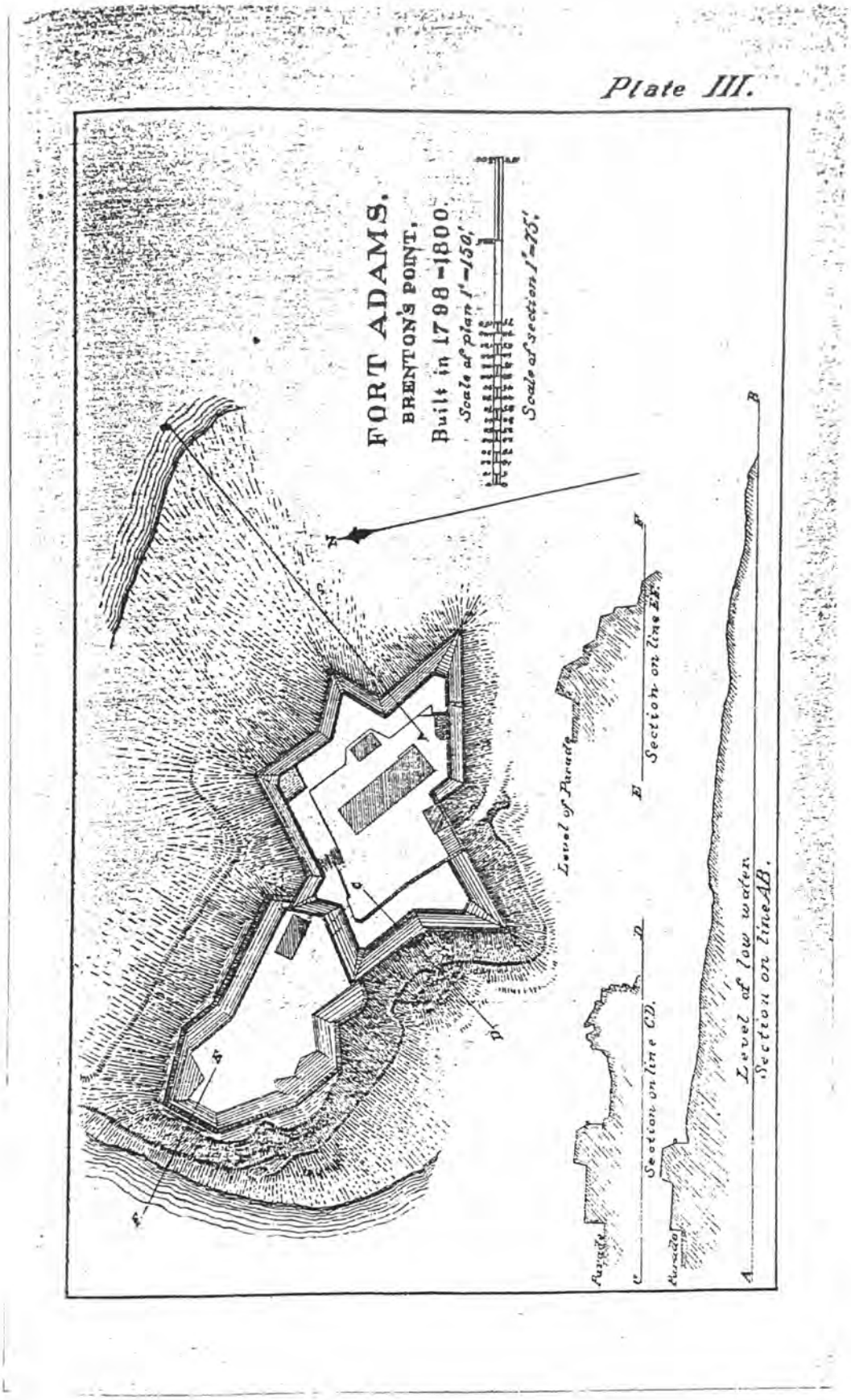
From 1798-1800 fortifications protecting access to Narragansett Bay were refurbished. The most significant of which were:

Brenton's Pt.	Fort Adams	Newport
Dumpling's Rock	Dumpling's Tower	Coanicut Island
Goat Island	Fort Walcott	Newport Harbor
Brenton's Cove	Fort Chastellux	Newport
North Pt.	Fort Greene	Coanicut Island
Rose Island	Fort Hamilton	Rose Island

During the last World War, bunkers and embattlements were constructed as inconspicuously as possible around the mouth of the bay. Newport Navy Base and Quonset Pt. are the two major navy bases in the Bay Region but they have no fortifications.[19]

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[19]George W. Cullum, Fortification Defenses of Narragansett Bay (Washington: 1964) pp. 1-32.



SOURCE: Reproduced from Cullum, Fortification Defenses.

IV. DEVELOPMENT OF TRANSPORTATION AND COMMUNICATIONS

Rhode Island has been called "Venetian"[20] because of the dominance of water bodies on the physical, social, and economic patterns of the region. The organization of islands in a large inland body of water is easily analagous to the islands of Venice in the lagoon, but the tributaries of Narragansett Bay form rivers and canals penetrating far inland from the sea. Narragansett Bay exists as the deepest coastal indenture in all of New England.

In the early 18th century, communication between centers was easily available by navigation but extremely difficult by land because of the irregular coastal formation and frequent conflict with water obstructions. Ferries were active as early as 1640; and in 1740 the towns of Jamestown, Middletown, Newport, and Portsmouth; isolated by surrounding water, were linked to the mainland by established ferry service. Communications were impeded in the 18th and 19th centuries by the many necessary crossings of the component water bodies comprising Narragansett Bay. These varied in scale from great distances to river widths. The smaller the distance to cross, the easier and earlier bridges were constructed. This eliminated a barrier for growth and simultaneously eliminated the frequently built up edge condition contained by such a barrier. The two sides of the cove in the city of Providence were linked late in the 18th century by a bridge which facilitated bilateral development of both shores.

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[20]Carroll, Three Centuries, v. 2, p. 821.

Ferries. North of Providence, ferries existed prior to bridges on all rivers. Seven separate ferry crossings linking the East-West sides of Narragansett Bay existed in the few miles from Providence to Pawtuxet further south on the bay. North-South ferries connected Barrington with Warren, Warren with Bristol, and Bristol with Aquidneck Island. Several other ferries crossed the Sakonnet River.

On the lower bay, Newport and Aquidneck Island were linked to the mainland on the west by one ferry to Coanicut Island, then crossing the island by a direct road to another ferry landing and an additional ferry crossing to the west side of Narragansett Bay. To cross from the mainland on the west side of Narragansett Bay, or the Narragansett Country, to the mainland on the east side of the bay in Little Compton, three major ferry crossings were necessary with intermediate roads crossing the islands and connecting ferry landings.

Other ferries have also existed between the resorts of Oakland Beach and Buttonwoods. As many as 21 regular ferry crossings existed simultaneously on the bay. In Rhode Island, ferries were the first public utility subject to prescribed restrictions and codes.[21]

Water transport provided the greatest amount of flexibility among places. Direct water crossings among the settlements formed a type of matrix relationship with a great many combinations, contrasting the limited linear path of a road system restricted by water barriers. The water transportation system

[21] Ibid. p. 822.

worked well within the Bay Region and to a certain extent down the Atlantic seaboard. This, however, was not true of the Newport/Boston route by water due to the lengthy journey around Cape Cod, until the Cape Cod Canal was constructed. Due to the physical obstruction of the Cape, the established route for passengers and mail between New York and Boston was from New York to Newport and later Providence by boat and then stage-coach from there to Boston.

Packets. Prior to the development of the steam engine and the utilization of that device for propelling water craft, a vessel called a "packet" was widely used for transport on the Bay and between the Bay and Long Island Sound. They were also used for trade from Narragansett Bay to all East Coast cities, the West Indies, and even London. These sloop-rigged sailboats had a shallow draft and provided further flexibility in the Bay Region for service to almost any point along the bay, river, and estuary shores. Travel on the bay among towns was extra-ordinarily direct, quick, and efficient. Commerce was encour-aged and flourished with regular freight and passenger service from Providence to Newport and on to New York. The "Huntress" packet record time for the voyage from Providence to New York was 18 hours, but a trip's time was due largely to wind and general weather condition.

The packets were much more flexible than the schooners and used in conjunction with connecting coach travel, formed the transportation network of the period. Travel by road was used to connect inland sites to a port and then transportation by

water was used. The height of the packet's use was from 1800-1830.[22]

Roads and Turnpikes. Until the early part of the 19th century, no state authority or control existed to build roads. Towns were required to maintain such roads as had been considered "public" through continued use, but were not required to construct new roads. The colony of Rhode Island legislated the alignment of public roads which usually only documented the primitive ones established by the Indians.[23]

Indian trails were adapted by the early colonials and formed the early turnpike system. The Indian trails were based on topography, geology, land use, and relation to water bodies. They in effect followed what can be considered "environmental corridors." The trails on flat well drained ground avoided traversing open agricultural lands, which would seem the path of least resistance but conflicts with crops were avoided.

The Pequot Trail linked Connecticut, New York and Rhode Island, Massachusetts, New Hampshire, and Maine. Less major routes attached the Indian villages to this main route allowing an Indian runner/messenger to cover 100 miles/day. These routes were used for communications outside of the Narragansett Bay Region.[24] Within the region, communications were by water.

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[22]Ibid. p. 825.

Edward Field, ed., State of Rhode Island and Providence Plantations at the End of the Century: A History (Boston and Syracuse: The Mason Publishing Company, 1902) v. 2, p. 506.

[23]Carroll, Three Centuries, v. 2, p. 824.

[24]Bicknell, History, v. 2, pp. 765, 766.


the STATE of
RHODE ISLAND,
from the
LATEST SURVEYS.
1796
PART of MASSACHUSETTS
PART of CONNECTICUT
PROVIDENCE
GLOUCESTER
SMITHFIELD
NORTH PROVIDENCE
JOHNSTON
SCITUATE
FOSTER
CRANSTON
COVENTRY
WARWICK
KENT COUNTY
WEST GREENWICH
EAST GREENWICH
EXETER
NORTH KINGSTOWN
WASHINGTON
RICHMOND
SOUTH KINGSTOWN
HOPKINTON
CHARLESTOWN
WESTERLY
NEWPORT
PORTSMOUTH
MIDDLETOWN
RHODE ISLAND
CONANICUT ISLAND
TIVERTON
LITTLE COMPTON
PART of MASSACHUSETTS
ATLANTIC OCEAN
SCALE of MILES
REFERENCES.
County Lines
Town Lines
Roads
NB the Towns of New-Port Portsmouth Middletown Tiverton Little Compton Jamestown & New-Shoreham make the County of New Port
and the Towns of Bristol Barrington & Warren the County of Bristol.

The mail or postal riders were employed for written communications among the colonies. In 1692, England had administered the establishment of a postal system within the American colonies, with designated routes and delivery stations. A route between Boston and Newport had been in use for some time, initiated by the war with Canada. The Pequot Trail through Rhode Island is believed to be part of the earliest post route between New York and Boston. The trail had been used as a road and the postal route about 1738. In 1764, this former trail was titled the "King's Highway."[25] Along the highway were located inns which functioned also as the first post offices and were very much the local center of activity. Westerly, South Kingstown, Tower Hill, Newport, Bristol, Warren, and Providence had a competent working postal delivery system by 1775.

In 1713 a new highway between Providence and Plainfield, Connecticut passing through Warwick and West Greenwich was authorized. The chartered turnpike system was employed to improve roads and communications by land.

In 1767 the first scheduled stage coach service between Boston and Providence was underway. Providence was the junction for the change from coach to boat for the sail to Newport and New York. The stage route later completed the entire journey from Boston to Newport without passing through Providence. A ferry crossing was required at Bristol Narrows and in 1750 the 60 mile journey by carriage from Boston to Newport was usually about 40 hours.[26]

25Ibid. p. 768.

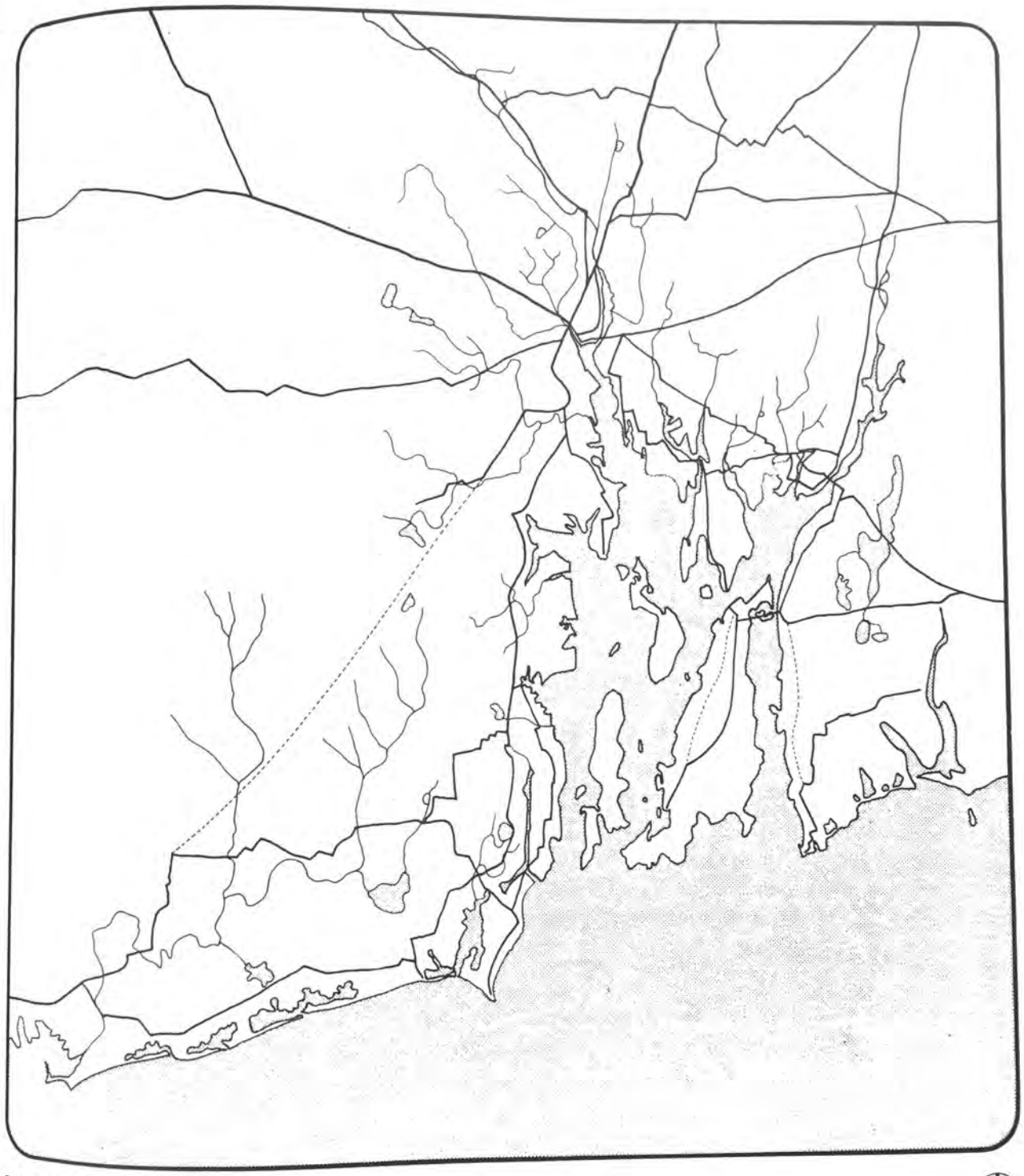
26Carroll, Three Centuries, v. 2, pp. 540-546.

Settlements which related to industrial development in the region occurred on rivers penetrating inland away from the coast. Water transportation to these locations was frequently difficult and sometimes impossible. In order to service these industries and the mill towns they generated, roads were constructed. The toll roads were introduced around 1800 and acted as the major organized means of ground transportation until the advent of the railroad lines.

The toll roads were operated by "Charter" and the companies running the toll road system were responsible for both new road construction and maintenance of incorporated existing town roads. Variable rates applied for travelers in accordance with the nature of their business. This was devised to place the financial burden of operating the toll roads upon the traveler passing through and not upon the local residents. Even though the local residents greatly benefited, they were practically exempt from financial responsibilities.

The operation of stagecoaches on land in conjunction with packets on the sea, formed tbe bulk of the available public transportation in the 18th and early 19th centuries. Later, the highway companies still prospered after the railroads were established. The stagecoaches worked in conjunction with the rail transit - the former for short distances, feeding the latter for longer distances.

Further extensive development of the railroads, however, made this a more one sided arrangement, and eventually the highway companies could not profit within the regulations of their charter. Many company roads were relinquished and in 1864 by

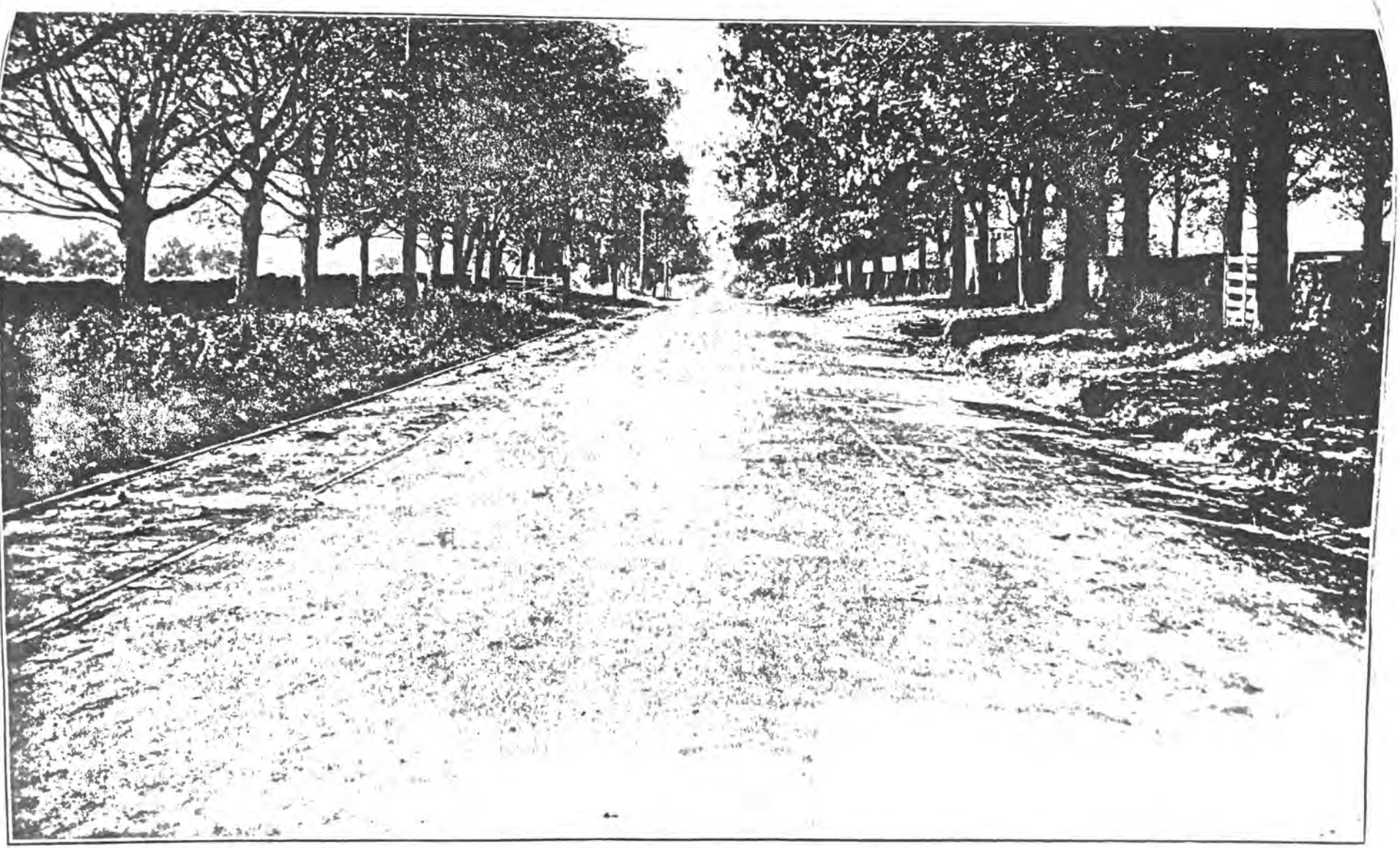


NBR

PRIMARY ROADS 1900
IMPROVED
UNIMPROVED

SOURCE: Map of Rhode Island
George H. Walker & Co.
Boston: 1898.

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Section of 1904 State Highway in Middletown,
(After improvement). 1905

legislative action, Rhode Island towns were required to purchase the poorly maintained toll roads which were in violation of their charter. By 1875 the toll roads system was ended. In 1872 the state authorized procurement of the Rhode Island-Connecticut Turnpike and transferred the remaining toll roads to the respective towns.

During the 19th century; mail, passenger, and freight service was captured by the steamers and land routes were unused between New York and Providence. Either by sea or by land, Providence was the junction between New York and Boston.[27]

In 1895, an inventory of state highways and roads in Rhode Island revealed that of the 2,420 miles of state owned roads, only 248 miles were paved and 312 miles were gravel. The remaining stretches of road were only packed earth. The first paved street in the colony was in Newport from the docks or point of arrival to the Colony House, later to be Rhode Island's state capital building.

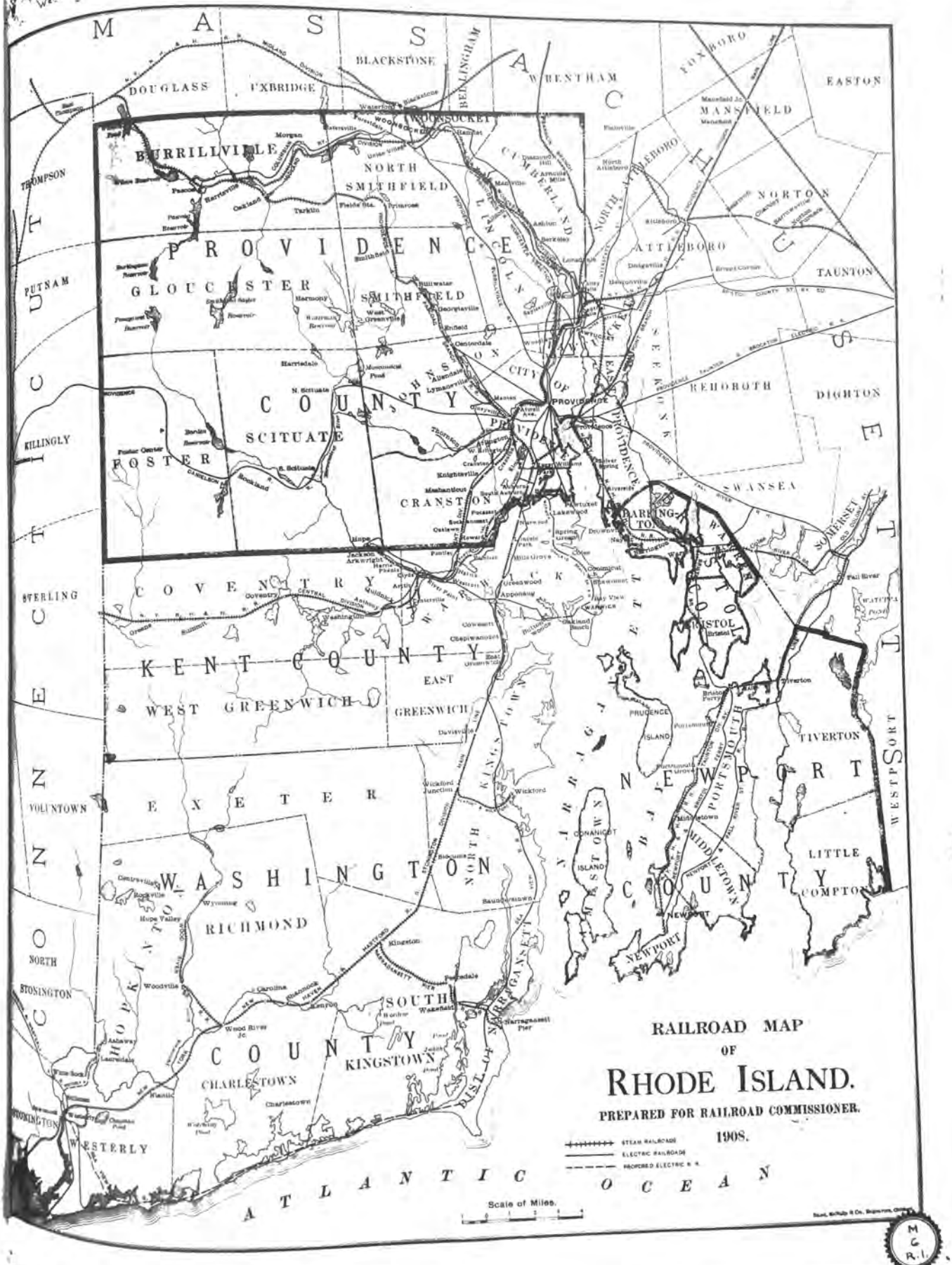
In 1903, the General Assembly accepted 15 main linking roads in the state as the official state highway system. Together these roads traversed 249 miles.[28]

Railroads. In 1830, the Providence Journal advocated construction of a railroad from Providence to Boston because of the significant number of trips of both passenger and freight between the two cities. However, much of this travel used Providence only as a point of embarkation for water transportation to New York City. In 1835 rail lines between Boston and Providence had been established.

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[27]Field, R.I. and Prov. Plantations, v. 2, pp. 540-546.

[28]Bicknell, History, v. 2, pp. 768-778.


MASSACHUSETTS
CONNECTICUT
BLACKSTONE
DOUGLASS
UXBRIDGE
WRENTHAM
FOXBORO
EASTON
MANSFIELD
WOONSOCKET
BELLINGHAM
BURRILLVILLE
NORTH SMITHFIELD
CUMBERLAND
NORTH ATTLEBORO
NORTON
THOMPSON
PUTNAM
PROVIDENCE
GLOUCESTER
SMITHFIELD
LINCOLN
ATTLEBORO
TAUNTON
COUNTY
CITY OF PROVIDENCE
REHOBOTH
DIGHTON
KILLINGLY
FOSTER
SCITUATE
CRANSTON
BARRINGTON
WARREN
BRISTOL
SWANSEA
SOMERSET
COVENTRY
KENT COUNTY
WEST GREENWICH
EAST GREENWICH
STERLING
FALL RIVER
TIVERTON
PRUDENCE ISLAND
NEWPORT
WESTPORT
VOLUNTOWN
EXETER
NORTH KINGSTOWN
WASHINGTON
RICHMOND
CONANICUT ISLAND
MIDDLETOWN
PORTSMOUTH
LITTLE COMPTON
NORTH STONINGTON
HOPKINTON
SOUTH KINGSTOWN
NARRAGANSETT
CHARLESTOWN
WESTERLY
ATLANTIC OCEAN
RAILROAD MAP
OF
RHODE ISLAND.
PREPARED FOR RAILROAD COMMISSIONER.
1908.
STEAM RAILROADS
ELECTRIC RAILROADS
PROPOSED ELECTRIC R. R.
Scale of Miles.

The second railroad to be constructed in the state was the Stonington Railroad which ran from Providence to Stonington, Connecticut, just over the state line on the Atlantic seaboard. The Providence-Worcester line was the other major line of the railroad infrastructure and connected Providence with Worcester and beyond to the growing cities west of New England.[29]

Within the city of Providence, there were fifteen rail car routes drawn by horses. The Union Railway Company was responsible for establishing and maintaining an efficient rail system with 280 cars and 54 miles of track. Approximately 260 miles of railroad tracks were operating in 1890 in Rhode Island and six major railroad lines connected Providence and the region with all major cities in the country. Additional lines formed a transportation web servicing practically every village in the state.[30]

Resort Railroads. For a period of fifty years from 1875-1925, railroads operating specifically during the summer season provided public transportation to all mainland resorts along the bay. Ferry landings, steamer landings, and railroad junctions were integrated furnishing public transportation to all resorts on the mainland and the bay islands.

The electric railroad from Providence served the resort establishments along the East Providence shore as far as Bullock's Pt. while on the west side of the bay, the "Warwick

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[29]Carroll, Three Centuries, v. 2, pp. 827-830.

[30]Robert Grieve, Narragansett and Mount Hope Bays, Picturesque Narragansett: An Illustrated Guide to the Cities, Towns and Famous Resorts of Rhode Island (Providence: J.A. & R.A. Reid, Printers and Publishers, 1888) pp. 20-22.

N. Y., PROVIDENCE & BOSTON RAILROAD CO.

WARWICK RAILROAD BRANCH.

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THE SUMMER GARDEN OF NARRAGANSETT BAY,

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BY HIRAM D. MAXFIELD & SON.

Excursion Tickets, 40 Cents.

TWENTY HOURLY TRIPS DAILY.

The best place for Sabbath Schools, the Military, Masonic, Odd Fellows, Good Templars, and other Societies.

J. B. GARDINER,
Supt. Warwick and Oakland Beach R. R.

TIME TABLE
OF THE

Warwick and Oakland Beach Railroad.

SUMMER, 1882.

FROM PROVIDENCE TO BUTTONWOODS.

LEAVE.	A. M.	A. M.	A. M.	P. M. XPRS.	P. M.	P. M.	P. M.	P. M.
Providence	6.15	7.40	10.00	12.10	1.25	3.00	4.00	6.05
Auburn	6.25	7.50	10.10	12.20	1.40	3.15	4.10	6.15
Pawtuxet	6.33	7.55	10.15		1.44	3.18	4.18	6.23
Spring Green	6.36	7.57	10.19		1.47	3.22	4.22	.....
Cole's	6.38	7.58	10.21		1.49	3.24	4.24	.....
Conimicut	6.40	7.59	10.23		1.51	3.26	4.26	6.31
Bay-Side	6.46	8.03	10.29		1.56	3.31	4.31	.....
Rocky Point	6.49	8.05	10.32		2.00	3.34	4.34	.....
Warwick	6.51	8.06	10.35		2.05	3.35	4.35	6.40
Oakland Beach	7.00	8.10	10.40	12.40	2.10	3.40	4.40	6.45
Buttonwoods.....Arrive	7.05	8.15	10.45	12.45	2.15	3.45	4.45	6.50

Train does not stop between Oakland Beach and Prov.

FROM BUTTONWOODS TO PROVIDENCE.

LEAVE.	A. M.	A. M.	P. M.	P. M. XPRS.	P. M.	P. M.	P. M.	P. M.
Buttonwoods	7.15	8.20	12.50	1.15	2.40	5.15	5.40	7.10
Oakland Beach	7.18	8.25	12.55	1.20	2.45	5.20	5.45	7.15
Warwick	7.23	8.30	1.00		2.50	5.25	5.50	7.20
Rocky Point	7.24	8.32	1.02		2.52	5.27	5.52	.....
Bay-Side	7.26	8.34	1.04		2.55	5.30	5.55	.....
Conimicut	7.31	8.39	1.09		3.00	5.35	6.00	7.30
Cole's	7.33	8.41	1.11		3.02	5.37	6.02	.....
Spring Green	7.35	8.43	1.14		3.04	5.39	6.05	.....
Pawtuxet	7.39	8.47	1.19		3.08	5.43	6.09	7.40
Auburn	7.45	8.55	1.27	1.40	3.15	5.50	6.15	7.48
Providence.....Arrive	8.00	9.10	1.40	1.50	3.25	6.00	6.40	8.00

Train does not stop between Oakland Beach and Prov.

J. B. GARDINER, Supt.

SOURCE: Reproduced from Grieve, Picturesque Narragansett.

and Oakland Beach Railroad" operated from Providence to Buttonwoods, covering the resorts along the Cranston and Warwick shore.

The Sea View Railroad was the most significant and scenic of the summer railroads. The route from Providence to Narragansett Pier bypassed the localized route of the Warwick and Oakland Beach Railroad, providing more direct service to the southern portions of the region. The Sea View Railroad was more like an excursion railroad than basic transportation although it fulfilled that function. Its scenic popularity was so great that an extension of the coastal route was planned from Narragansett Pier to Pt. Judith and then along the Atlantic Ocean to Westerly and Stonington, connecting with the rail lines along the Connecticut coast.

Other railroads in the Narragansett Bay Region were operated on a year round basis.

Steamers. In 1792 Elijah Ormsbee of Providence and David Wilkinson of Pawtucket installed a steam engine aboard the boat they titled the "Experiment." This plied along the Seekonk River between Pawtucket and Providence. Wilkinson was later visited by Daniel French who was significantly responsible for Robert Fulton's successful steamboat. The Clermont steamboat can then be directly linked to Wilkinson. It is interesting that the "Experiment" created little interest in the Bay Region and soon retired. The more important situation concerning Narragansett Bay was the role the Seekonk River played in navigation for transport and travel within the region.[31]

31Field, R.I. and Prov. Plantations, v. 2, p. 510.

SEA VIEW RAILROAD.

DIRECT TO THE OCEAN.

to Change Without Notice. In Effect July 3, 19

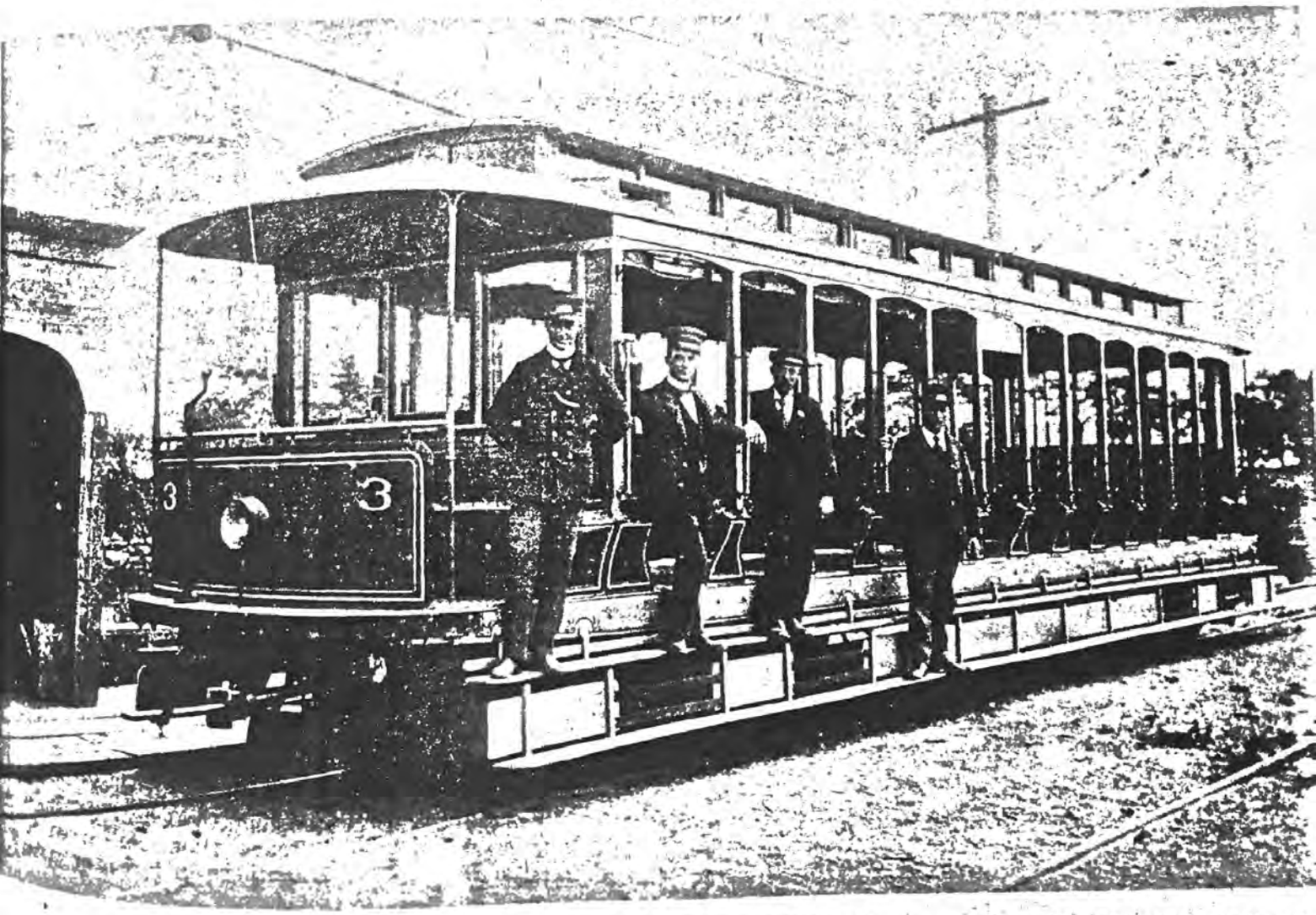
PROVIDENCE TO NARRAGANSETT PIER.

	** A M	** A M	Daily A M	Daily A M	† A M	Daily A M	† A M	Daily A M	† A M	Daily A M	† A M	Daily P M	† P M	Daily P M	† P M	Daily P M	† P M	Daily P M	† P M	Daily P M	Daily P M	Daily P M	Daily P M	Daily P M
City Hall, Lv...	....	6 15	7 15	8 15	8 45	9 15	9 45	10 15	10 45	11 15	11 45	12 15	12 45	1 15	1 45	2 15	2 45	3 15	3 45	4 15	5 15	6 15	7 15	8 15
Trinity Sq., Lv.	....	6 26	7 26	8 26	8 56	9 26	9 56	10 26	10 56	11 26	11 56	12 26	12 56	1 26	1 56	2 26	2 56	3 26	3 56	4 26	5 26	6 26	7 26	8 26
Lv.	....	7 00	8 00	9 00	9 30	10 00	10 30	11 00	11 50	12 00	12 30	1 00	1 30	2 00	2 30	3 00	3 20	4 00	4 30	5 00	6 00	7 00	8 00	9 00
Lv.	....	6 32	7 32	8 32	Saturday and Sunday only.	9 32	Saturday and Sunday only.	10 32	Saturday and Sunday only.	11 32	Saturday and Sunday only.	12 32	Saturday and Sunday only.	1 32	Saturday and Sunday only.	2 32	Saturday and Sunday only.	3 32	Saturday and Sunday only.	4 32	5 32	6 32	7 32	8 32
Lv.	....	7 00	8 00	9 00		10 00		11 00		12 00		1 00		2 00		3 00		4 00		5 00	6 00	7 00	8 00	9 00
Lv.	....	6 41	7 41	8 41		9 41		10 41		11 41		12 41		1 41		2 41		3 41		4 41	5 41	6 41	7 41	8 41
Arr.	....	7 00	8 00	9 00		10 00		11 00		12 00		1 00		2 00		3 00		4 00		5 00	6 00	7 00	8 00	9 00
Lv.	....	7 10	8 10	9 10	9 40	10 10	10 40	11 10	11 40	12 10	12 40	1 10	1 40	2 10	2 40	3 10	3 40	4 10	4 40	5 10	6 10	7 10	8 10	9 10
Arr.	....	7 30	8 30	9 30	10 00	10 30	11 00	11 30	12 00	12 30	1 00	1 30	2 00	2 30	3 00	3 30	4 00	4 30	5 00	5 30	6 30	7 30	8 30	9 30
Lv.	6 30	7 50	8 50	9 50	10 20	10 50	11 20	11 50	12 20	12 50	1 20	1 50	2 20	2 50	3 20	3 50	4 20	4 50	5 20	5 50	6 50	7 50	8 50	9 50
Lv.	6 38	7 58	8 58	9 58	10 28	10 58	11 28	11 58	12 28	12 58	1 28	1 58	2 28	2 58	3 28	3 58	4 28	4 58	.....	5 58	6 58	7 58	8 58	9 58
Lv.	7 00	8 06	9 06	10 06	10 36	11 06	11 36	12 06	12 36	1 06	1 36	2 06	2 36	3 06	3 36	4 06	4 36	5 06	.....	6 06	7 06	8 06	9 06	10 06
wn, Lv.	....	**9 18	10 18	11 18	.....	12 18	.....	1 18	.....	**2 18	.....	3 18	.....	4 18	.....	5 18	.....	6 18	.....	7 18	8 43	.....	.....	.....
lle Ferry) Arr.	7 80	8 30	9 30	10 30	11 00	11 30	12 00	12 30	1 00	1 30	2 00	2 30	3 00	3 30	4 00	4 30	5 00	5 30	.....	6 30	7 30	8 30	9 30	10 30
nt Pier, Arr.																								

NARRAGANSETT PIER TO PROVIDENCE.

	** A M	** A M	** A M	Daily A M	† A M	Daily A M	† A M	Daily A M	† A M	Daily A M	† M	Daily P M	† P M	Daily P M	† P M	Daily P M	† P M	Daily P M	† P M	Daily P M	Daily P M	Daily P M	Daily P M	Daily P M
nt Pier, Lv.	....	6 30	7 30	8 30	.....	9 30	10 00	10 30	11 00	11 30	12 00	12 30	1 00	1 30	2 00	2 30	3 00	3 30	4 00	4 30	5 30	6 30	7 30	8 30
wn, Lv.	....	6 50	7 50	8 50	.....	9 50	10 20	10 50	11 20	11 50	12 20	12 50	1 20	1 50	2 20	2 50	3 20	3 50	4 20	4 50	5 50	6 50	7 50	8 50
lle Ferry) Lv.	....	.....	.....	**8 45	.....	8 30	.....	9 30	.....	10 30	.....	11 30	.....	**12 30	.....	**1 30	.....	2 30	.....	3 30	4 30	5 30	6 30	.....
Lv.	6 55	7 55	7 58	8 58	.....	9 58	10 28	10 58	11 28	11 58	12 28	12 58	1 28	1 58	2 28	2 58	3 28	3 58	4 28	4 58	5 58	6 58	7 58	8 58
Lv.	6 03	7 03	8 03	9 03	9 33	10 03	10 33	11 03	11 33	12 03	12 33	1 03	1 33	2 03	2 33	3 03	3 33	4 05	4 35	5 05	6 05	7 05	8 05	9 05
Arr.	6 30	7 30	8 30	9 30	10 00	10 30	11 00	11 30	12 00	12 30	1 00	1 30	2 00	2 30	3 00	3 30	4 00	4 30	5 00	5 30	6 30	7 30	8 30	9 30
wich, Arr.	6 50	7 50	8 50	9 50	10 20	10 50	11 20	11 50	12 20	12 50	1 20	1 50	2 20	2 50	3 20	3 50	4 20	4 50	5 20	5 50	6 50	7 50	8 50	9 50
Lv.	7 00	8 00	9 00	10 00	Saturday and Sunday only.	11 00	Saturday and Sunday only.	12 00	Saturday and Sunday only.	1 00	Saturday and Sunday only.	2 00	Saturday and Sunday only.	3 00	Saturday and Sunday only.	4 00	Saturday and Sunday only.	5 00	Saturday and Sunday only.	6 00	7 00	8 00	9 00	10 00
Arr.	7 19	8 19	9 19	10 19		11 19		12 19		1 19		2 19		3 19		4 19		5 19		6 19	7 19	8 19	9 19	10 19
Lv.	7 00	8 00	9 00	10 00		11 00		12 00		1 00		2 00		3 00		4 00		5 00		6 00	7 00	8 00	9 00	10 00
Arr.	7 28	8 28	9 28	10 28		11 28		12 28		1 28		2 28		3 28		4 28		5 28		6 28	7 28	8 28	9 28	10 28
Lv.	7 00	8 00	9 00	10 00	10 30	11 00	11 30	12 00	12 30	1 00	1 30	2 00	2 30	3 00	3 30	4 00	4 30	5 00	5 30	6 00	7 00	8 00	9 00	10 00
t, Arr.	7 34	8 34	9 34	10 34	11 04	11 34	12 04	12 34	1 04	1 34	2 04	2 34	3 04	3 34	4 04	4 34	5 04	5 34	6 04	6 34	7 34	8 34	9 34	10 34
Trinity Sq.	7 45	8 45	9 45	10 45	11 15	11 45	12 15	12 45	1 15	1 45	2 15	2 45	3 15	3 45	4 15	4 43	5 15	5 45	6 15	6 45	7 45	8 45	9 45	10 45
City Hall, Arr.																								

The Narragansett Times, Thursday, October 17, 1974



Remember when?

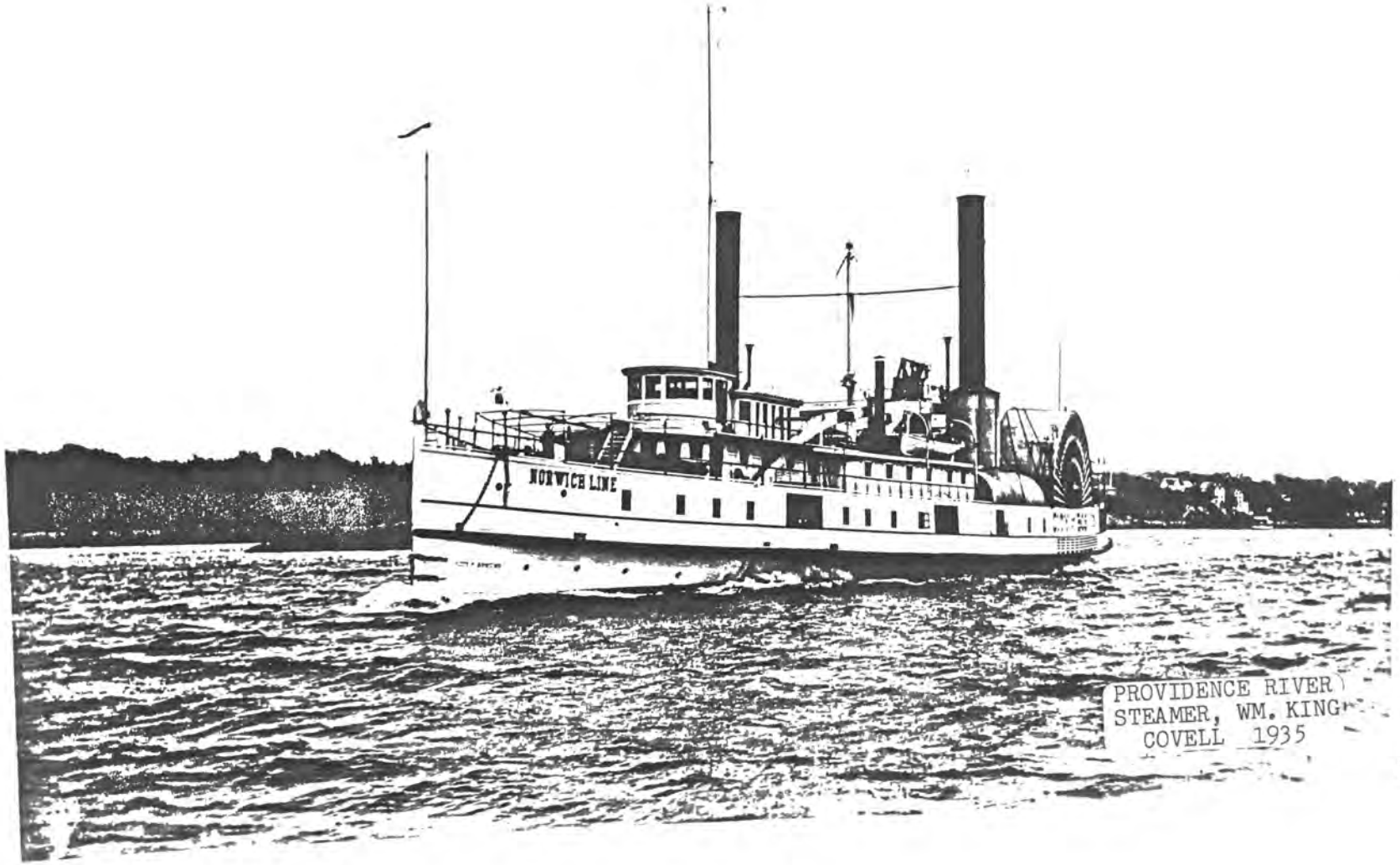
THE SEA VIEW trolly was once a familiar sight in South County until its demise in 1922. This photo stop was made in Saunderstown.

SOURCE: Schedule Courtesy of Rhode Island Statewide Planning.

After Wilkinson's and Ormsbee's steamboat of 1792, it was not until 1817 that another steamboat would be seen on the bay waters. The "Firefly" entered competition with the packets but was retired after four months due to keen packet competition and the fact that the steamer was actually slower. The packets dominated the bay, but steamers began to make regular runs out of the bay to New York City. Bitter battles ensued between the owners of packets and newly established steamboats. The state legislature also enacted taxes against steamboat passenger service, but the U.S. Supreme Court nullified the tax.

By 1829 the steamers averaged 17 m.p.h. The Providence and Fall River Lines emerged as the main steamboat lines on the bay; and between Narragansett Bay and New York, the New England Steamship Company dominated. The boats on the bay carried excursion passengers and had staterooms, dining rooms, salons, viewing decks, and frequently orchestras. In addition freight was also carried. The food was always noteworthy.

The competition between steamers and railroads became keen. In fact, frequently the railroads would gain controlling interests in steamers only to have them relocated out of the Narragansett Bay Region. At the turn of the century the "Jay Line" and the "Narragansett Bay Line" were established, but the Jay Line soon was controlled by the railroads and the pattern of a dominating mode of transportation attempting to rid itself of competition continued. In 1910 the "Colonial Line" free of railroad interests was established. The New York steamer existed despite the efforts of the railroad, and other steamer lines operated between Providence and Philadelphia, the Chesapeake Bay,



PROVIDENCE RIVER
STEAMER, WM. KING
COVELL 1935

and even Italy.

During the 1860's and 1870's, steamboats were used on the Seekonk River but it was not until 1882 that regular lines between Pawtucket and all points on the bay were functioning. By 1885 the lines between New York and Pawtucket were scheduled and continued until 1929.

The resorts along the bay were serviced on the half hour by the steamers. The larger ferries serviced the dominant resorts and smaller steamers served all resorts on the bay, in a similar fashion to present day express and local runs. The larger bay boats were the "Bay Queen" and the "Day Star" and the smaller bay steamers were the "What Cheer," "Baltimore," "Squantum," "Pomham," "Favorite," and "Rambler."[32] These boats seldomly left the bay waters and had their origins at either Providence or Fall River.

Some vessels specialized in particular express runs and could capacitate up to 2000 people on a single steamer. Weather permitting, all boats stopped at Narragansett Pier, including the runs from Block Island to Newport. Certain steamers specialized as excursion boats with picturesque runs and infrequent stops. The most notable and scenic was the Providence to Sakonnet route.

During the age of steamers, land routes, and railroads; the ferries on the bay were continually operating. By 1937 the steamers were coming to a close,[33] but the ferries between Newport

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[32] A. Livingston Kelley, Steamboating on Narragansett Bay (Typed Lecture, 1958) p. 19.

[33] Ibid. pp. 19-28.
Fred Erving Dayton, Steamboat Days (New York: Frederick A. Stokes Company, 1925) pp. 176-233.


BALLOON VIEW
OF
NARRAGANSETT BAY
PUBLISHED BY
J. C. THOMPSON.
264 WESTMINSTER St.
PROVIDENCE. R.I.
1885
NARRAGANSETT BAY
PROVIDENCE RIVER
CITY OF PROVIDENCE
NEWPORT
RHODE ISLAND
JAMESTOWN
CANONICUT
CANONICUT PARK
GOULD I
PRUDENCE I.
HOPE I.
DESPAIR I
PATIENCE I.
DUTCH I.
SOUTH FERRY
KINGSTON
WICKFORD
COWESET BAY
GREENWICH
APPONAUG
BRISTOL
MT HOPE BAY
WARREN
BARRINGTON
BULLOCK'S Pt
BURNSTICK PT.
ROCKY POINT
WARWICK NECK
LIGHT
CONIMICUT PT.
GREENE'S I.
GASPEE
PAWTUXET
PAWTUXET RIVER
WARWICK PARK
FIELDS Pt
SASAFRAS Pt
STARVEGOAT I.
KETTLE PT.
EAST PROVIDENCE
SEEKONK RIVER
BEAVER TAIL LIGHT
LIGHT SHIP
THE DUMPLINGS
FORT ADAMS
BISHOP ROCK
PORTSMOUTH
SACHUEST PT
SECONET POINT
SECONET RIVER
NAVAL HOSP.
RIVERSIDE
CEDAR GROVE
WEST PASSAGE

and Jamestown continued until the opening of the Newport Bridge in 1969 and then Newport was essentially no longer an island. Today the only ferries remaining on the bay run from Bristol to Prudence Island and Hog Island. The other route reminiscent of those in the 19th century is the ferry from Providence to Block Island via Newport.

Canals. A combination of water and land transport was the canal. The Blackstone River Valley is dominated by the Blackstone River which flows into the salt waters of the Seekonk River - and a part of the navigable bay. The Blackstone River starts at Pawtucket where the Seekonk River ends and continues by way of a canal in a northwesterly direction to the city of Worcester, Massachusetts.

This canal route opened up formerly landlocked portions of Massachusetts and serviced the Blackstone River Valley which was to become a major industrial spine in New England. Barges floating on the canal waters were towed by horses on a road along the canal. The canal was not operational until 1828 and was short lived with railroad development. The succeeding Providence-Worcester Railroad reiterated and fulfilled the original intent of servicing and encouraging development of the valley. The path of the railroad bed lay directly beside the canal. The location remained relatively the same but the mode of transportation had changed.[34]

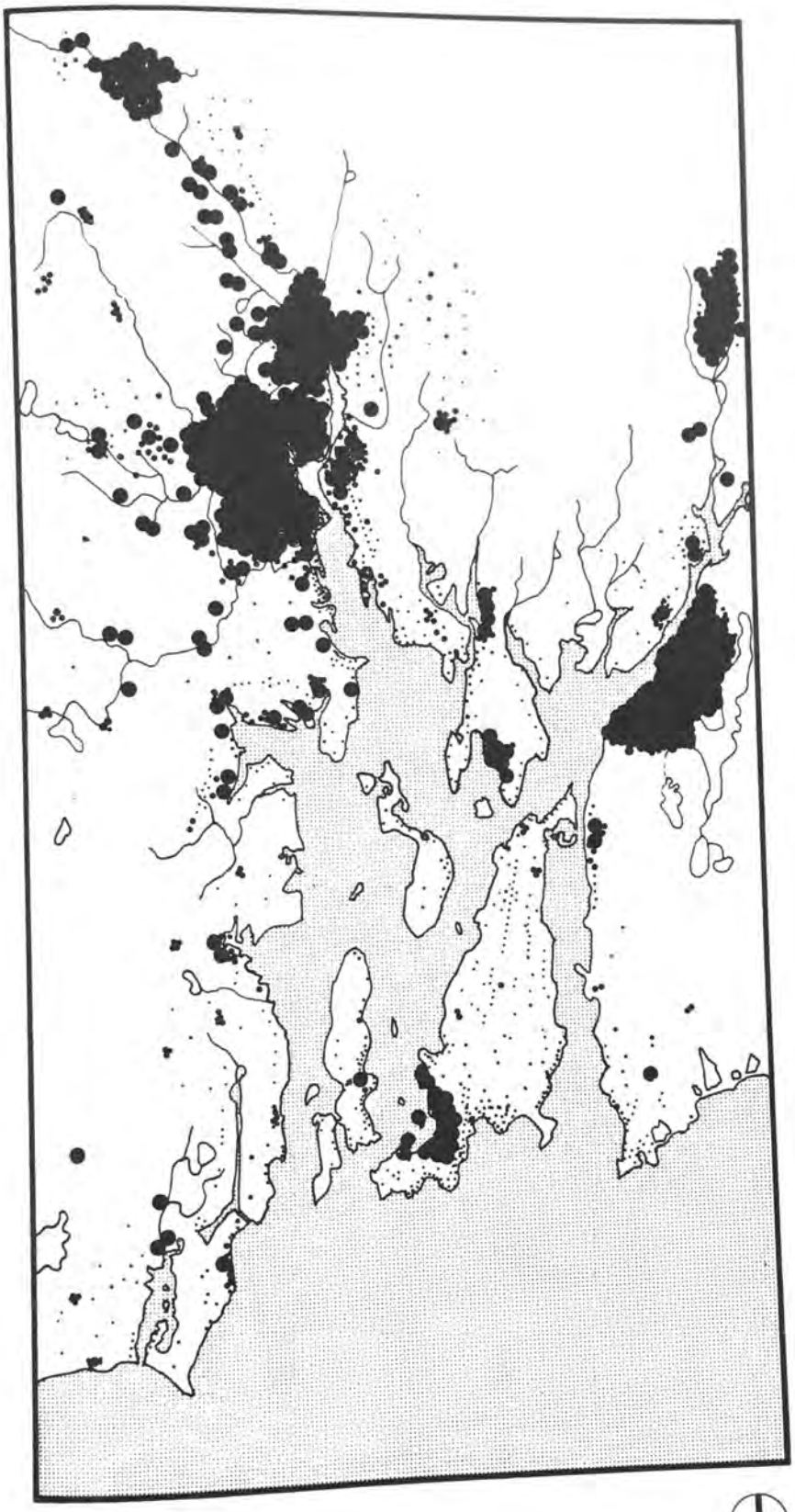
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[34]Carroll, Three Centuries, v. 2, p. 827.

V. LAND USE, SCENIC AMENITIES, AND UNIQUE TOPOGRAPHICAL FEATURES: NARRAGANSETT BAY AT THE TURN OF THE CENTURY

At this time no scenic inventory is available on the Narragansett Bay Region other than vague tourist brochures which center around only those areas fully accessible to the public; such as historic towns, historic houses, and state or municipal properties. Consequently there exists an enormous wealth of undocumented scenic amenities. The bay area was colonized early in the nineteenth century as a resort. At that time the public/private and open/developed use of the land was entirely different from that which exists today. Although development has changed much of the land use, most natural topographical features remain. Cliffs, rock formations, coves, views, and many other features may be scarred or in perfect condition. The situation remains that many of these features still exist along the bay. Improved documentation of such scenic resources is necessary to more fully develop their potential in an overall open space plan for the bay region. Protection of critical areas will become apparent, as will the need for accessibility to little known scenic areas, and restitution of significant areas which have been subject to exploitation.

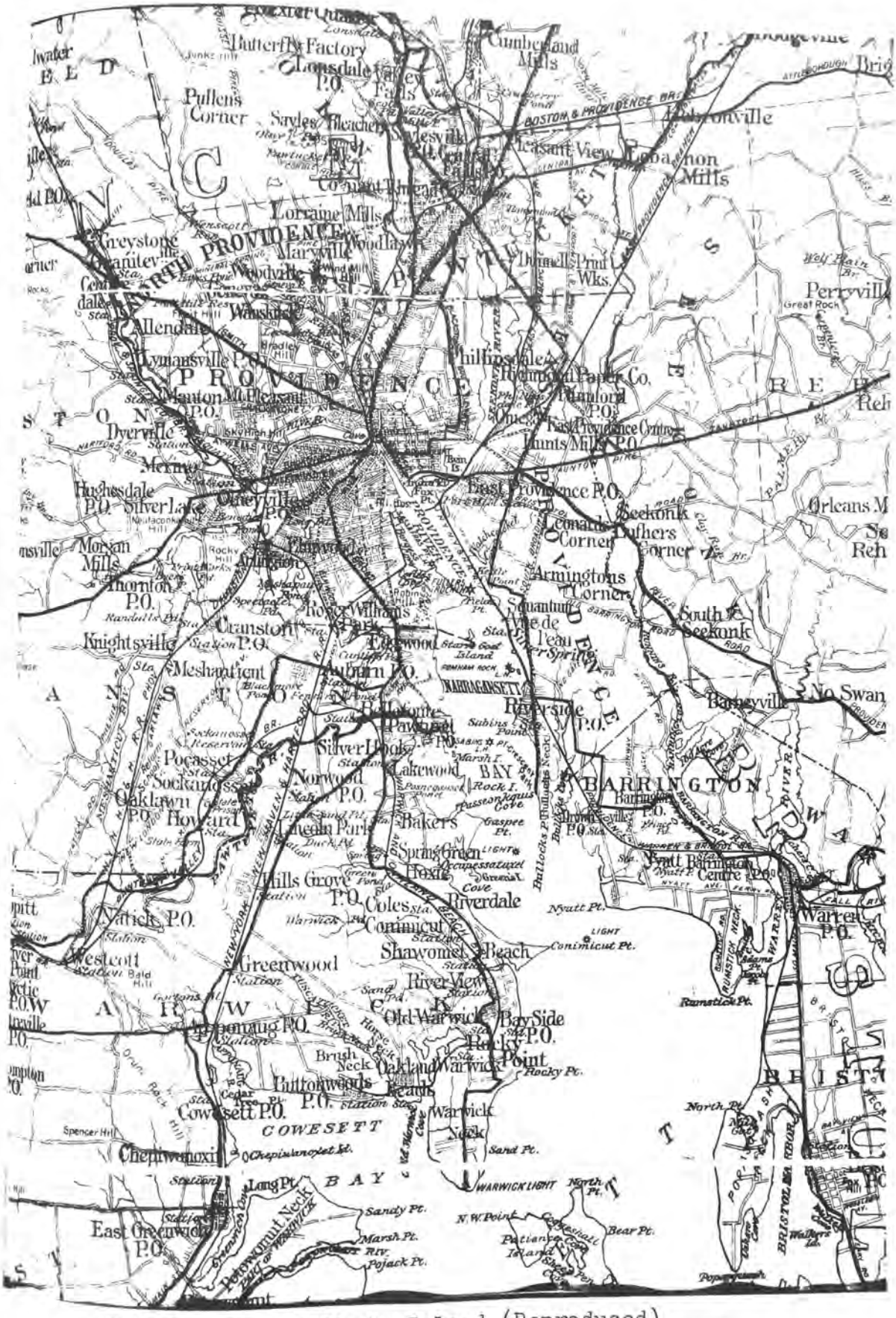
It has become apparent during the research of this study that the 19th century resort developers chose their locations for scenic amenity in a similar manner to the Narragansett Planters settling the most fertile lands in the region, and 18th century towns developing around natural harbors. A comparison of nineteenth century and twentieth century land use



NBR

POPULATION DISTRIBUTION 1900

0 1 2 5



SOURCE: Map of Rhode Island (Reproduced)
George H. Walker & Co., Boston: 1898.

and recreation facilities will be illustrated to substantiate the short comings of the limited contemporary facilities, and degeneration of open space and agricultural lands.

Field's Point. On the west bank of the Providence River, where Narragansett Bay narrows to become that river, is a peninsula of land which was known as Field's Point. This point acts as the transition between the bay and the river and has extended sweeping vistas in all directions. The view extends southerly for many miles to Prudence Island. Field's Point still forms the west enclosure and entrance to Providence Harbor. Within the Narragansett Bay Region, this was one of the earliest recreational areas. Fifty foot elevations further back from the shore were the site of earthen fortifications constructed prior to the War of 1812. On the southern shore of Field's Point during the period of examination were a colony of summer residences. Shore dinners, outdoor clambakes, a beach with bathhouses, and the first regular steamboat service to a resort from Providence, generated its popularity.[35] At the turn of the century, Field's Point and Roger Williams Park were two of the major open spaces in the city of Providence. A unification of the two grounds had been planned.

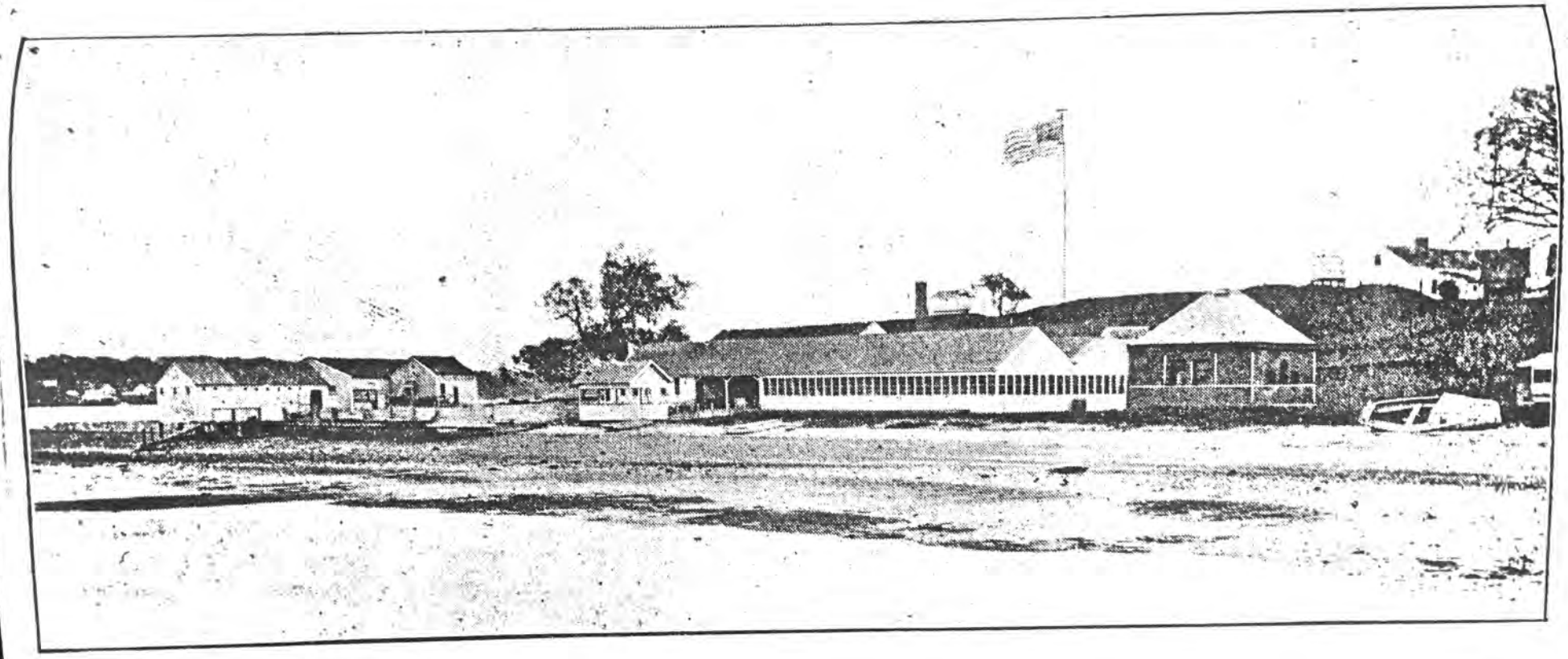
> "It is contemplated uniting this promontory by a suitable purchase of lands and a broad avenue, to the elegant ground now constituting Roger Williams Park. The whole would make perhaps the most inviting park in our country."[36]

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[35]Frederick Denison, Narragansett-Sea and Shore(Providence: J.A. & R.A. Reid, Printers, Publishers and Engravers, 1879 revised 1880) p. 42.

[36]Robert Grieve, Down the River (Providence: Journal of Commerce Co., 1901) p. 6.

Robert Grieve, The New England Coast: Its Famous Resorts (Providence: J.A. & R.A. Reid, Printers and Publishers, 1891) p. 60.



FIELD'S POINT
1901

Across the river from Field's Point is the town of East Providence. Well forested high elevations with irregular island rock formations in the foreground surrounded by water made it picturesquely beautiful. The land formation is similar to the estate zone on Newport Harbor. "...a continual succession of high bluffs, alternating with coves, inlets, rocky islands and headlands,"[37] made the area a desirable resort. This area immediately across from Providence Harbor, extends in a southerly direction for six miles. Summer homes, small resort hotels and high quality beaches at the foot of the bluffs made it the most densely frequented watering place along the bay. The East Providence shore has traditionally been called "Riverside."

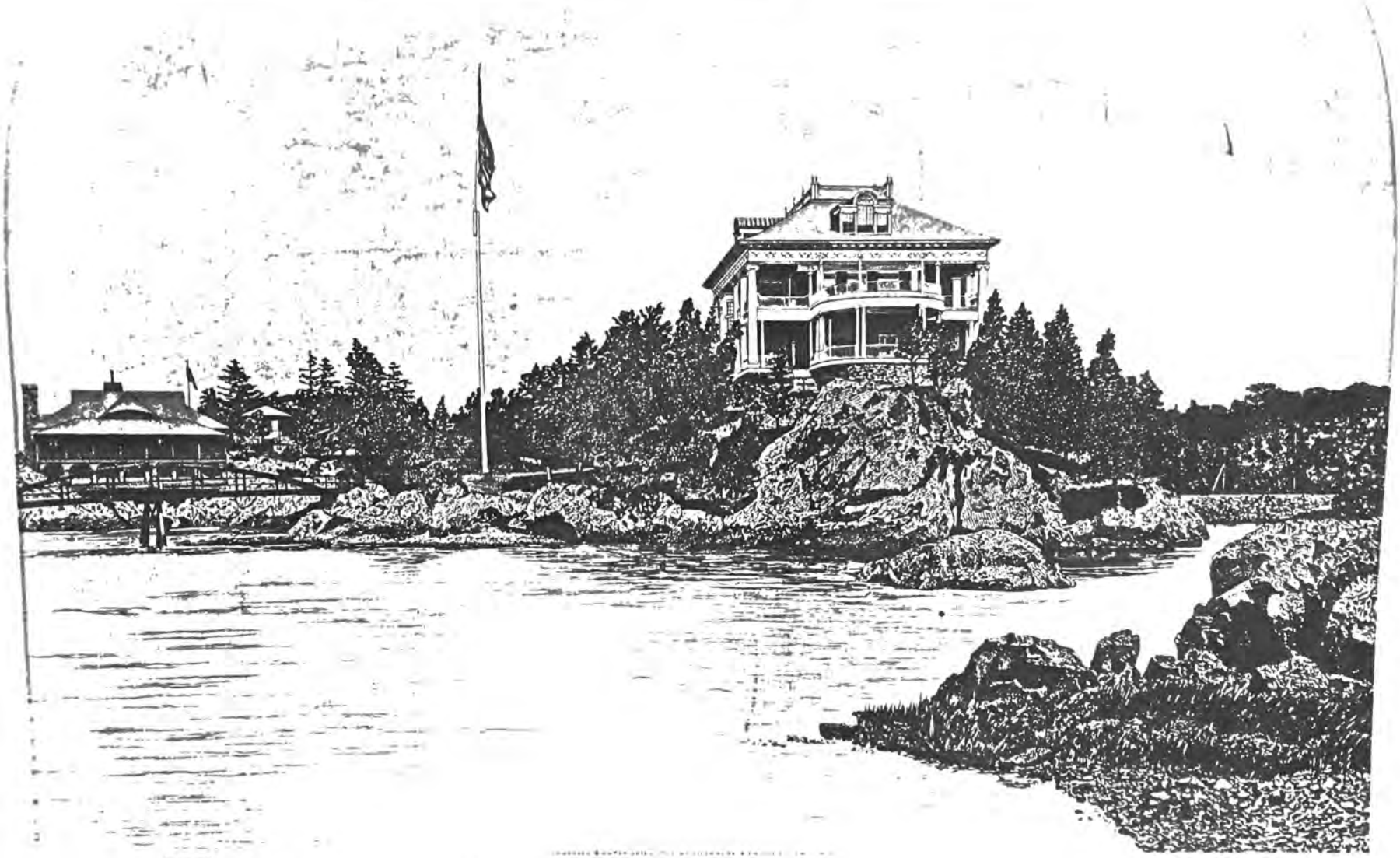
Squantum Club. This private club which still exists consists of several elegant buildings situated on islands of rock which surface above the waters of the bay. The main club building is a large white columned Beaux Arts mansion almost engulfing the rocky island on which it is sited. A billiard house, large dining pavilion, terraces, and management buildings surmount other rocks which define several coves. The complex is reached by a small causeway from additional grounds on the mainland. The club's name descended from the Pokanoket Indians and relates to feasting.[38]

South of Squantum was a small commercial resort establishment known as Ocean Cottage. The buildings and grounds were owned by a proprietor and open to the public. The ever popular

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[37]Grieve, Down River, p. 6.

[38]Denison, Sea and Shore, p. 42.



THE SQUANTUM CLUB

SQUANTUM CLUB
1903

"shore dinner" was traditionally served here as in all resorts of the bay. Located four miles from the center of Providence, it was easily reached by electric rail car.

Silver Spring. This small summer colony served by rail and steamer contained both private summer homes and Boyden House, the traditional hotel and shore dinner hall.

Further south overlooking Pomham Rocks was the Pomham Club. Pomham Rocks contained a Victorian light house and associated buildings. The area took its name from Pomham, a Narragansett Indian warrior.[39] Similar to the Squantum Club, the Pomham Club was primarily an elite shore dinner club. The clubhouse was a lavish shingle-style building with an observation tower, strategically located atop a bluff.

Cedar Grove. In 1867 a dining hall with a capacity of 600 people was constructed on 60 acres of bay front land. Shortly thereafter a hotel, dance pavillion, bowling lanes, ice cream parlor, and food store were built.

Other recreational establishments in the Riverside area were: the Riverside Hotel, the Elliot Hotel[40] with camping grounds, and Cherry Grove or Camp White with a natural sand beach.[41] Between the identifiable public areas were generally summer cottages. Riverside in 1900 had the greatest number of summer residences of any town on the bay. It was ..."a considerable summer city," and was easily accessible by public transport via steamer or electric railroad.

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[39]Grieve, Picturesque Narragansett, p. 111.

[40]Denison, Sea and Shore, p. 58.

[41]Grieve, Picturesque Narragansett, p. 113.



POMHAM LIGHTHOUSE

POMHAM CLUB HOUSE

1905

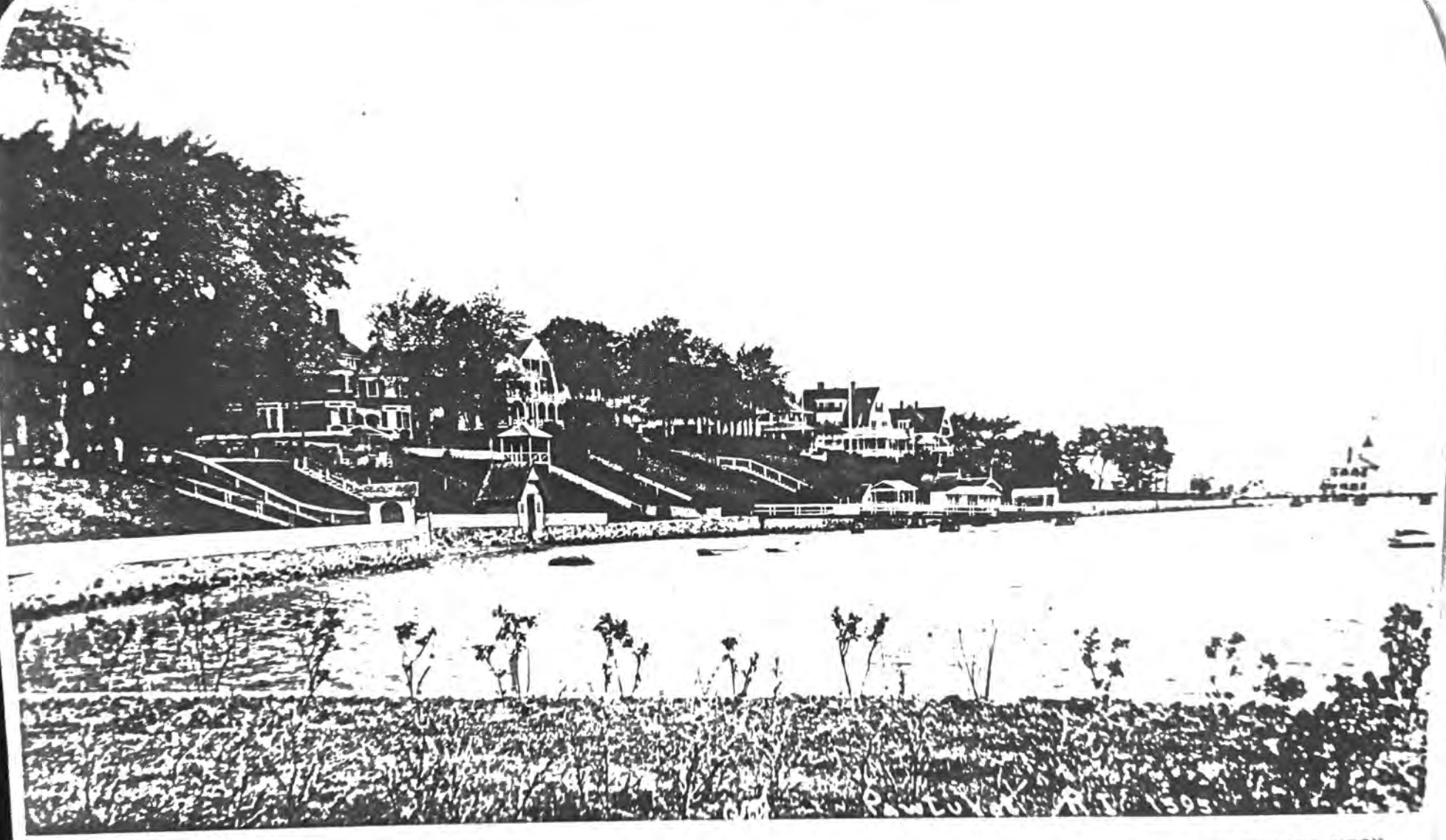
Bullock's Point on Bullock's Neck in East Providence is six miles outside of Providence. The What Cheer House hotel prospered there due to the native sandy beaches, high elevations, and panoramic views down the bay. Two hundred acres of camping grounds were also responsible for its attractiveness. Crescent Park situated on the cove formed by Bullock's Point had several restaurants for shore dinners, a hotel, amusements, a natural sand beach, a theater, and extensive grounds which together generated an active resort feeling. The electric railroad from Providence concluded its route at the park and all steamers operating on the bay were scheduled to stop there.

Across from Bullock's Cove is the hamlet of Drownville once inhabited by local fishermen. Next to Drownville was the small seasonal village of Anawamscutt with houses resting on a slight elevation with ornate bathhouses on the beach below. This area was sparsely settled.[42]

Across the bay from Riverside, immediately south of Field's Point, is an area known as Edgewood situated high on a bluff or headland. Stately homes once built for the summer season still crest this bluff and the elegant Edgewood Yacht Club is found at the foot of the bluff away from the beach, out over the water constructed on piles and flanked by the private piers of the waterfront homes.

Traveling south, 19th century Edgewood melds into the 19th century homes of Pawtuxet. Edgewood and Pawtuxet are integrated by 19th century vernacular architecture and street

[42]Grieve, Down River, pp. 8, 9.



PAWTUXET NECK
1910

scale. Fine 19th century homes, once summer and now for the most part year round, are found in Pawtuxet, particularly on Pawtuxet Neck. Originally an elegant yacht club was located off a point at the entrance to a secondary cove. This yacht club was also built on piles over the water.

Pawtuxet Village two miles south of Field's Point was founded in 1640 but consisted mostly of 18th century buildings. The Pawtuxet River flows into Narragansett Bay at this location dividing the village in half. The river with wooded banks was a greatly valued scenic attraction and the area combines river, waterfall, cove, and bay. Fort Hill on Pawtuxet Neck once held fortifications built prior to the revolution.[43]

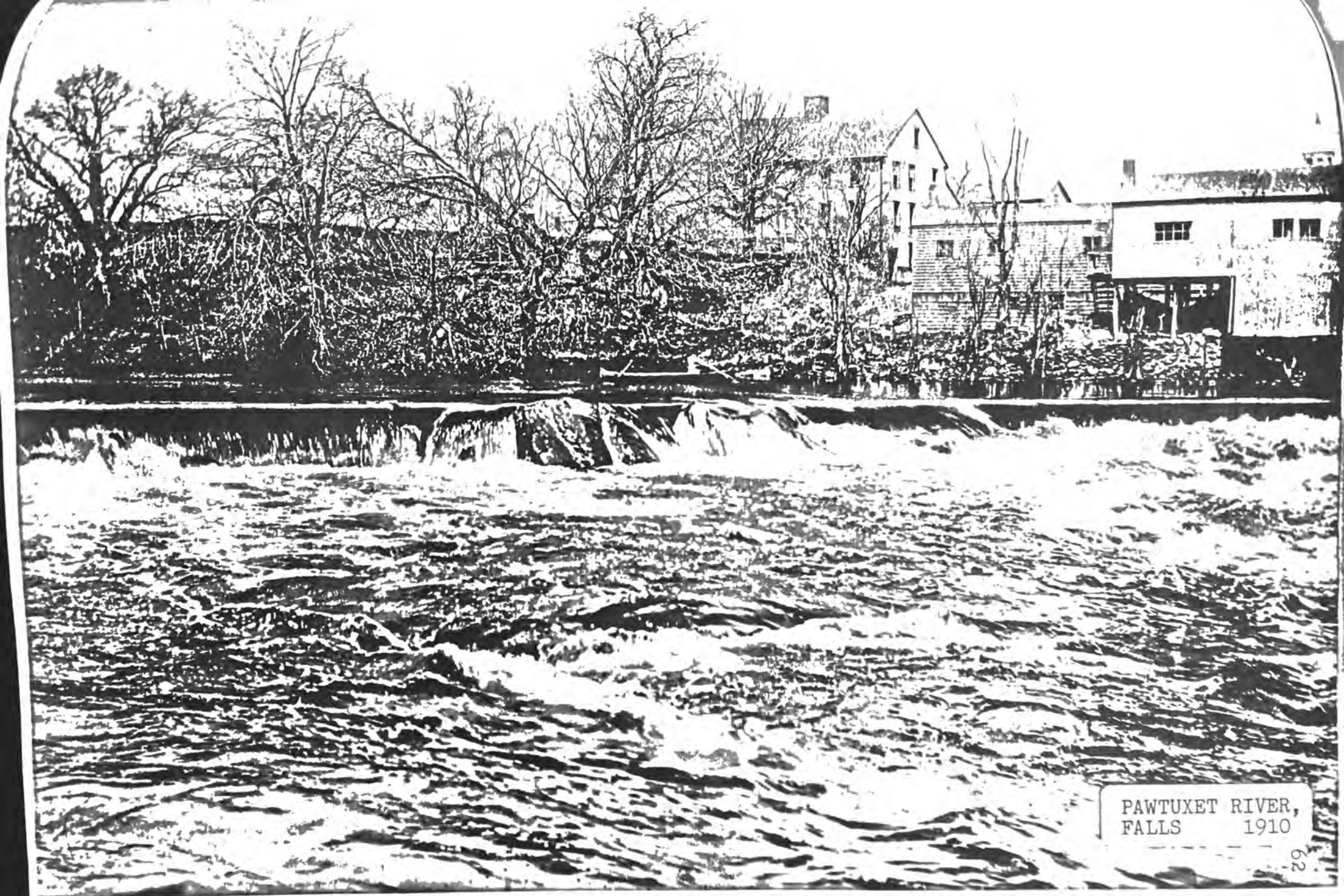
Two miles further down the bay is Gaspee Point whose name is taken from the British ship "Gaspee" which was burned by colonials in 1722. This point forms one arm of Turtle Cove and for the next four or five miles along this shore, the land was in a totally natural state frequented only by clam diggers at the water's edge.[44]

On the east shore of Narragansett Bay in the Town of Barrington is an area called Nyatt taking its name from Nyatt Point. At the point, Narragansett Bay widens into a great inland body of water allowing unobstructed views to the west and south. On the 40 to 50 foot bluffs were summer mansions having

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[43]Grieve, Picturesque Narragansett, p. 114.
Grieve, New England Coast, p. 60.
Denison, Sea and Shore, p. 58.

[44]Ibid. p. 60.



PAWTUXET RIVER,
FALLS 1910

the same visual and architectural interest as certain sections of 19th century Newport. The remaining land in the town of Barrington consisted mainly of rural farms. The inhabitants of the area were farmers, fishermen, and summer colonists.[45]

The Warren River separates the town of Barrington from the town of Warren. The Barrington River branches off the Warren River and divides the town of Barrington. The rivers and their basins penetrate several miles north to East Providence and Massachusetts.

Across the bay from Nyatt Point, north of Conimicut Point on Turtle Cove is Mark Rock. Having only a limited number of buildings in a park-like setting, the area was used for family picnicking on a day's outing along the shore. In its day, this was a very desirable area frequented by Warwick townspeople.

The western shore of the bay has considerably shallower water than the eastern shore and prior to railroads was subsequently a little used resort area, although equal to the east shore in scenic amenities. Good clam digging existed along this shore from Field's Point to Rocky Point. The coastline from Pawtuxet to East Greenwich is about 20 miles in length and was popular with the residents of the western portion of the state and nearby Connecticut. In 1874, the Warwick and Oakland Beach Railroad was constructed from Pawtuxet south to Warwick Neck and terminated at Oakland Beach. Access was thus provided to formerly undeveloped areas and the pace of development then quickened.

45Grieve, Picturesque Narragansett, p. 118.

The area along Turtle Cove from Mark Rock to Conimicut Point is a two mile stretch of natural sand beach. Along the beach, Greene's Island is attached to the mainland by a sand bar exposed only at low tide. This was the most frequented area on the shore for digging clams. On the beach was a small summer settlement called Shawomet Beach. Conimicut Point being a sand bar, formed a natural beach. Set back from the point was a large landed farm with a manor house and large prosperous-looking farm buildings. The very end of the point, however, was littered with dilapidated structures.

South of Conimicut Point is Riverview, an attractive location which had been reinforced by improved facilities and roads. This area was popular because of its easy accessibility by train and roads.

One quarter mile south was another train station and hotel both of which were called Bay Side.[46] The Long Meadow House was also located there. The next station on the train route was Grant's Station servicing the nearby Warwick Club, a wealthy men's club. Along the shore between railroad stations existed sparse settlement of summer houses.

The 18th century settlement of Old Warwick on Warwick Cove still exists today as a small center with antique dwellings although invaded by strip development. The area around the village was known as the Warwick Plains.[47]

Warwick Neck is a finger of land about three miles long by over a mile wide. The peninsula of land has magnificent views

[46] Ibid. pp. 122-124.

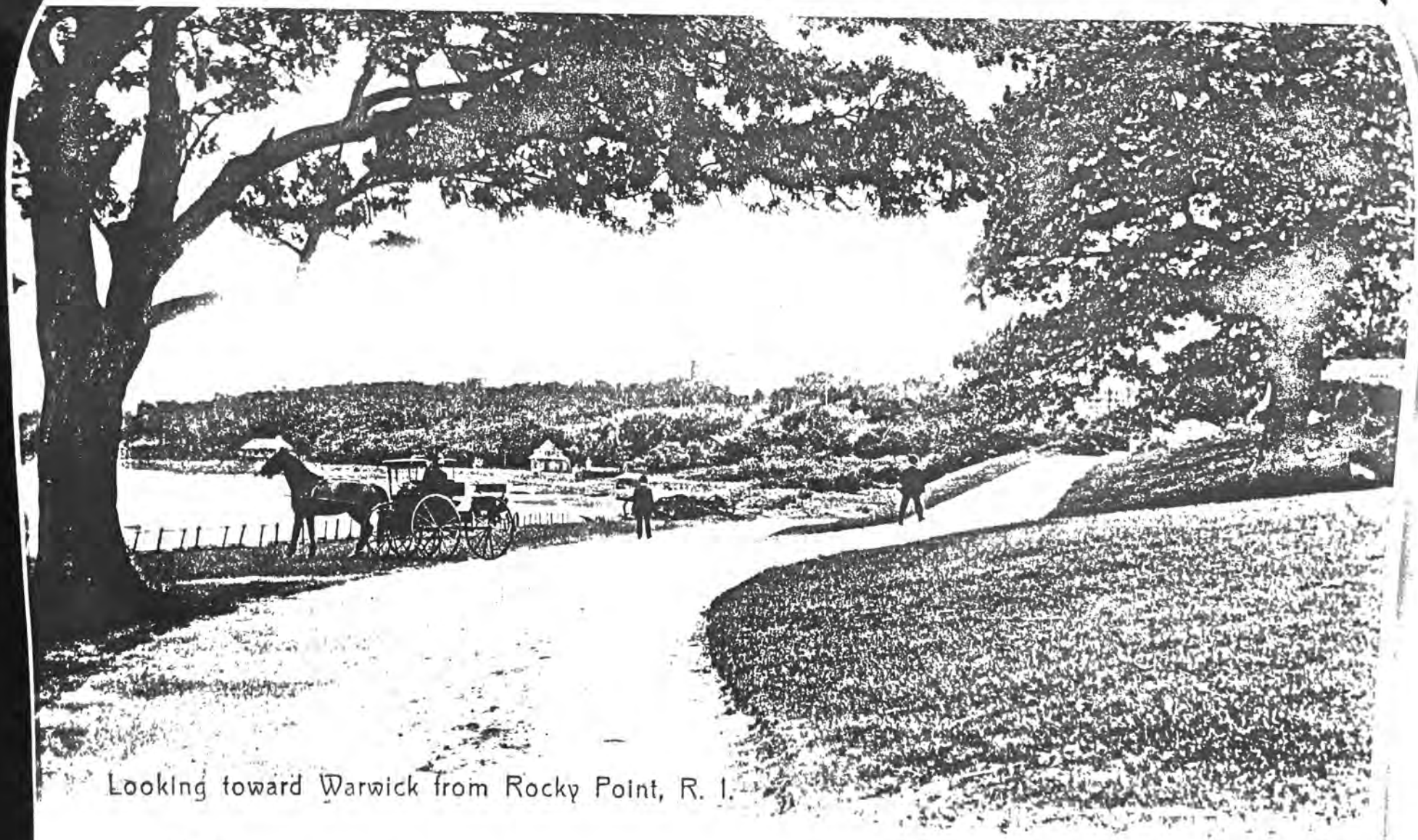
[47] Ibid. p. 125.

due to its strategic location. The bay widens to form an additional lobe called Greenwich Bay. On the neck, a spine elevation of about 100 ft. slopes to the shore. This area is much larger than Nyatt Point and many handsome summer mansions with extensive grounds had been constructed. Senator Aldrich's Estate was one of the larger estates in the region having extensive grounds. The main spine avenue along the ridge of Warwick Neck, wide and handsome, terminates at the lighthouse on the point. From this vantage point, one has more than a 270 degree view of the bay and its appendages, including: Greenwich Bay and the towns and resorts along its waterfront, Prudence Island, Patience Island, Coanicut Island, and the eastern shore of Narragansett Bay for twenty miles to the ocean. Bristol, Warren, and Barrington are viewed to the west. This area was considered the equal of any resort in the region.[48]

On the northeastern side of Warwick Neck, is a promontory called Rocky Point. About 12 miles from Providence, Rocky Point exceeded all other resort establishments on the bay in both size and facilities. The area had been known for the scenic attractiveness of its natural rock formations, bluffs, high elevations, rolling fields, and countryside. Caves abounding in the extensive rock formations lended a pastoral 19th century romantic atmosphere. An excellent beach, gardens, Warwick Arms Hotel, dance hall, and observatory were on the premises. From the elevated observatory, all of Narragansett Bay could be seen with views over islands and other land features from Newport to Providence.

[48] Ibid. p. 126, 128.

ALDRICH ESTATE
WARWICK NECK
1931



Looking toward Warwick from Rocky Point, R. I.

1905

people from all economic groups patronized these resort facilities and shore dinners were served in the largest facilities of its kind on the bay. Monkey cages, bowling, shooting and other amusements were present, along with excursion boat rides on the bay and regular steamboat transportation to all steamer landings on the bay.[49]

West of Rocky Point on Greenwich Bay was the resort of Oakland Beach situated on Horse Neck. The Oakland Beach Hotel provided accomodations and the main shore dinner restaurant served 1200 people regularly and could capacitate up to 5000 people. A dance hall, sundries pavilion, a roofed observation deck at the water's edge, a beach, playing fields, boat rentals on the cove, and amusements made it a hub of activity. Although serviced by railroad, many people preferred to come by boat particularly from Pawtucket, Fall River, and Newport.[50]

Due west of Oakland Beach on the other side of Brush Neck Cove is Buttonwoods. By water, Oakland Beach and Buttonwoods are only a half mile apart, but by land, they are 4 to 5 miles apart, with each resort situated on a finger-like projection in Greenwich Bay. Buttonwoods with over a mile of sandy beach had a large hotel. Here as throughout the Bay Region, fishing was great. This area was for the most part frequented by

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49Grieve, Down River, p. 10.

Grieve, Picturesque Narragansett, p. 128.

Denison, Sea and Shore, pp. 61, 62.

50Grieve, Picturesque Narragansett, p. 126.

OAKLAND BEACH.

THE

EDEN of NARRAGANSETT BAY.

The Most Delightful Shore Resort in New England.

OPEN this season under new management. Messrs. ALDEN & PORTER, of Boston, having leased the Hotel and Grounds, and secured the services of Mr. CHARLES T. MAXFIELD as manager, who will make a special feature each day during the season of his famous

Rhode Island Clambakes and Shore Dinners.

The Excursion Grounds are the finest in New England, located on the Northwest shore of Narragansett Bay, only 12 miles from Providence, and has a pavilion with a seating capacity of 1500 persons, which can readily be extended to accommodate 5,000 if required, which gives ample scope to cater comfortably for the largest parties that can congregate there. There is also a first-class Restaurant, seating capacity 500, the cuisine of which will be found perfect in all its appointments.

Cool and Refreshing sea breezes, Bowling and Shooting alleys, Row Boats, Yachts, Flying Horses, Bathing Houses, a Photograph Gallery, Summer Houses, and a great variety of Rustic Bridges, Walks, a large Dance Hall, Ice Cream Saloon, Soda and Confectionery Booth, Base Ball Grounds, &c. Boating, Bathing and Fishing unsurpassed.

EXCURSION TICKETS AT VERY LOW RATES

—AND—

Special Inducements Offered for Excursions of Sunday Schools and Societies.

OAKLAND BEACH is easy of access from Providence, Boston, Worcester and other points in New England, reached by Warwick and Oakland Beach Branch of the New York, Providence & Boston Railroad.

Trains Leave Providence Nearly Every Hour.

For large parties, arrangements can be made to run trains direct from Boston or Worcester through to the Beach without change of cars, thus affording ample facilities for transporting all without crowding or vexatious delays incident to steamboat travel

: A : GENUINE : RHODE : ISLAND : CLAMBAKE :

Cannot be obtained anywhere except on the shores of Narragansett Bay. Special arrangements can be made for large parties to have exclusive control of the Grounds on stated days, thereby securing a portion of the receipts for the day. No other Shore Resort can offer such sweeping inducements.

The liberal inducements offered for transportation and accommodations at the Beach can be arranged for upon application to the undersigned.

ALDEN & PORTER,
Proprietors Oakland Beach.

O. H. BRIGGS,
General Passenger Agent
New York, Providence & Boston R. R.

people of the Baptist faith. Old Buttonwoods further west was a resort and clambake place from 1830. The Warwick and Oakland Beach Railroad terminated here.[51]

Apponaug is an 18th century settlement located on a small waterway off Greenwich Bay. This waterway flows into a considerable sized water basin called Gorton Pond. The town was picturesque in its antique character with the Warwick Town Hall and served as a local center for nearby residents. The printing company had closed and only a small woolen mill was engaged in manufacture at the turn of the century. The residents predominantly earned their living from the bay.[52]

East Greenwich. Greenwich Cove, an inlet south of Greenwich Bay provided maximum shelter and an exceptional harbor for the town center of East Greenwich. East Greenwich was settled in 1677 on land moderately rising away from the waterfront. Main Street, the commercial center is not located along the waterfront but a distance up the hill, parallel to the waterfront. In the town of East Greenwich, this continues to be the most sizeable settlement and is the county seat for Kent County. Some exceptional 18th and early 19th century buildings were constructed here.[53]

Warren. On the eastern side of Narragansett Bay is the town of Warren, situated on the eastern bank of the Warren River across from Rumstick Pt. - the southern most land projection

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[51]Ibid. p. 130.

[52]Ibid. pp. 130, 131.

[53]Denison, Sea and Shore, pp. 63, 64.
Grieve, Picturesque Narragansett, pp. 132-134.
Grieve, Down River, pp. 12, 13.

in Barrington. The Warren River continues in a northerly direction beyond Warren and is renamed the Palmer River. Both the Barrington River and Warren River receive small fresh water rivers. Within the region, Shad fish migrated only in the Palmer River. Further to the east, on the other side of town is the Kickemuit River off Mt. Hope Bay. In 1885, the oysters taken from the Kickemuit were more than 50% of the state yield, but Warren's economic base was cotton manufacturing.[54] The town had a relatively small summer population but traveling south from the center toward the town of Bristol were elegant gentlemen's farms with large manor houses, formal gardens, and extensive grounds. Frequently farmers and dilettante summer residences were intermingled. Warren was the earliest British town on Narragansett Bay. In later years, the ship building industry prospered as did the port during the period of the whaling industry.[55]

Bristol. The town center of Bristol lies four miles south of Warren center. Poppasquash Pt. on the west and the town center on the east enclose Bristol Harbor. Bristol Harbor is on one side of the peninsula and the waters of Narragansett Bay on the other. Narragansett Bay widens at the harbor and again at the southern end of town. Poppasquash Pt. has remained an agricultural area with some large summer residences with large land holdings. Colt Farm with several hundred acres and

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[54]Ibid. p. 9.

Grieve, Picturesque Narragansett, pp. 117, 118.

Denison, Sea and Shore, p. 65.

[55]Grieve, Picturesque Narragansett, p. 118.

WARREN HARBOR
LAWRENCE O. FOSTER
1951

several miles of bayfront land maintains rural serenity even with rich architectural treatment of farm buildings.

Bristol is an 18th century historic town, but its rich architectural heritage has an equal amount of Greek Revival buildings. The center is comprised of many elegant in-town residences, fine civic buildings, and monuments. The commercial areas have received a wealth of design and refined details. This was one of the most attractive towns in New England and had the appearance of great wealth. The town is laid out on a grid with broad avenues parallel to the inner harbor. Because of the land formation, most streets terminate in water views, to the west and to the south. This is especially effective since the town steps up a hill away from the water. Bristol was a merchant port until 1840 with some manufacturing in sugar, cotton, and rubber. The famous Herreshoff Yacht Co. along with much of the manufacturing, was located along the waterfront but did not overpower the rest of the town. The Warren and Bristol section of the Old Colony Railroad terminated in Bristol, and regular steamer service also connected Bristol with Providence.

Traveling south from the center to Bristol Ferry, the shore lined with broad lawned summer estates included the Low House by McKim, Meade, and White. Ferry Hill has one of the outstanding views of Narragansett Bay. This is not as high as Mt. Hope (300 ft.) but the view is superior encompassing Fort Adams in Newport to the city of Providence. Mt. Hope is an historical site with the throne of the Indian chief, King Philip, and is also the site of his murder. An inscription on rocks by the water dating back to 1000 A.D. has been attributed to the

Norsemen. Along Mt. Hope Bay, the land in Bristol was mainly agricultural except for the Mt. Hope Resort. This privately owned park was open for day visits and had shore dinners, bowling, boating, and other attractions.[56]

The distance between settlements greatly increased as one moved further south along the bay.

Potowomut Neck. On the west side of the bay, across East Greenwich Harbor is Potowomut Neck. This was formerly an indian camp, sparsely settled[57] with handsome farms, well sited 18th century manor houses, and some 19th century villas. Stone walls and tree-lined streets enhanced the high quality landscape of rolling meadows and bay views. High levels of design quality were the rule and included design accomplishments in agricultural buildings.

From East Greenwich south to Wickford, were large farms. This ten mile stretch of coast in North Kingstown has beaches and a natural harbor.

Wickford. Wickford has remained the largest settlement in the town of North Kingstown and contains the town hall. Agriculture, fishing, and some manufacturing supported the village residents. About 20 miles from Providence, the area was frequented by summer people, and hotels and seasonal residences were constructed. Originally settled in the 18th century, most buildings in the town are of that period and present a coherent image of an 18th century seaport town. Wickford Cove, the town's harbor is one

[56] Ibid. p. 9.
Grieve, Down River, pp. 9, 10.
Denison, Sea and Shore, pp. 65-67.

[57] Ibid. pp. 64, 65.

lobe of a multiple lobe inlet off the bay with natural sand beaches. Cold Spring Beach, south of town, is within easy walking distance from the center. The Wickford Branch Railroad connected Wickford with the Providence Stonington Railroad and a direct line to Providence, New York and Boston, while steamers linked Wickford with all settlements on the bay.

The Cedars, three miles south of Wickford, directly on the bay, was a favorite picnicking spot for North Kingstown people. Fox Island is a half mile offshore.[58]

Saunderstown. Six miles south of Wickford in South Kingstown is the small settlement of Saunderstown, about a mile from South Ferry. Saunderstown has changed little over the years and consists of several 18th century horse farms and a small number of summer cottages. Saunderstown is a minimum settlement with a church, post office, and telegraph office.[59] The nearby ferry landing was used as the western link with Newport via Coanicut Island working in conjunction with another ferry on the opposite side of Coanicut Island. Still a third ferry from the east side of Aquidneck Island transported people to Little Compton.

Two miles west of the bay, paralleling the agricultural coast from Wickford to Narragansett is Tower Hill. Several hundred feet above sea level, this area has magnificent views and some of the existing very large farms of the Narragansett Planters. At one time, the 17th century village of Tower Hill stood on

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[58]Grieve, Picturesque Narragansett, p. 134.

Grieve, Down River, pp. 13, 14.

Denison, Sea and Shore, pp. 69, 70.

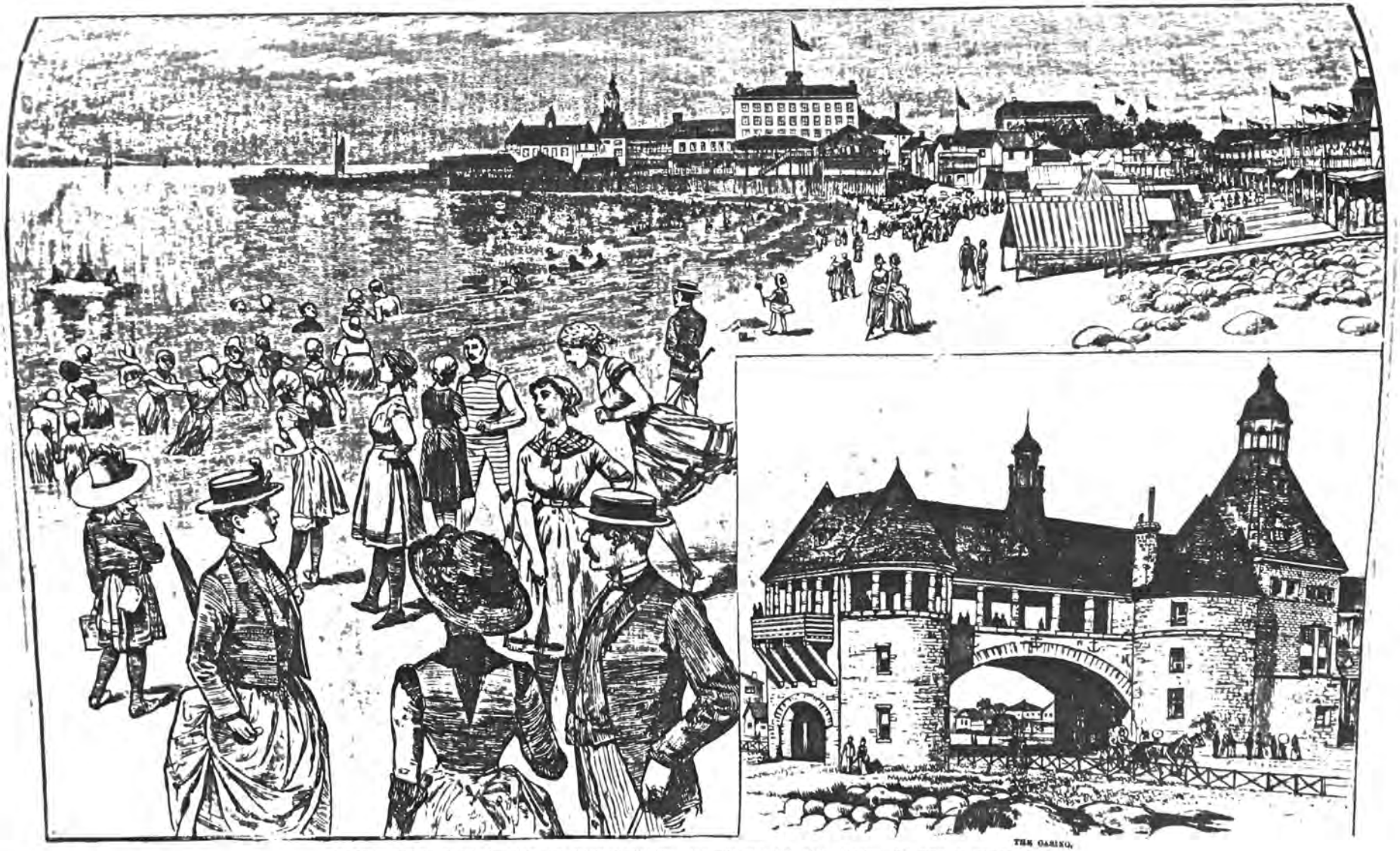
[59]Grieve, Picturesque Narragansett, pp. 134-136.

the most select location of the hill. The rivaling town - Little Rest - now Kingston Village, became the county seat in South Kingstown and Tower Hill Village disappeared entirely. The Tower Hill House Inn later occupied the site with a view of the bay, islands, and open sea.

Adjacent to the south of Tower Hill Village is Narragansett Heights. This area held many farm-estates with several hundred acres and costly manor houses. The estuary at the bottom of Tower Hill is the Pettaquamscutt River. Boston Neck separates this tidal basin from the Atlantic Ocean. The view from Narragansett Heights is over rolling land and estuaries to Narragansett Bay, Beaver Tail Light and the Atlantic Ocean.

Whale Rock forms one side of the breach to Narrow River and Pettaquamscutt River and marks the West Passage entrance to Narragansett Bay. On the other side of the breach is a sweeping two mile stretch of fine grain sand beach. The fashionable resort of Narragansett Pier focused on this beach. The land on the western shore of Narragansett Bay continues several miles further south than the eastern shore locating Narragansett Pier just south of the bay on the Atlantic Ocean, 26 miles from Providence. Newport is ten miles to the northeast.[60] A description of Narragansett Pier at the turn of the

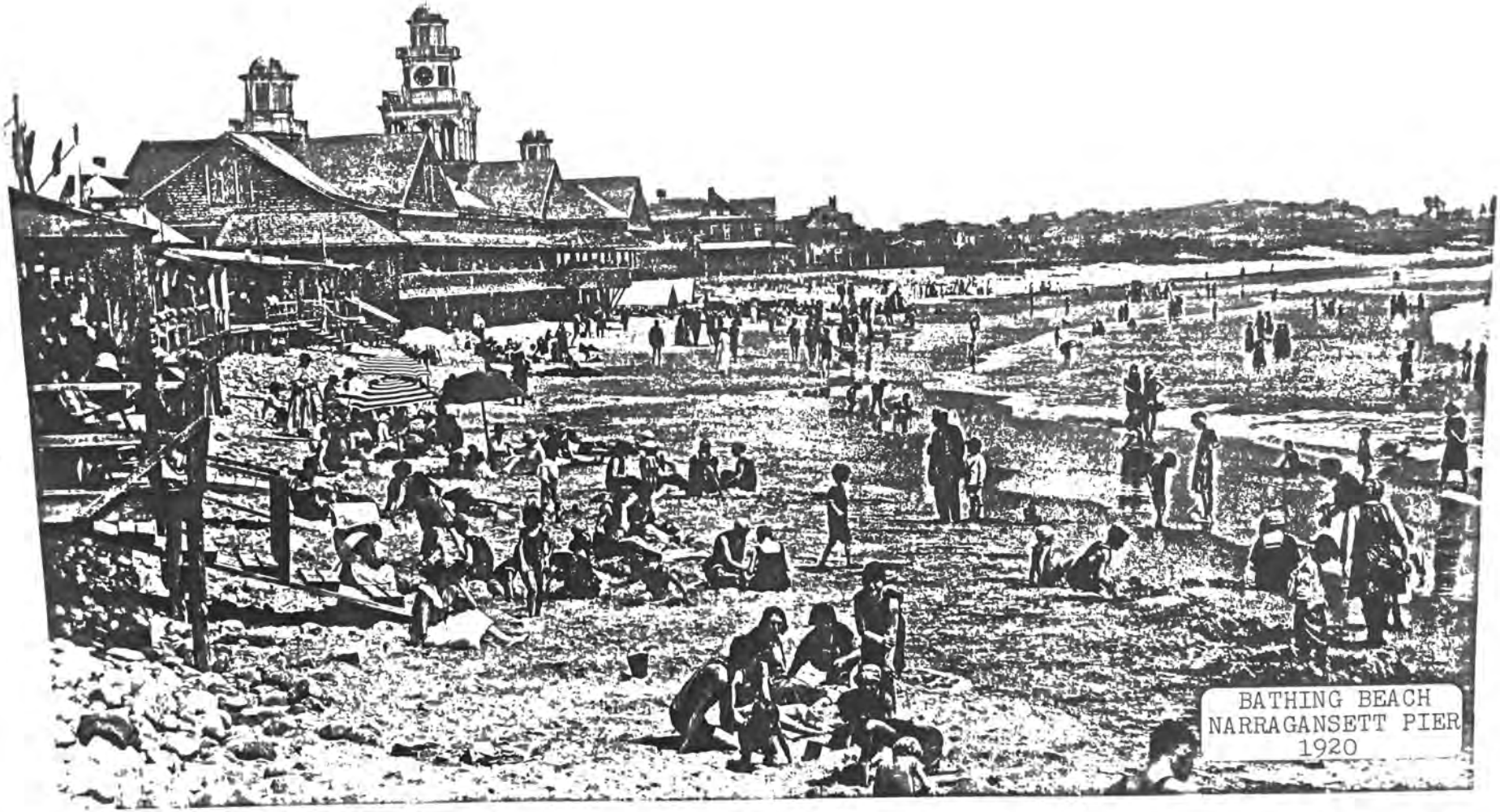
[60] Ibid. pp. 190-200.
Denison, Sea and Shore, pp. 72-77.
Grieve, Down River, pp. 19-24.



THE CASINO.

RHODE ISLAND.—SUMMER LIFE AT NARRAGANSETT PIER—SCENE ON THE BEACH AT THE BATHING HOUR.

1887



BATHING BEACH
NARRAGANSETT PIER
1920

century follows:

> "It is one of the most noted summer resorts on this coast, as it has every attraction as a watering place to recommend it - ocean, bay, creek, river, pond, island, rock, shoal, beach, hill, farm, and forest."[61]

There were 20 hotels in the immediate vicinity of the pier with most located along Ocean Road - a promenade walk and drive along the ocean. Hotels were located across the street in a similar manner to Nice or Cannes on the French Riviera. Villas stretching from the pier center north to Pettaquamscutt River and south to Scarborough Beach, were responsible for the title of "Narragansett's Gold Coast." The rocks along the ocean preceeding the lawns of the villas are unique to the state, thrust hundreds of feet into the sea and continuing down the coast for several miles. As the sea meets these rocks, the salt water is thrown many feet into the air and presented a wild contrast with the refined villas set back from the shore. The architecture of the hotels, clubs, casino, and villas was exceptional, and it is not difficult to see why the summer colonies of Newport and Narragansett were rivals. However, Narragansett Pier was only a beach resort while Newport was a city.

Three boat piers in the vicinity of the center were thrust out into the ocean, particularly for the use of steamboats and were periodically destroyed by storms. There is no natural harbor for miles. The countryside of South Kingstown was a great amenity to the resort of Narragansett Pier, providing open lands and buffers between distinct resort development.

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[61] Denison, Sea and Shore, p. 26.

Small resorts such as Salt Lake, Willow Dell, White Lake, and Little Comfort Beach were located in this seaside country.

Five miles south of Narragansett Pier is the cape of Point Judith and Point Judith Lighthouse, historically one of the most treacherous and feared locations in New England. Ship wrecks were common for 250 years.[62]

Newport. Newport's success as a thriving 18th century city waned in the early part of the 19th century and virtually stagnated. Due to this situation, much of the 18th century urban fabric and historic buildings remain. This is particularly significant upon comparing the metamorphis of the rival cities of the period, such as New York, Boston, and Philadelphia which have very limited numbers of artifacts and the context has been so altered to render what does remain a peculiar anachronism.

The city of Newport is the smallest township of the three on Aquidneck Island: Newport, Middletown, and Portsmouth; and occupies the southern most section of the island, an area of great irregular land formations. The urban area of Newport centered closely around the harbor. The 18th century areas were built on relatively low ground and some mildly sloping land away from the waterfront. Buildings were close together in an urban manner. The lands in the northern part of the city, mostly belonging to the towns of Middletown and Portsmouth, were the agricultural lands. South of the city the land was very rocky with huge exposed rock formations and by comparison to the northern area had little land suitable for agricultural purposes.

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[62]Grieve, Picturesque Narragansett, pp. 190-200.
Denison, Sea and Shore, pp. 72-77.
Grieve, Down River, pp. 19-24.

In the 19th century the romantic beauty of this irregular coast with high cliffs, inundating rock shore, coves, ponds, estuaries, hills, beaches, magnificent harbor, 18th century gentility, proximity to large areas of picturesque open land, and the most ideal climate in New England; attracted wealthy families for the summer. The city eventually became the pre-eminent queen of resorts on the East Coast and her summer patrons endowed the city with the services of the greatest talents of the period in architecture and landscape architecture.

The scale of Newport was important in its physical design and success as a resort. The streets and subsequent pace of movement relates to an ever changing topography and scenery on a very small scale, visually appreciated and absorbed by carriage. Everything in the landscape is small; there are no expansive areas of land with the irregular peninsula frequently only a mile wide. Many of the finest estates such as Cornelius Vanderbilt's "Breakers" have only 3 to 4 acres of land and most of the summer mansions on Bellevue Avenue and Old Beach Road have considerably less. The landed estates are in the southwest portion of the neck; however, it was the large open areas of Middletown that served the country pleasures of the Newport summer colony, and the surrounding lands and islands were definitely important. The contrast of Newport's vitality surrounded by rural serenity and relative isolation provided by the bay was her greatest glory.

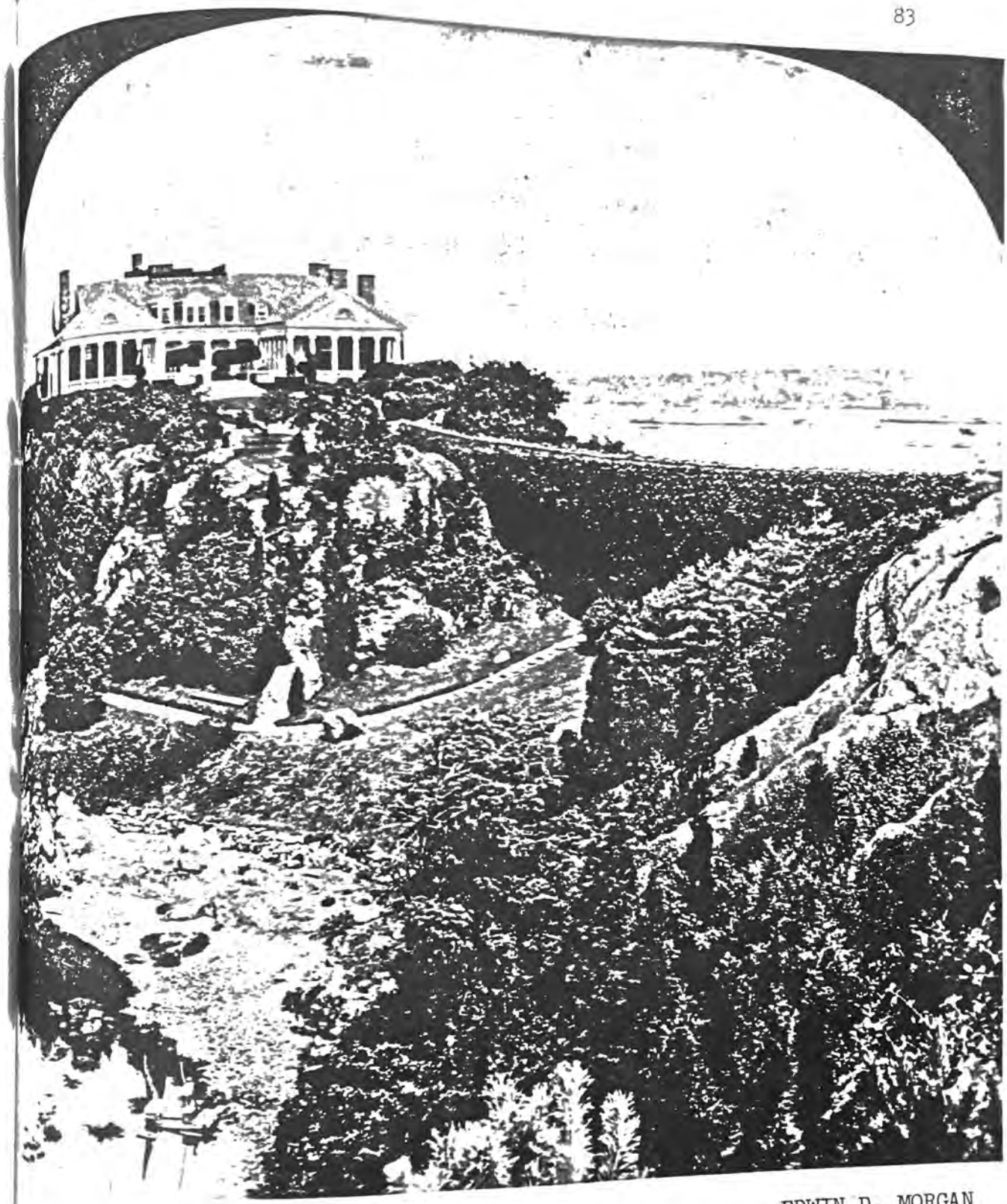
Arrival in Newport by steamer or ferry was eventful. In full view of the city wrapping around the harbor one would draw nearer to a significant point of entry - the boat landing and

Distances to Prominent Places

IN AND AROUND NEWPORT.

	MILES.
From State House to Stone Bridge, by East road	11 68
From State House to Glen	6 29
From State House to Centre Third Beach	4 05
From State House to Centre Sachuest Beach	3 48
From State House to Centre Easton's Beach	1 49
From State House to Purgatory	2 72
From State House to Paradise Rocks	3 51
From State House to Fort Adams, Parade via Thames st. and Wellington ave	3 77
From State House around Neck, via Thames st. and Wellington ave. by outer road, Ocean and Bellevue aves. back to S. H.	10 69
From State House to Spouting Rock	2 63
From State House to Boat House	2 98
From State House to Miantonomi Hill	1 52
From Commercial wharf to nearest wharf, Fort Adams	0 90
From Commercial wharf to Rose Island wharf	1 37
From Commercial wharf to Goat Island wharf	403
Along the Cliffs from Bath road to Narragansett avenue	0 61
Along the Cliffs from Bath road to Marine avenue	1 41
Along the Cliffs from Bath road to Boat House	2 77
From the State House to Bristol Ferry, East road	11 55
From the State House to Bristol Ferry, West road	10 92
From Ocean House to beginning of Cliff on Bath road	0 87
From Ocean House to Boat House via Bellevue avenue	2 24
Length of Conanicut in a straight line	8 02
Length of the Island of Rhode Island in a straight line	15 85
Length of Goat Island from the light-house to the Southern point	0 74
Width of Conanicut Island in a straight line	1 72
Width of Island of Rhode Island	02
Length of Easton's Beach in a straight line	0 58
Length of Sachuest Beach in a straight line	1 22

SOURCE: Denison, Narragansett Sea and Shore. Reproduced from p. 108.



EDWIN D. MORGAN
NEWPORT RESIDENCE
1910

the gateway to the city. In this understanding, Newport was not really part of the mainland but insulated through limited access. The finite scale resulted in a corresponding physical form not possible with a less delimited land area. Please note the similar land formation of the J.P. Morgan estate with the land occupied by the Squantum and Pomham Clubs in East Providence.

Middletown and Portsmouth. Both of these townships have land on the eastern side of Aquidneck Island fronting the Sakonnet River and had some of the most beautiful farms in the region with many hundreds of acres. Some of the farms were large gentlemen's farms with extensive walled grounds, mansions, stables, and beautiful barns. All streets were lined with stone walls and rows of trees. The central portion of the island contained more modest farms.

Coanicut Island. Between Newport and Narragansett, located in what can be considered the mouth of the bay, is Coanicut Island, the second largest island in the bay. The island became a town in 1768 and took the name of Jamestown. This township at the turn of the century had the fewest residents of any town in the state. Jamestown Center is opposite Newport Center and extends along the road which connects the east ferry landing with the west ferry landing. Steamboat service on the bay stopped at the northern extremity of the island while a ferry from Jamestown Center connected the island with Newport. A few hotels and less than 100 houses were found on the island[63] which were an extension of the Newport summer colony. Almost all homes were in the Shingle Style.

[63] Grieve, Picturesque Narragansett, pp. 136-139.



WINDMILL
PORTSMOUTH
1910

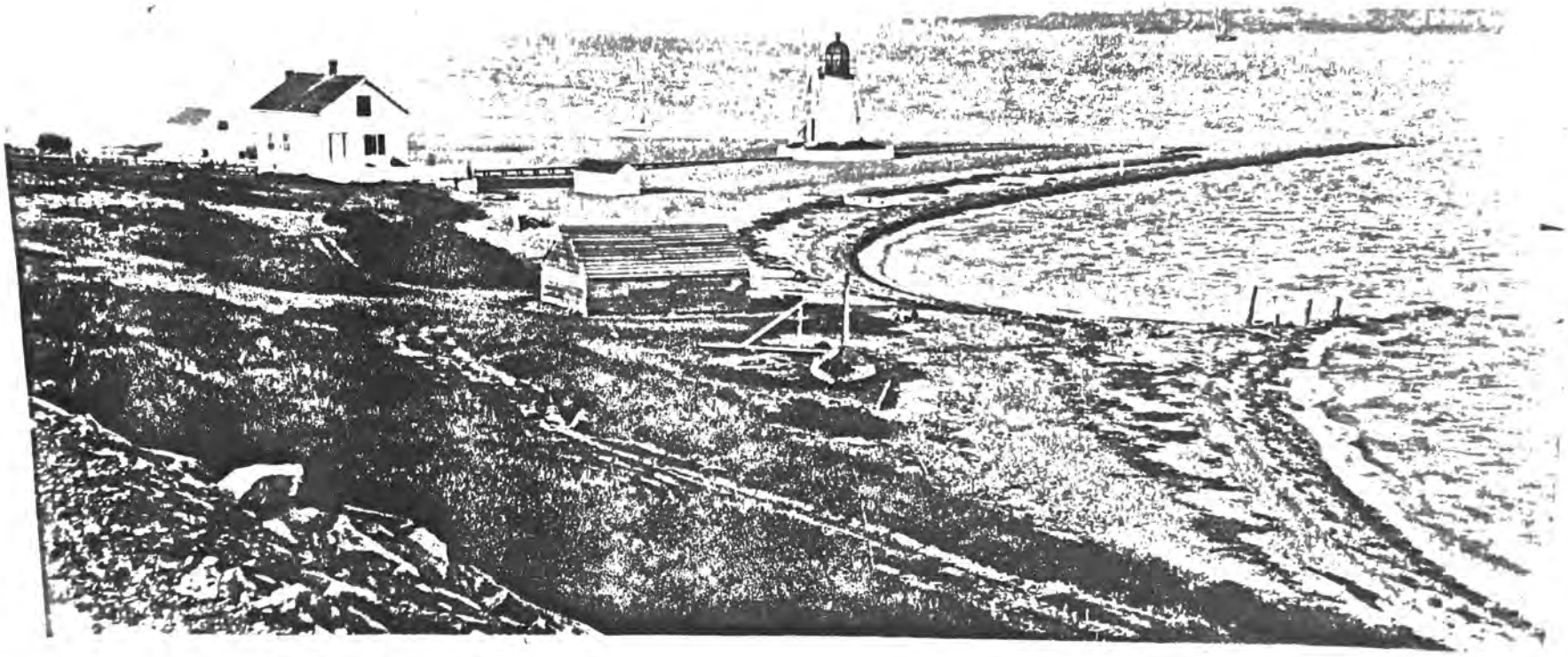
The topographical identity of the island is similar to Newport but does not have the high quality beaches of Newport and Middletown. The southern portions of the island have exceptional rugged rock cliffs, coves, high ground, and undulating topography. This area is responsible for many of the beautiful views from Newport and dominates the great entrance to Narragansett Bay. In the southern area of the island, development is still limited to an occasional mansion gracing a monumental promontory.

Prudence Island. Prudence Island is the third largest land mass in the bay with a width from 1/2 to 2 miles and a length of 6 miles. Originally farmed by Roger Williams, founder of Rhode Island,[64] the island has fertile agricultural land, as Coanicut Island, Aquidneck Island and the lands of the Narragansett Basin, although there were few farms on the island. A small summer population constructed houses, however, the island remains in an almost virgin state.

With the exception of Goat Island in Newport Harbor which accomodated the U.S. torpedo station, the remaining islands in Narragansett Bay have been practically uninhabited. Many of the islands are owned by the U.S. Government and have lighthouses and fortifications. The smaller islands in the bay are:

Patience
Hope
Whale Rock
Dyer's Island
Gould Island (2 of them)
Hog Island
Coaster's Harbor Island
Rose Island
Lime Rock
Dutch Island
Despair

[64]Denison, Sea and Shore, pp. 68, 69.
Grieve, Picturesque Narragansett, p. 139.



PRUDENCE ISLAND
1880

Dutch Island has one of the finest harbors of refuge on the East Coast. Other islands more like rocks and less like islands do exist in the bay and are noted only as hazards to navigation.[65]

Sakonnet River. The eastern shore of Aquidneck Island is bounded by a portion of Narragansett Bay called the Sakonnet River which averages about 2 miles across and 10 miles in length. Due north of the river and connected by a narrow passage is Mt. Hope Bay. On the mainland and eastern boundary of the Sakonnet are the two townships of Tiverton and Little Compton.

Tiverton. Tiverton fronts the Sakonnet River for six miles. The "Stone Bridge" connected Aquidneck Island with Tiverton town center and a railroad bridge crossed the Sakonnet a mile north of the center. Between these two bridges Tiverton's harbor developed.[66] The land in Tiverton along the bay steeply rises to an elevation of 200 ft. with the main thoroughfare part way up the hill. From this road, the view was over roof tops of village houses silhouetted against the bay waters. Both modest and conspicuous summer cottages had been constructed in the area and "Stone Bridge Cottage" in the town center provided hotel facilities.

Along the Sakonnet River in both Tiverton and Little Compton, the land has a modest slope, is very fertile, and has

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[65] Ibid. pp. 139, 140.
Grieve, Down River, p. 13.
Denison, Sea and Shore, pp. 67-72.

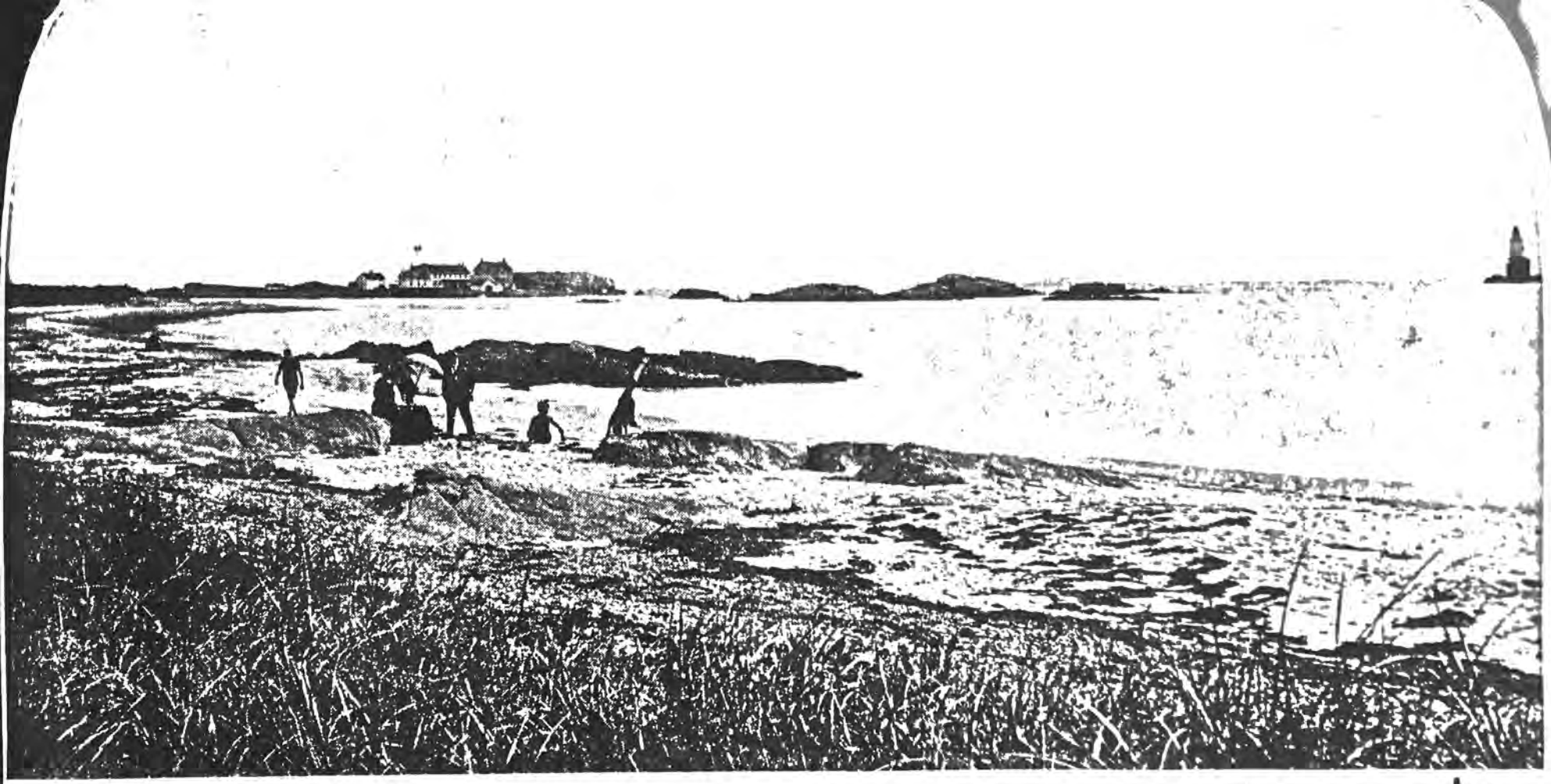
[66] Grieve, Picturesque Narragansett, p. 144.

been farmed since early colonial days. The rocky steeply sloping picturesque land had been used for housing in Tiverton but not the agricultural land, thus avoiding a conflict in land suitability and land use.

Little Compton. In Little Compton, the original pattern of 18th century shingled colonial houses, barns, outbuildings, stone walls, tree lined streets, and spacious rolling land remain. The town center consists of a few buildings around Little Compton Commons, but the area is a cohesive and identifiable district because of the homogeneous land use, vernacular architecture, and consistent small scale of the area. A short distance north of the Atlantic, the land is well suited to agriculture in both fertile soil and a minimum number of physical interruptions in the landscape. As with Aquidneck Island and Coanicut Island, this greatly changes towards the rocky southern extremity. At the southern most portion of Little Compton is Sakonnet Point or "Land's End." Land's End is a rocky peninsula tapering far out into the ocean and off the narrow point are several small islands or very large rocks. The view from the point includes: Martha's Vineyard, Cuttyhunk Island, Newport, and Point Judith. In the vicinity of the point were a hotel, gentlemen's fishing club, a small number of large summer cottages, beaches, and a small sheltered harbor.

The steamer excursion from Providence to Sakonnet Point was three hours and until 1886 when the "Queen City" steamship connected the Point and Little Compton with Providence, there was practically no summer colonization in the area.

67Ibid. pp. 142, 143.



BATHING BEACH, SAKONNET POINT, R. I.

1905

VI. THE ESTABLISHMENT OF URBAN PATTERNS: MANUFACTURING CENTERS AT THE TURN OF THE CENTURY

Fall River. On the northeastern shore of Mt. Hope Bay, at the mouth of the Taunton River, is the city of Fall River in Bristol County, Massachusetts. The land on which the city is sited steeply slopes from Mt. Hope Bay to an elevation of 150 ft. Two miles east of the bay are a group of interconnected fresh water bodies equivalent to 3500 acres. Twenty thousand acres drain into the basin of these ponds and a single creek channels this water in a descent to the bay. The textile industry dominated the city with 57 factories engaged in such manufacture and 20 additional factories of related industries. Together they employed more than 19,000 people. Railroad and steamer serviced the center, supplying raw materials and distributing manufactures.[68]

Taunton. The city of Taunton at the turn of the century was slightly larger than Woonsocket, however, it existed in relative isolation compared with the Blackstone Valley corridor of mill towns. Taunton was also a manufacturing city, with a population of 31,000 people. Located on the banks of the Taunton River, the city was accessible to Mt. Hope Bay and subsequently had the normal communications provided by Narragansett Bay. The city was also serviced by rail.[69]

Pawtucket. The city of Pawtucket takes its name from the Indian name for waterfall. At the Pawtucket Falls, the fresh

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[68] Ibid. pp. 140-142.

[69] Grieve, New England Coast, p. 72.

SLATER AND
OTHER PAWTUCKET
MILLS 1880

water Blackstone River fed by the valley of the same name, tumbles into the salt waters of the Seekonk River and Narragansett Bay. The falls provided water power and the impetus for a prosperous manufacturing town. The first cotton mill in the country was established here and manufacturing quickly expanded from the textile industry to a great many other manufactures. The settlement was founded in the 18th century four miles northeast of Providence and at the turn of the century had the second largest population in Rhode Island. Until the border dispute was settled in 1862, the east half of the city had been part of the Commonwealth of Massachusetts.[70] Together, Providence and Pawtucket comprised the major portion of urbanization within the Narragansett Bay Region.

The 18th century section of town developed near the Pawtucket Falls, with some estates formerly south of the center toward Providence. An elegant 19th century neighborhood of large ornate Victorian homes adjacent to the eastern portion of the business district housed wealthy mill owners. With the exception of a few small squares, there was practically no open space within the urbanized area. In the sparsely settled countryside at the far end of the city limits near the Massachusetts boundary, Slater Park was dedicated. Located along the Ten Mile River, the park although large, was not as significant as Roger Williams Park in Providence.

Providence. The city of Providence is located in the Moshassuck and Woonasquatucket River valleys and the confluence of the Providence River and Narragansett Bay. As the Moshassuck

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[70]Grieve, Picturesque Narragansett, pp. 73-75.

and Woonasquatucket Rivers merge, their union is called the Providence River. The east side of Providence sloping away from the rivers reaches a plateau altitude of 200 ft. The plateau continues east for a mile and then steeply descends to the banks of the Seekonk River.

The west side of the Providence River extended to form an estuary about one half mile across. On the west bank of the estuary was another hill similar to that on the east side but extended to the south and west at an elevation of 75 ft. The estuary marshes had been filled and the bulk of the business and downtown section of the city occupied the site. Only a small portion of the original lagoon called "The Cove" remained at the turn of the century.[71] The Providence River passing through the downtown area, extensively bridged and platformed over, became for all practical purposes, an underground river. A strange annihilation of a city's greatest feature had taken place and presented a significant contrast to the river reinforcement of European urbanism.

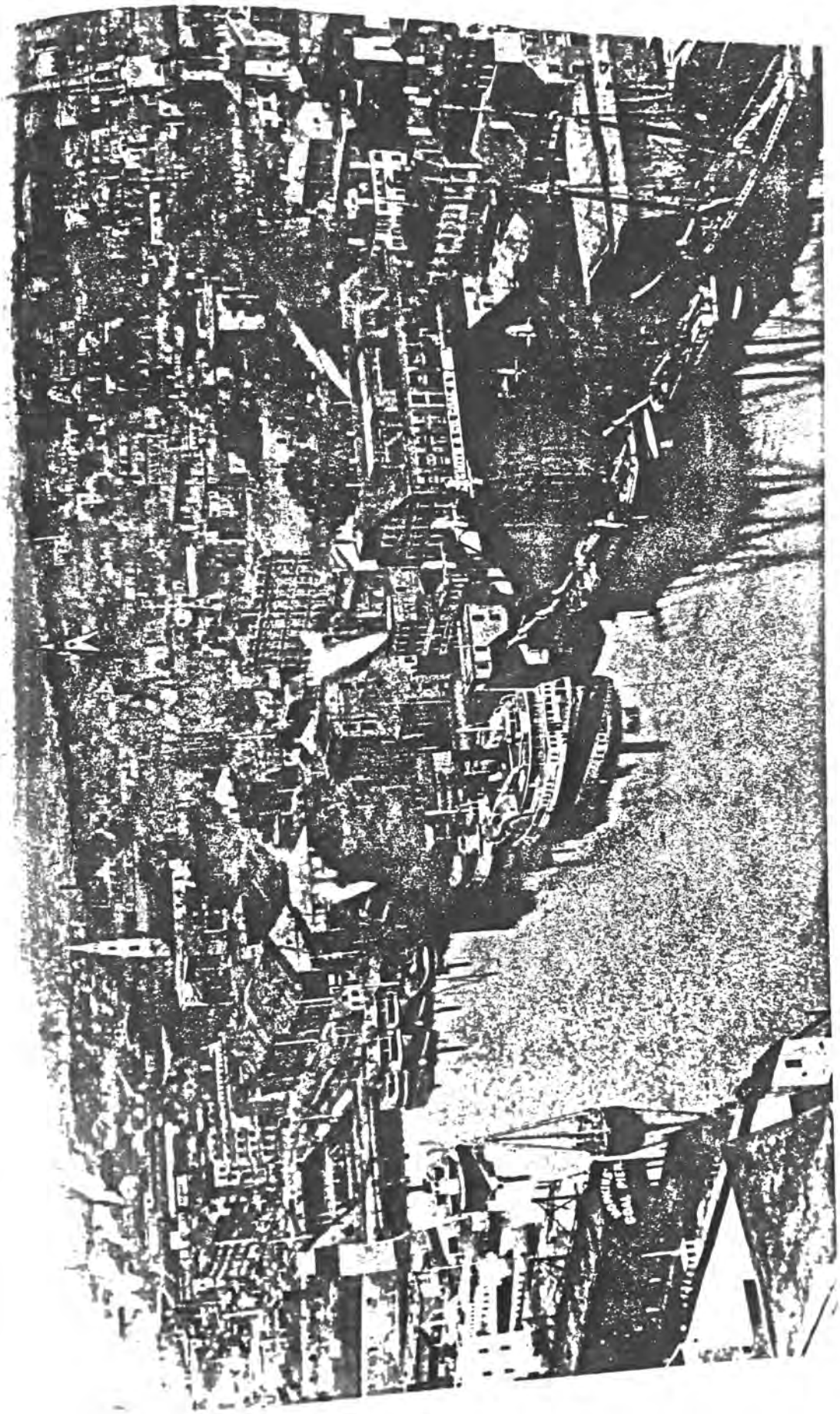
The original train station had been relocated from the waterfront to the partially filled marsh and present downtown area. With additional infill of the lagoon another train station was built several hundred yards north of the former location and a large public square was constructed on the earlier site.

The east side of the city furthered its image as the elite and expensive residential section of the city.[72] However,

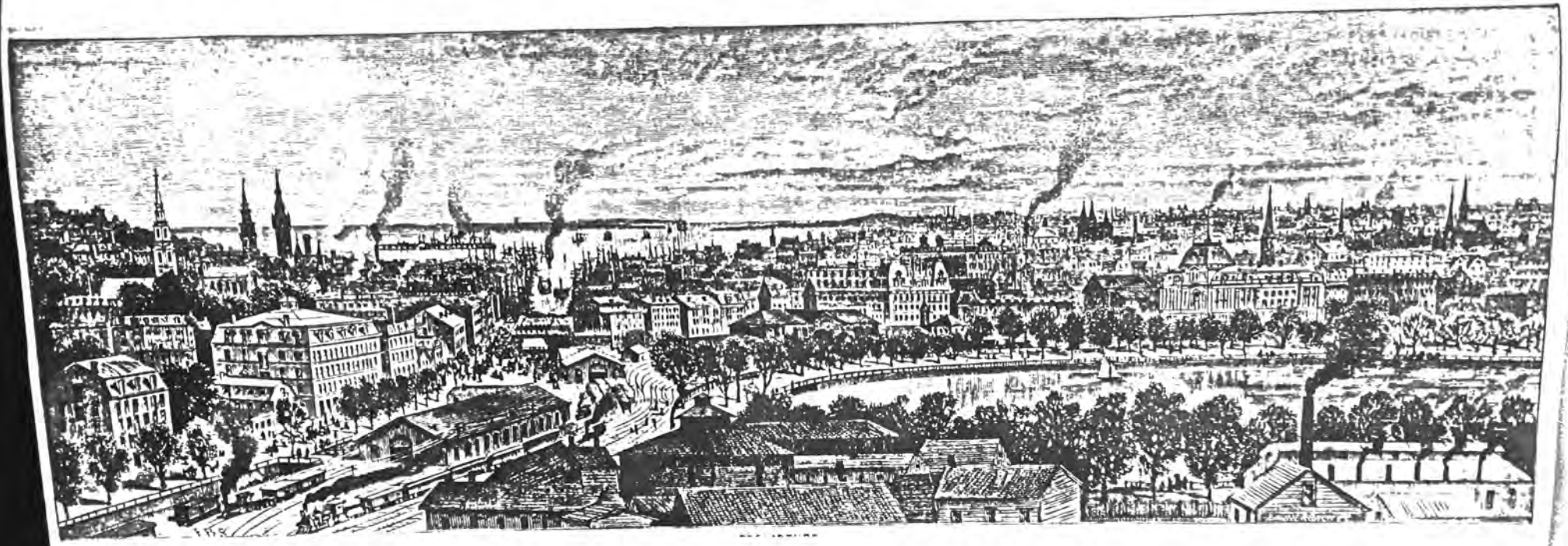
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[71] Ibid. pp. 9, 10, 11.

[72] Ibid. p. 10.



PROVIDENCE
1900



PROVIDENCE COVE
1880

Broadway and Elmwood Avenue, radiating from the downtown core to the west and southwest were lined with ambitious Victorian mansions. The latter provided direct boulevard and rail car connection with Roger Williams Park.

In the Providence urban area, there has traditionally been a limited amount of open space. An inventory of open space in Providence at the turn of the century follows.

"Cove Promenade." The park which surrounded the remaining portion of the original lagoon decreased in popularity when the water became polluted and offensive smelling. Also access was hindered by the physical barrier of the circumferential railroad.

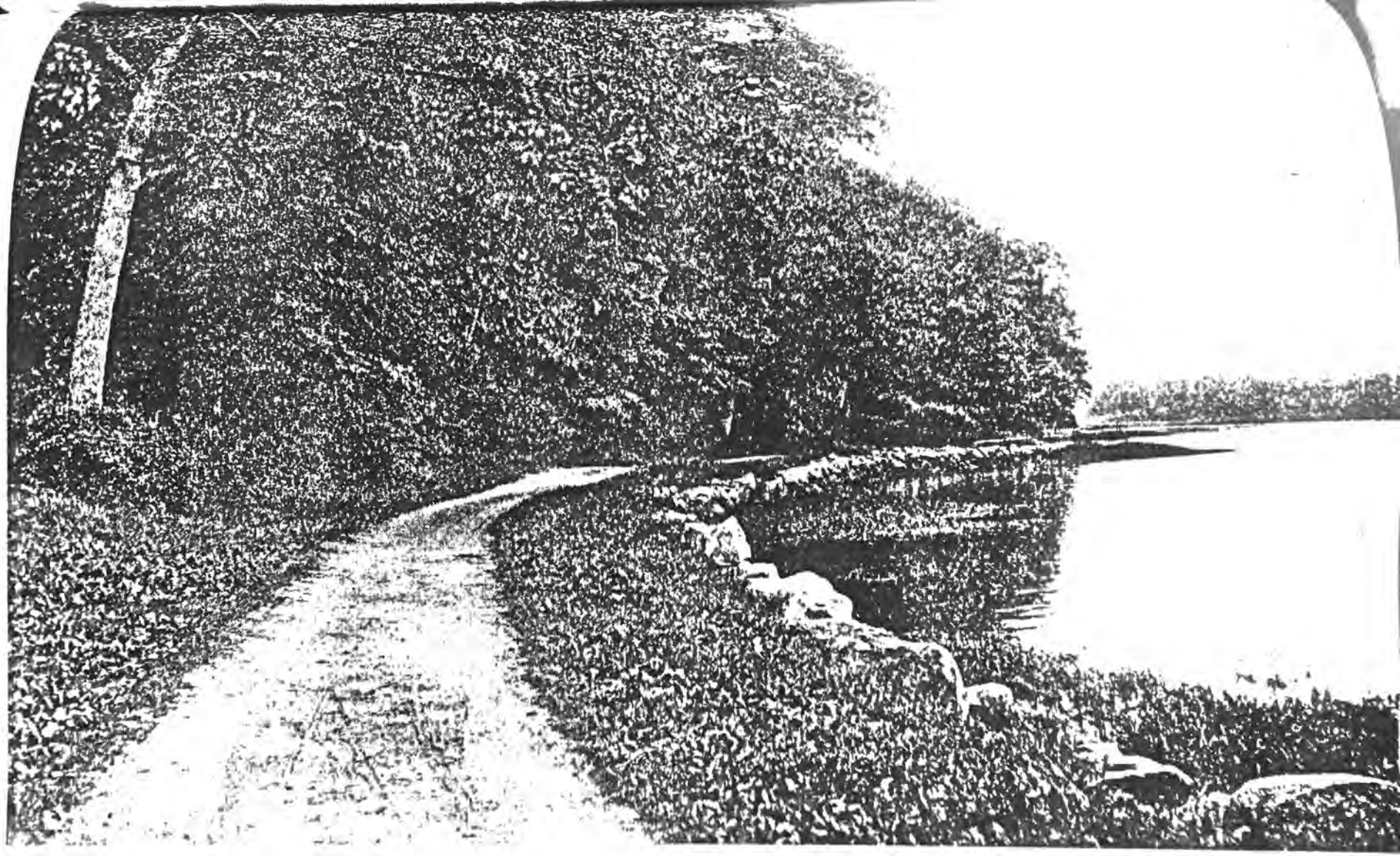
Blackstone Park. Blackstone Park was an undeveloped strip of land consisting of four acres along the Seekonk River, but the limited area was visually enlarged by the views of the river. Brown University Yacht Club, recreational boating, and steam transport, utilized the Seekonk River.

Dexter Training Ground. This field of nine acres in the western section of the city was simply unbuilt ground. No attempt had been made to improve the land.[73]

Roger Williams Park. "Roger Williams Park is the only public ground deserving the name."[74] This park of 110 acres was superbly designed with varied landscape, gardens, and several lakes. A plan existed at one time to connect the extensive grounds of Roger Williams Park with Field's Point due east of the park on the bay. Field's Pt. provided bathing and clam-

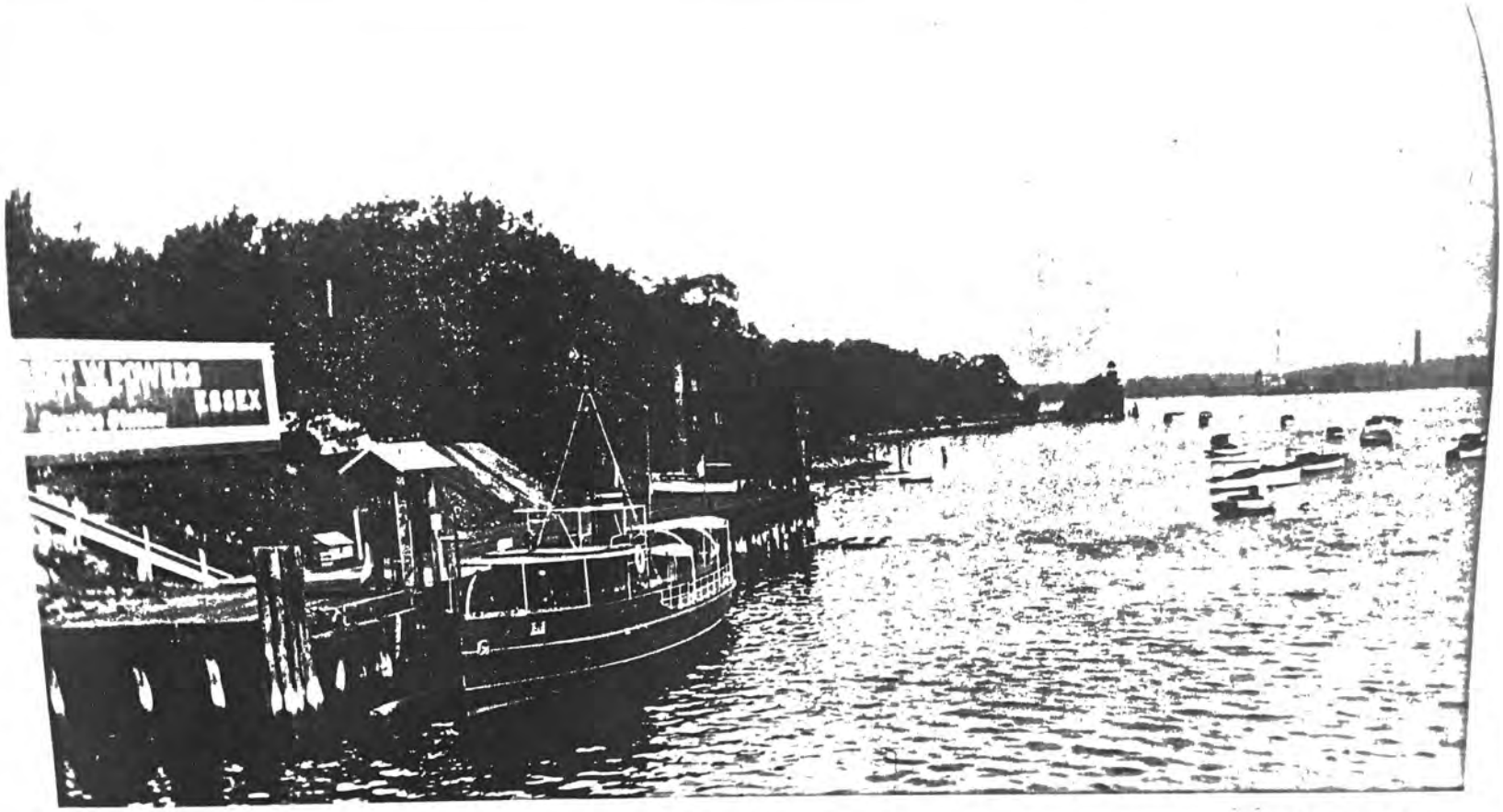
[73] Ibid. pp. 36-40.

[74] Ibid. p. 36.



DRIVE AT SWAN POINT ALONG SEEKONK RIVER

1910



SEEKONK RIVER
1930

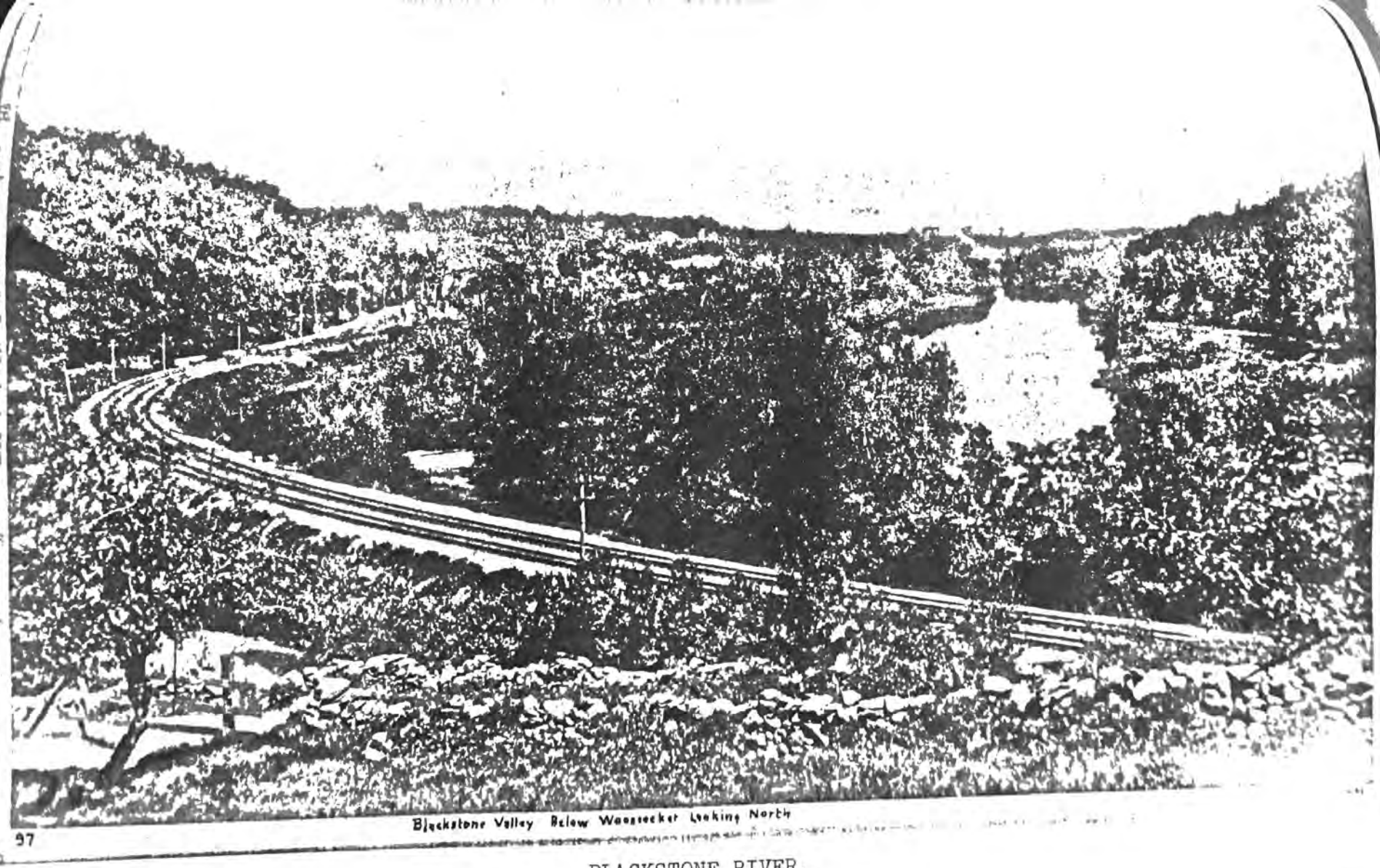
bake facilities within the city boundaries. The idea is reminiscent of Commonwealth Avenue in Boston linking the Boston Public Garden with the Fenway, designed as part of Olmstead's "Emerald Necklace."

Hayward Park. A former two acre cemetery was redesigned as a small park.

In addition, four squares existed in the city. Plans had been made by the city for a park at Tockwotton Heights where there is a fine view of the harbor and bay, but this was never realized. Further south in Cranston, the Pawtuxet River functioned not only as a park-like picturesque river frequented by pleasure parties with rowboats and canoes, but was one of the primary sources of Providence's water supply.[75] Today the river is still a primary municipal water source.

Blackstone River Valley. Located between the cities of Pawtucket and Woonsocket, the lands along the western bank of the Blackstone River are part of the town of Lincoln, while the east side of the river is in the town of Cumberland. The cotton manufacturing villages of Central Falls, Valley Falls, Lonsdale, Berkeley, Ashton, Albion, and Manville in the valley, focused on the river and many waterfalls. Some of the settlements occupied both banks of the river. In 1885 the population of Lincoln was 17,229 people, almost entirely located in the mill villages. Several other manufacturing villages were located on various rivers, such as Saylesville on the Moshassuck River,

[75] Ibid. pp. 36-72.



BLACKSTONE RIVER,
AND VALLEY 1890

but the Blackstone River Valley dominated the manufacturing scene with seven villages between the major manufacturing cities of Pawtucket/Providence and Woonsocket.

When the Blackstone Canal failed, the Providence and Worcester Railroad was established along the river bank in the valley. Between villages, which were served by the railroad, were woodlands and undisturbed river views. The land between villages remained in a natural state. The change of scenery effected by the winding river and related railroad bed enhanced the route.[76]

Woonsocket. The city of Woonsocket, 16 miles north of Providence, is located around the waterfalls of the Blackstone River, Mill River, and Peters River; the heights of which are 30 ft., 60 ft., and 52 ft., respectively. These falls provided the impetus for a large manufacturing center which began about 1810. The river enclosed by the walls of the valley in an arc formation, widens to form several large mill ponds around the different waterfalls and dams. Rail travel time from Providence was 45 minutes.[77]

The city had little open space and many of the factory employees were housed in apartments or tenements within close proximity to one another. The characteristics of urban scale and size moderated this problem because the open countryside was only a short distance from the city, but as the population increased, the countryside became further removed from the center.

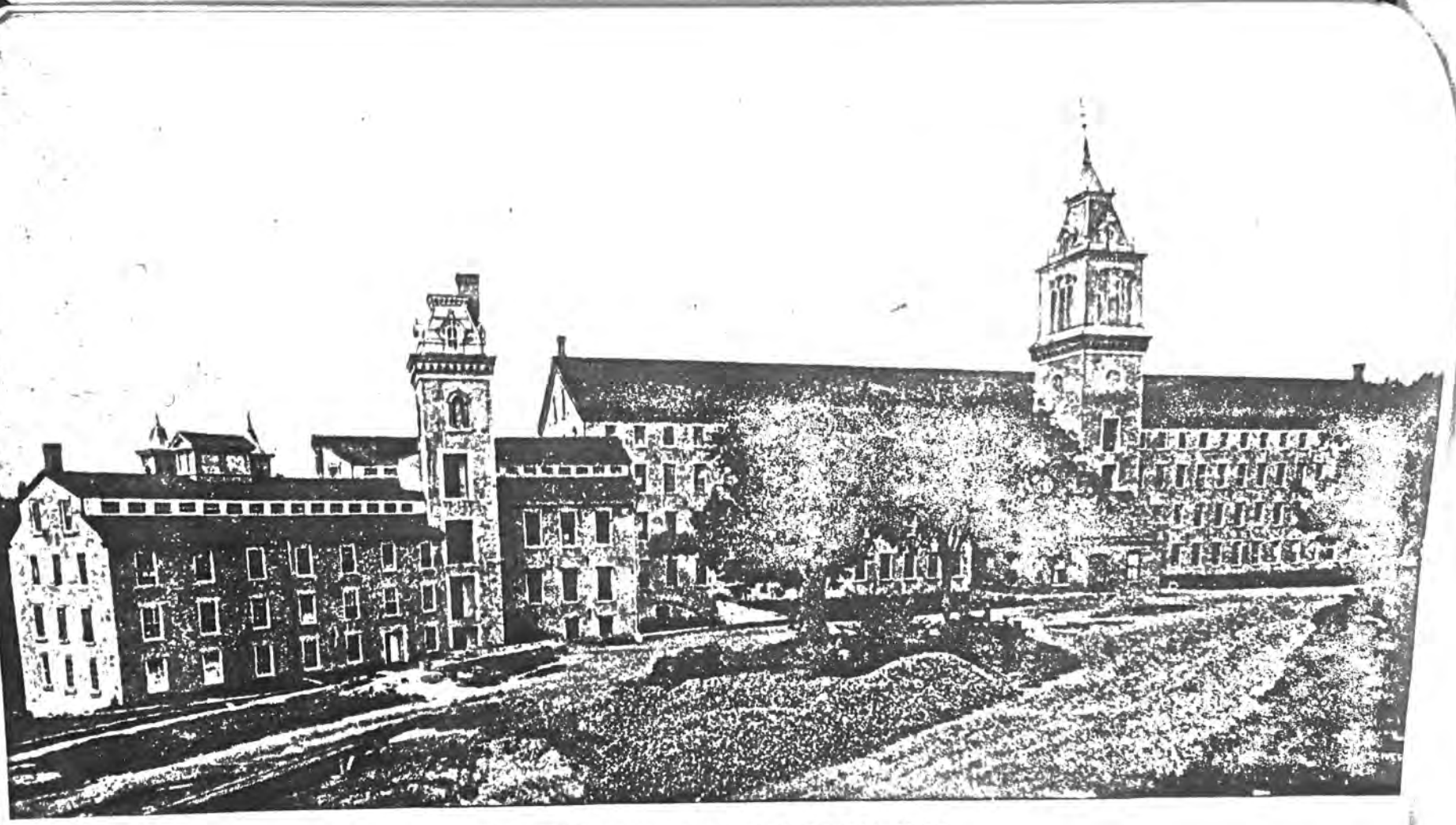
[76] Ibid. p. 88.

[77] Ibid. pp. 93-95.

Some fine 19th century architecture was constructed in the form of mills, warehouses, civic buildings, and residences in the manufacturing centers. Throughout the region, many of the mills were designed by notable architects of the period. Many mills constructed of brick or stone have courtyards, campanili, slate roofs, ornate wrought iron ornamental work, enormous walls of glass windows and were frequently located at the falls. The Centreville cotton mill is a handsome example.

Comment on the 19th Century Landscape Experience. During the 19th century and perhaps until what can be considered the advent of modern architecture, an attitude toward landscape existed in America. The planned romantic landscapes of the 19th century were first popularized in the form of cemeteries. These particular cemeteries designed around variable picturesque topography, scenery, and vistas, were used as parks by the public. Soon thereafter public parks were developed along these design concepts, attempting to approximate the pastoral beauty of the "natural" landscape which was more of an ideal than a normal condition. Frederick Law Olmstead's urban parks, designed in this fashion were also meant to introduce the appearance of the larger landscape into the confines of a smaller site.

The Narragansett Bay Region's landscape identity was appreciated by the 19th century mentality. The larger landscape of the bay lands experienced by excursion steamer or railroad, and the smaller landscape units of the private resort parks experienced on foot or by carriage, related to a particular scale and pace of movement for optimum visual experience. Entire areas of



THE CENTREVILLE COTTON MILL.

1905

Newport and Coanicut Island consist of designed landscape which not only channeled the spectator along a route which afforded admirable views and scenic attractions but greatly improved upon the natural features of the land, in the same manner in which the English landscape was created.

The natural landscape of Narragansett Bay was used as an extended park by excursionists. This was reinforced by buildings and grounds along the bay which were designed to be viewed from the water. In addition, the countryside was frequently designed with farm and estate land oriented to specific roads - very similar to the British scene. The landscape experience in the Bay Region existed in public parks such as Roger Williams Park in Providence, the private resort parks along the bay, the countryside, and the bay with all the related lands along its shores.

Theoretically with the advent of modern architecture, landscape design was considered irrelevant and self-indulgent. Modern architecture has simply considered landscape design of no consequence. Today non-urban buildings are allowed to stand against the more or less neutral quality of whatever exists on the land.

It would appear to be a strange contradiction that in the latter half of the 20th century when suburbanization would imply a search for rural amenity that landscape design would be discarded, with the exception of private golf clubs/country clubs. The idea of scenic parkways made a brief appearance on the land-

scape scene but presently the overwhelming annihilation of all natural features of the land and the inherent scale of the land are significant errors of common highway design. The present ruination of woodlands and agricultural land resulting from unplanned suburban development/scatterization in the Bay Region, illustrate a regression in understanding the landscape experience.

VII. NARRAGANSETT BAY AS A MODERN HARBOR

For the purpose of this section, Narragansett Bay will be considered a harbor. The Gulf Stream and elimination of arctic currents by the protective arm of Cape Cod, make the bay a "warm water"[78] harbor. Narragansett Bay is located approximately midway between the harbors of New York and Boston. Admiral Charles L. Andrews, Jr. described the location of the bay in relation to a much larger context than the region itself. The Canadian border at Vermont is 260 miles away. Using this distance as the radius of a circle of influence, Vermont, New Hampshire, Connecticut, and Massachusetts are covered in their entirety and still within the circle are the cities of Syracuse, New York; Harrisburg, Pennsylvania; and Baltimore, Maryland. With the exception of Chicago, Detroit, and Pittsburg; Narragansett Bay has proximity to a very large industrialized and high density area. Other points Andrews raised, were that the bay is also more easily navigable than New York Harbor and much more defensible than that of Boston. The three entrances to Narragansett Bay can also be guarded with submarine nets.

Martha's Vineyard, Nantucket, Block Island and Montauk Pt. off the coast offer ideal locations for specialized equipment in detecting an enemy aggression. New York, Boston, Philadelphia, Norfolk, and Charlestown Naval Bases do not have the physical geography to capacitate a fleet at anchor as the 156 square miles of protected waters in Narragansett Bay provide. Their inland

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[78]Charles Lee Andrews, Jr., The Strategic Importance of Narragansett Bay (Unpublished minutes of a lecture delivered before the Rhode Island Historical Society, Feb. 7, 1951) p. 2.

locations on linear water bodies do not permit quick and easy access to the open sea, and ships must be docked with the frequent use of tugboats. Decentralization of a fleet particularly necessary during an attack is impossible, and access to the ocean is difficult. The highly industrialized areas surrounding these bases produce considerable conflicts with naval interests, but the centralized industry and population in the Providence area existing in the late 1950's avoided this conflict of use in the southern bay lands.

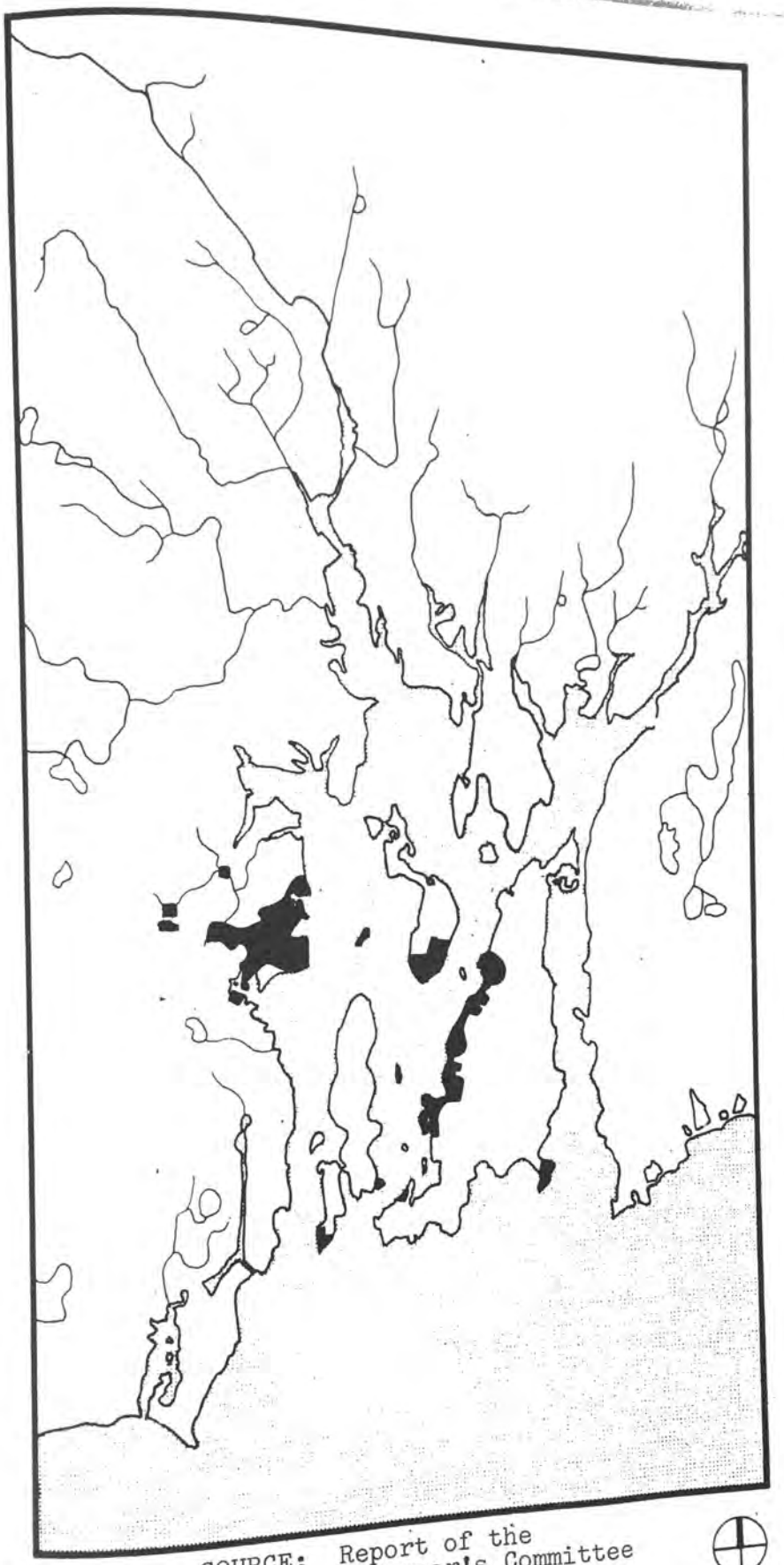
A spread fleet arrangement on the bay, with ships one half to one mile apart, would minimize fleet damage in an atomic attack. A single bomb's radius of destruction would only be able to destroy one to two ships with this organization.[79] The following quote summarizes Admiral Andrews' findings on Narragansett Bay.

> "Hence, I consider it reasonable to conclude that, geographically, no other location in the eastern U.S. has more to offer strategically as a location for a Fleet Base."[80]

This presents a distinct contrast to the present federal policy. Large sections of Quonset Pt. and Newport Naval Base have been closed. It is beyond the scope of this study to evaluate such a decision, however, the transfer of military lands from the Federal Government to the State of Rhode Island and subsequent reuse/development of such properties is questionable. Reactivation of military facilities once redeveloped and fragmented would be most difficult. In addition, the manner in which the

[79] Ibid. pp. 2-14.

[80] Ibid. p. 3.



SOURCE: Report of the Governor's Committee On Coastal Zone. 1970, p. 66.

NBR

U.S. MILITARY LANDS

0 1 2 5

open lands near the bases are developed, should take into consideration the future use of the bases and their requirements.

Whether one agrees with the reuse of the military properties or not, it is a basic datum that the bases have been permanently closed and the lands will be reused for civilian purposes. However, it should be noted that no matter how the lands are reused, major facilities as piers, bulkheads, airport landing strips, and other investments should be protected.

VIII. AN OPEN SPACE INFRASTRUCTURE FOR THE NARRAGANSETT BAY REGION

It is my primary concern in this section of the study to utilize the lands of the Narragansett Bay Region as a graphic vehicle for exploring contemporary urbanizing forces, regional initiatives, and policies controlling growth. It is my initial premise that an open space infrastructure has the potential to act as a scaffold or structure directing development in desired locations and at the same time provide a full range of amenities.

The issue of scale, vanishing rural, and bay related amenities provided by undeveloped land, are primary concerns. Conservation of the remaining bay lands will be stressed and characteristics of present patterns of urbanization will be classified with their relation to diminishing open space.

The most easily discernible pattern on the urbanizing lands are density zones relating to travel time from the Providence core. The greater the travel time, the less developed is the land. This can be attributed to a metropolitan civilian employment focus on the Providence area. This is, however, not a function of distance but time, since the urbanization of the east and west sides of the bay differ. This is due to contrasting highway development and subsequent travel time.

As the eighteenth century seaport towns on the bay lost nearly all their original water related economic base, the 19th century tourist industry adapted itself to these existing towns as well as generating additional towns or nodes. Within the Providence oriented urban system, these resort towns are changing to bedroom communities. Those which still remain only resorts

exert development pressures independent of job locations. They are more centralized than spread development since they relate specifically to particular amenities as a beach or harbor and are for the most part without connecting strip development. Between resorts lay large tracts of scenic woodlands and farms along the bay. Please see NBR "Population Distribution" for 1950 and 1970.

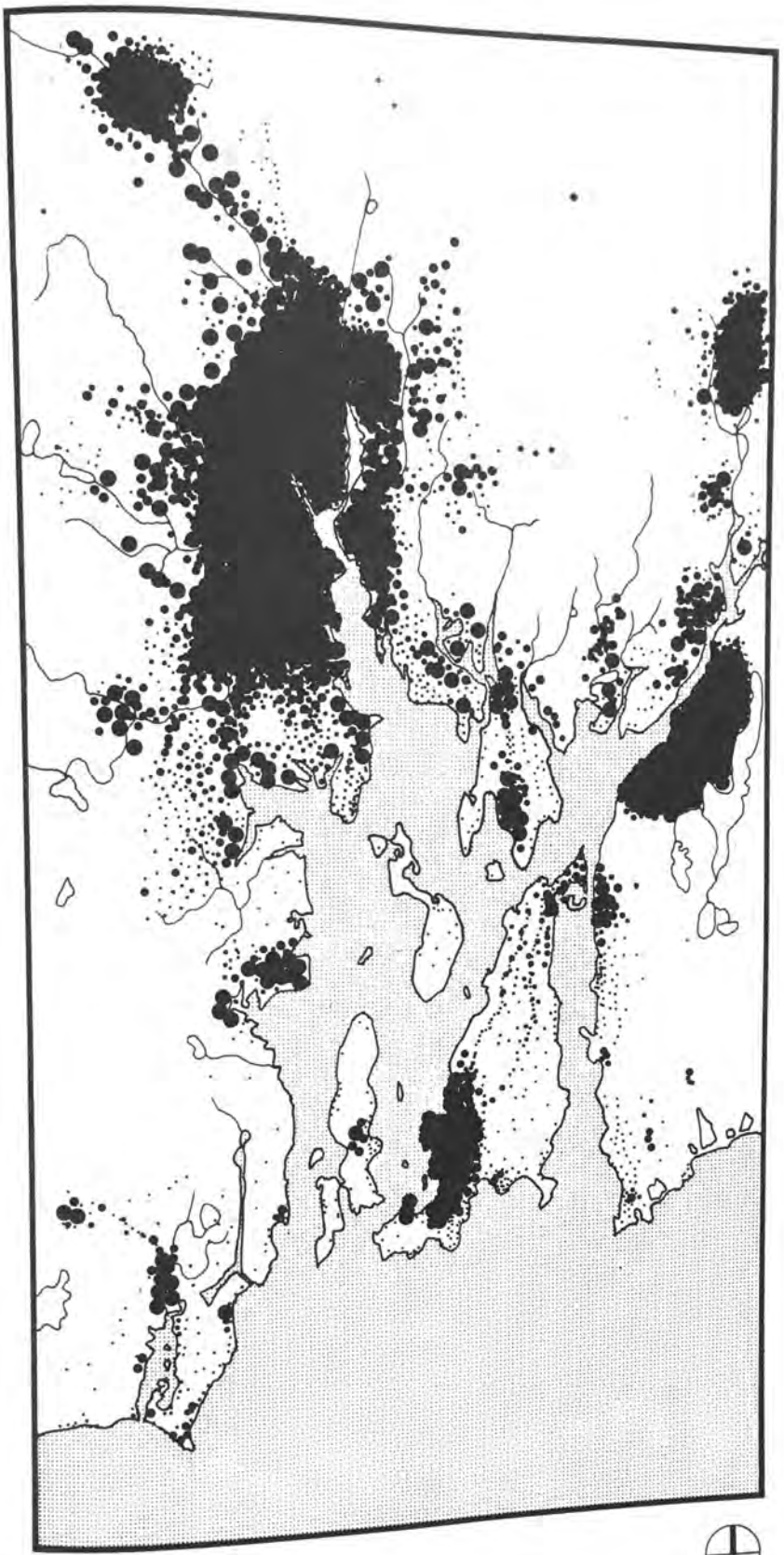
Quonset Point Naval Base on the west shore of the bay and Newport Naval Base on the east shore are presently inactive. The government facilities have been closed and reuse plans of the bases are currently under controversy.[81] There is not really a surplus of housing due to the closing of the bases since new residential construction in the state has been sluggish. However, the commuting patterns of the new residents are not focused on the bases and therefore quite different than the needs of original naval personnel. Clearly, the manner in which the state reuses the military lands will affect the land use development of a much larger area. Alternative reuse proposals recognizing associated land development responses should be encouraged. The reuse of the naval bases will act as a catalyst in the urbanizing system of the bay.

Some of the apparent forces influencing land use and development pressures on the bay are the following.

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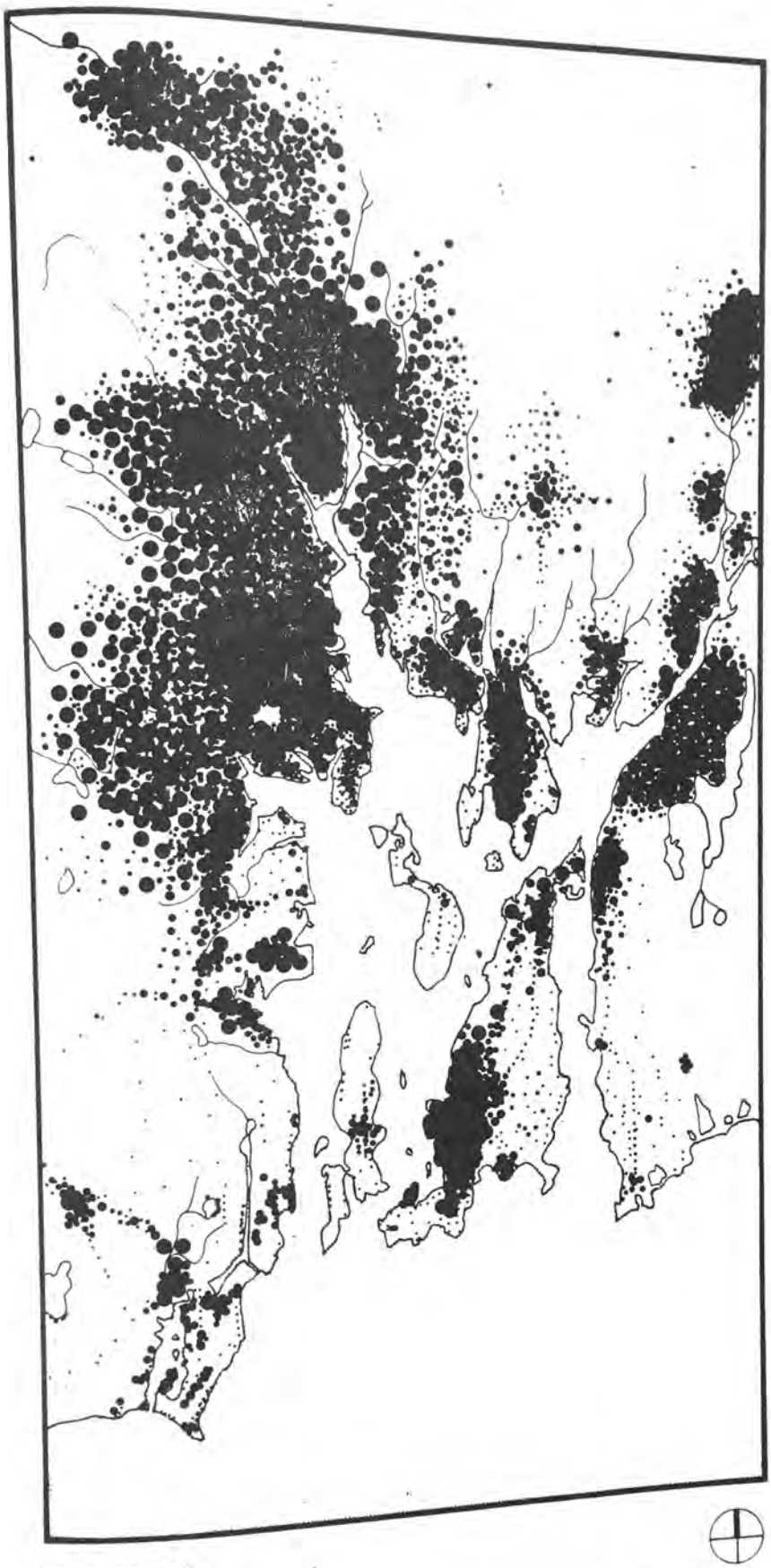
[81]North Kingstown Planning Commission, Reuse Plan: Quonset/Davisville (North Kingstown, R.I.: North Kingstown Planning Commission, 1974)

Governor's Office, State of Rhode Island, General Plan for Reuse and Development of United States Government Surplus Military Lands in Rhode Island (Providence: Economic Renewal Coordinating Center, 1974)



NBR

POPULATION DISTRIBUTION 1950



NBR

POPULATION DISTRIBUTION 1970

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Infrastructure Determinism. Urbanization relates to automobile accessibility and time/distance relationships. Highways and bridges are the specific mechanisms. Public transit today plays a minimal role in regional commuting unlike nearby Boston's metropolitan area. Extension of public utilities in the region reinforce the highway oriented urban patterns.

Economic Determinism. Some scatterization occurs due to the selection of dispersed lower priced land for urbanization.

Industrial Decentralization. Employment center relocation effects population redistribution within the region. The suburbs are competing with central Providence for economic base and zone large amounts of open land as industrial parks. This is directly associated with the next factor.

Land Tax and Revenue. Increased land taxes and evaluations exert pressure to develop the land. Registered farms are taxed at a lower rate.

Social Determinism. Increased amounts of leisure time have generated a search for recreational amenity. Residential decentralization by families seeking more rural environments and water related activities is critical. This bears directly on the inability of urban areas to provide adequate recreational in-town facilities.

Physical Degeneration of the Urban Core. Except for College Hill, Providence has become an unattractive place to live. The core is affected by all the policies of the subcenter towns, particularly their shopping malls, and industrial parks. However, the exploitation of the urban waterfront, strip zoning and little concern for the larger environment of the city have

helped its own demise. There is little recreation amenity within the city although enormous potential.

Non-urban College Campuses. Recently three college campuses relocated from the city to non-urban areas. They spawn housing and support facilities. These institutions in new facilities in Providence could have greatly reinforced a cultural center.

Recreation Movement Patterns. Part of the highway building platform was to provide roads with larger capacities and shorter travel times to the southern state facilities and private beaches. Once accomplished, residential decentralization utilizing the roads commenced.

Land Suitability Inventory, for uses other than urbanization does not exist.

Developable Lands. With the exception of floodplain zoning, all land is considered potentially developable, and it is there that the multiple conflicts ensue. The lack of physical land controls and no comprehension of the finite quantity of existing land, reinforce the plight of the bay lands.

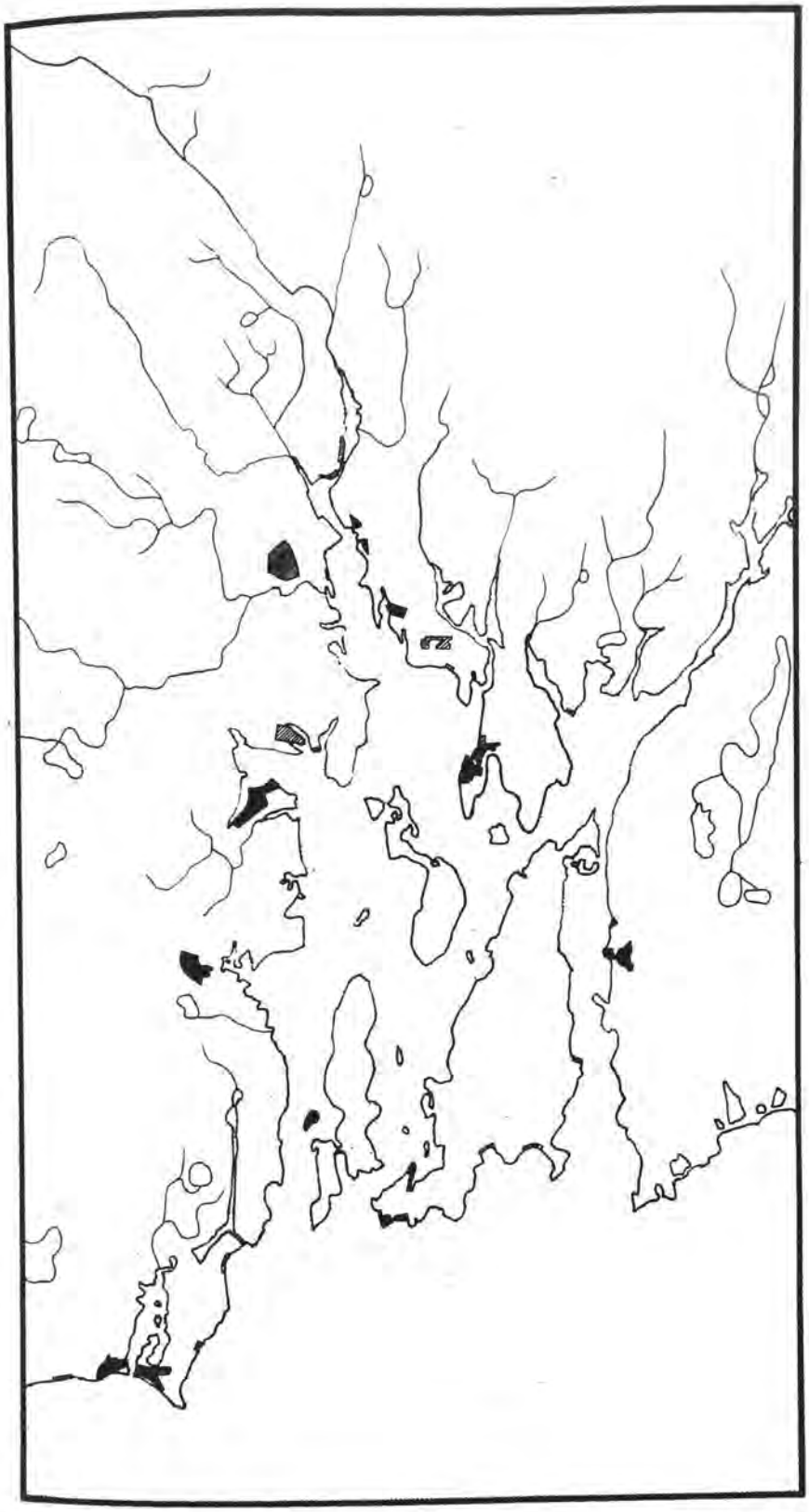
These are the more obvious development forces on the bay region. However, the bay's own inherent physical beauty no doubt attracts people and may influence its own demise. Controlling the urbanizing forces in the Narragansett Bay Region will help shape the development of the physical environment.

Bay related amenities within the immediate existing urban environment are needed. Recreational development as a social issue and economic issue should be integrated with a total picture of user needs, rural or urban. Stabilization of the urban

system would require sufficient facilities to support the life style of particular income groups. Frequently the open space and recreational facilities planned for a jurisdiction are figured in proportion to population. These facilities in urban areas, are for the most part, minimal. Minimal facilities which are frequently all that lower income groups can hope for, will not satisfy the desires of upper income groups. The affluent middle class has left the city in search of abundant amenities.

The problem is greater than maintaining desirable bay lands and controlling growth. Particular towns which host private and public recreational facilities are forced to accommodate on a summer day, tens of thousands of people from towns which have inadequate recreational facilities. The waterfront and bay lands should be looked at in the context of a systems relation of social, ecological, and economic considerations. Conservation of virgin land; maintenance against deterioration of existing residential environments; and land reuse of blighted, derelict, and underutilized land in the bay region could provide a stable system which reinforces itself.

Historically, in several bay areas, development, exploitation, fall from fashion, and exodus to new development has been the pattern. Note the degeneration of Rocky Point and Oakland Beach, once attractive popular resorts highly praised at the turn of the century. Drastically limiting the amount of available land would rejuvenate existing heighborhoods and communities in the region and reinforce renewal efforts both private and public. In an historic state as Rhode Island, historic preservation and renewal should be emphasized. Historic relevance of bay towns and farms will be a recurring theme.



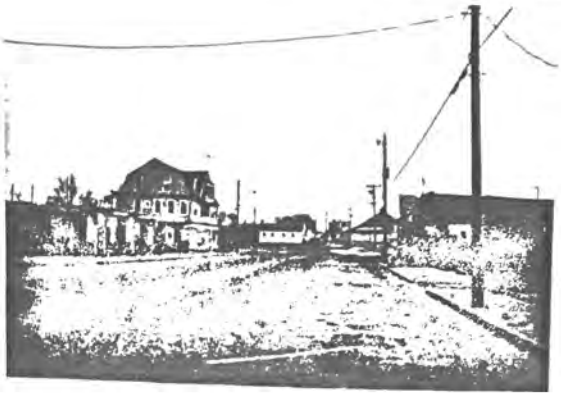
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PUBLIC OPEN SPACE
STATE LAND
MUNICIPAL LAND

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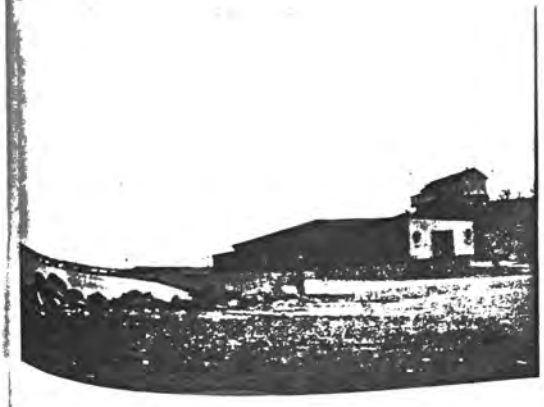
SOURCE: Report of the Governor's Committee on Coastal Zone. 1970, p. 62.













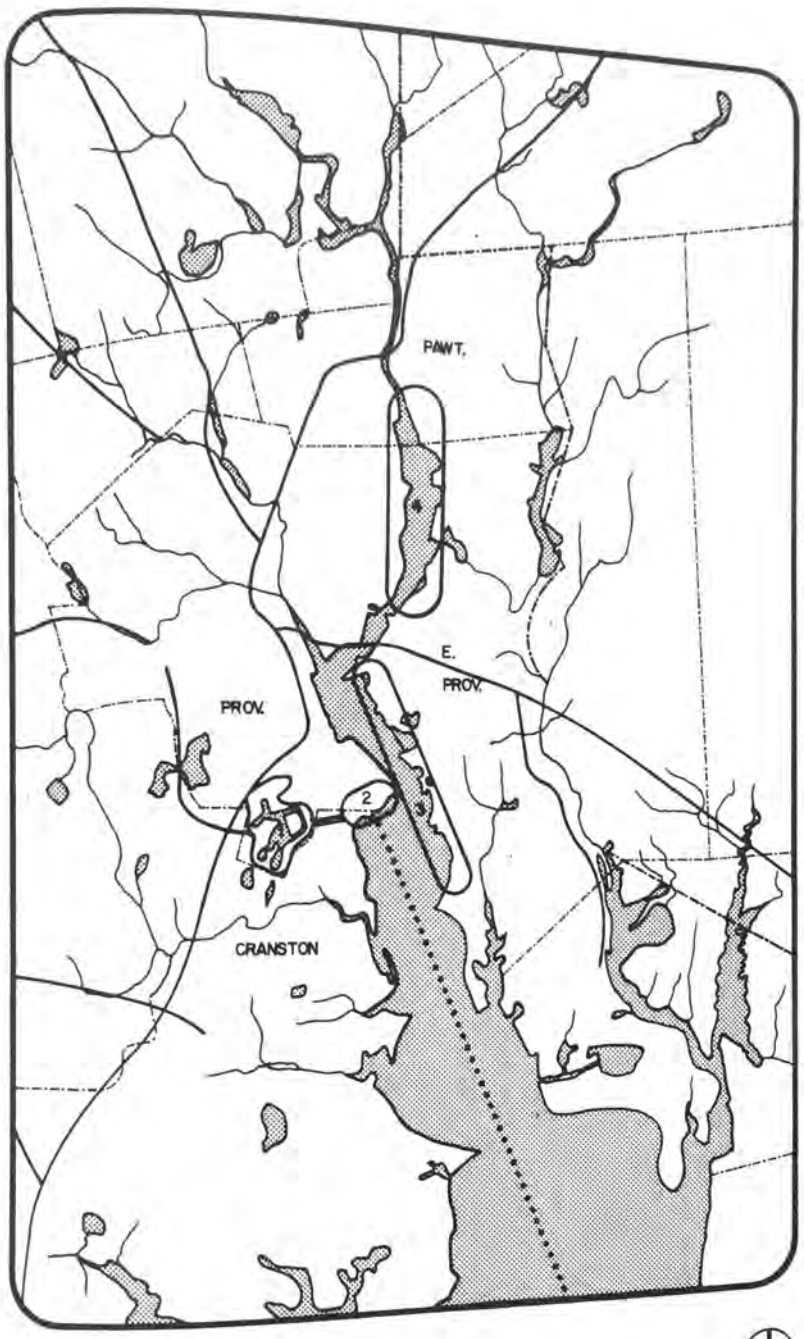
ROCKY POINT,
OAKLAND BEACH

Open space zones will be used to physically denote the typologies of existing undeveloped open space in the bay region, relating from smaller to larger amounts of land. This relates to the described time/distance variance from the urban core.

Metropolitan Providence Waterfront. Revitalizing particular derelict and underutilized stretches of the upper bay waterfront along with selected land reclamation projects will bring much needed open space where the highest concentration of people exists. The following diagram depicts potential water oriented open space in the metropolitan area and the photos illustrate existing contrasts in those areas.

Few and Infrequent Farms. In both Bristol on the east side of the bay and Warwick on the west, some farm land and some farm-estate land still exists and characterizes the nature of these towns. The dichotomy of open land juxtaposed with developed sometimes formal estate property is the physical pattern. Bristol contains all economic groups--lower, middle, upper-middle, and elite wealth while Bay lands in Warwick are becoming homogeneous and increasingly upper-middle income arranged in a spread development. Since Warwick has no high density town center or urban area as Bristol, the segregation of income groups is vivid. In both cases, the land will soon become a continuous fabric of zoned 1/2 acre spread development, lacking the containment of the earlier urbanization in Bristol. Particularly, the open/built juxtaposition will disappear.

Transition Zone. This area is the interface between the urban suburbs and a fairly consistent fabric of open farmlands and woodlands in a natural state. These areas are becoming



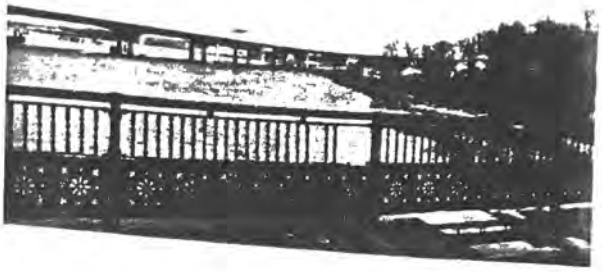
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URBAN WATERFRONT AND OPEN SPACE RESTITUTION

1 ROGER WILLIAMS PARK (existing)
2 FIELDS POINT
3 RIVERSIDE, EAST PROVIDENCE
4 SEEKONK RIVER: PROVIDENCE, EAST PROVIDENCE, PAWTUCKET

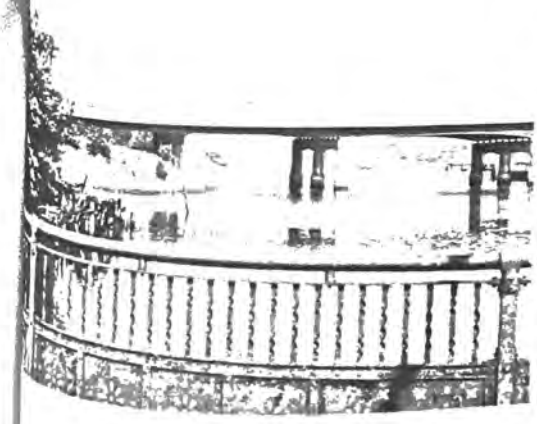
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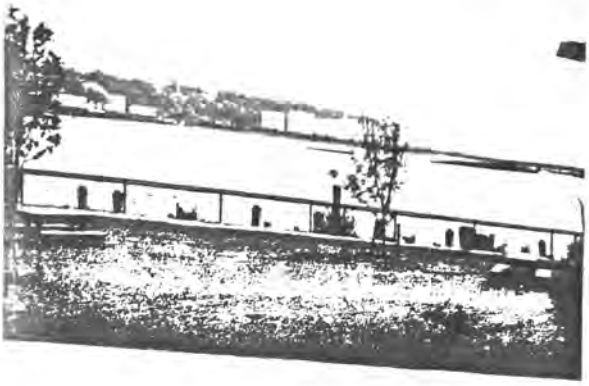








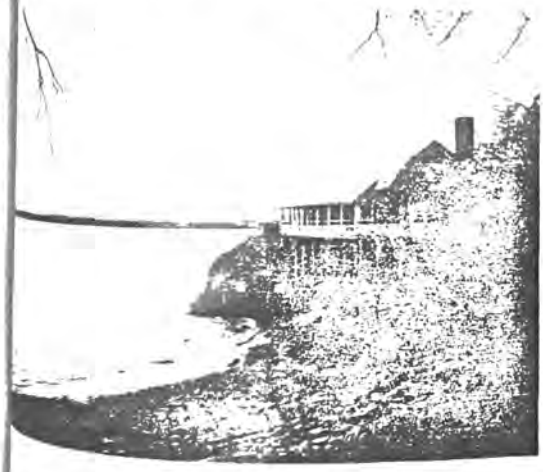
SEEKONK RIVER

















SQUANTUM CLUB,
E. PROV. SHORE













FIELD'S POINT
(SHIPYARD), VIEWS

spotty with unattractive random development and have much to do with people moving further south along the bay for residential development. This zone is the North Kingstown area on the west side of the bay and Portsmouth on the east side of the bay. North Kingstown is zoned for 1/2 acre continuous development--encouraging land speculation, unplanned growth, and a maze of expensive public utility services. Portsmouth has no zoning controls[82] and the relatively lower price of land has caused ruination of much of the center island farmlands. Tacky construction is strewn over farm and pasture land. Bayfront farms are being subdivided. The east side of the island, however, is very much open and is one of the critical zones to be recognized.

Reuse of Military Lands. Quonset Point and the Newport Naval Base comprise 2492 acres and 1557 acres, respectively. The original development of these naval bases sponsored a changing physical environment, clearly seen by the photo contrast of Wickford and immediately adjacent, Quonset Point Naval Base and the support facilities which were generated. The manner in which these particular parcels are reused will affect the entire urbanizing system on the bay. Employment opportunities for those civilians, formerly employed by the bases is definitely needed. Extensive industrialization, proposed by the state and opposed by local officials,[83] will affect neighboring land development and the social, economic, and ecological balance of bay lands and possibly the ecology of

[82]Planning Division, Land Use Controls, p. 40.

[83]Governor's Office, Surplus Military Lands.

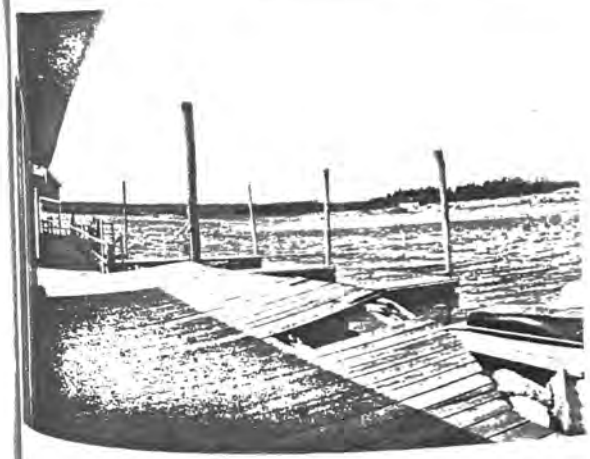
North Kingstown, Reuse Plan.

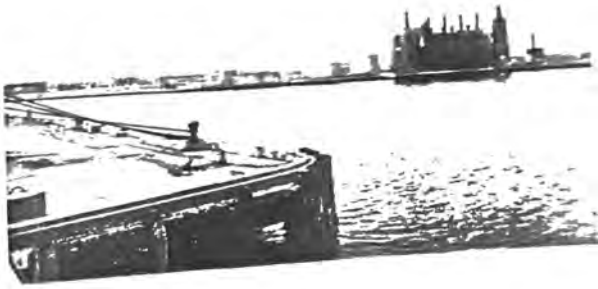
















WICKFORD AND
QUONSET PT. AREAS

the bay itself. Commuting patterns should be investigated. The options for developing the bases are: heavy industrialization; industrialization and recreation; recreation, land banking, and enough industrialization to replace lost jobs. North Kingstown town planners have professed that industries being recruited for the bases have little need of bay proximity.[84] The naval bases may also play a very useful passive role if their subterranean oil storage tanks were used to store the region's oil. This could eliminate the above ground storage tanks lining the bay shores in the metropolitan area.

Accessible and Endangered Scenic Farms and Woodlands. Much of this land has bay frontage in a natural state. There is some suburbanization. These areas are Narragansett, Coanicut Island, and on the east side of Aquidneck Island - Portsmouth and Middletown. They are primary resort areas in the state, gifted with outstanding scenic amenity, and presently changing from a predominantly seasonal population to increased year round living with some commuting residents. There is no economic base in these areas other than tourism and commercial fishing. Coanicut Island has no zoning regulations and the others are for the most part 1/2 acre residential.[85] These are critical areas.

Remote Unexploited Land. This category is composed of Little Compton and the unbridged islands in the bay. Some slow subdivision is found, and no zoning exists in these areas. High land values are prevalent. Little Compton is a magnificent scenic area of 18th century farms and 19th century shingled houses, possessing

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[84]North Kingstown, Reuse Plan.

[85]Planning Division, Land Use Controls, p. 40.







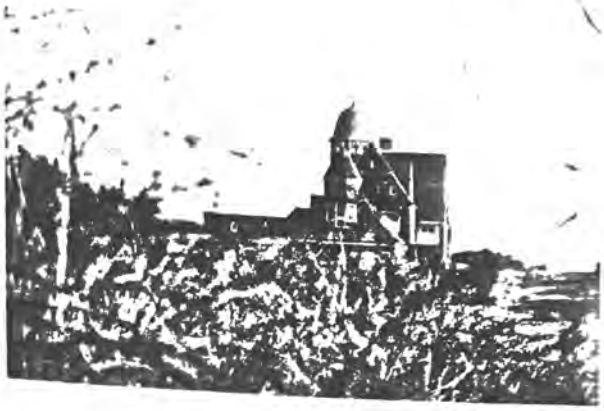






NARRAGANSETT,
WAKEFIELD











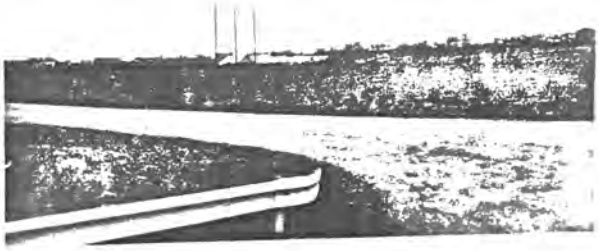


COANICUT ISLAND










ELMHURST






HEALTH & BEAUTY AIDS
PORTSMOUTH AND
MIDDLETOWN

all the charm which has long since left Cape Cod. The unbridged islands in the bay are presently still in a fairly natural state with only sparse summer residents. Although the ferry trip to an island is as brief as 20 minutes, it appears that most people require absolute automobile accessibility. Bridges connecting these islands with the mainlands would inevitably generate all the development problems of the mainland. Clearly, when a catalyst such as an employment center is injected into the region, the organizational arrangement will change. Populations will shift, and consequently development pressures mount. Controlling the forces which influence land use and development pressures will relieve some of the land for a while or at least lessen the pace of development. Many of the existing forces cannot be altered. Subsequently, nothing short of controlling the land itself will work in critical areas. Rural lands outside of the region with poor accessibility may be preserved indirectly by controlling potential forces until a municipality initiates sufficient land use controls. This is an indirect form of land-banking and will help stage the gradual control of a large area.

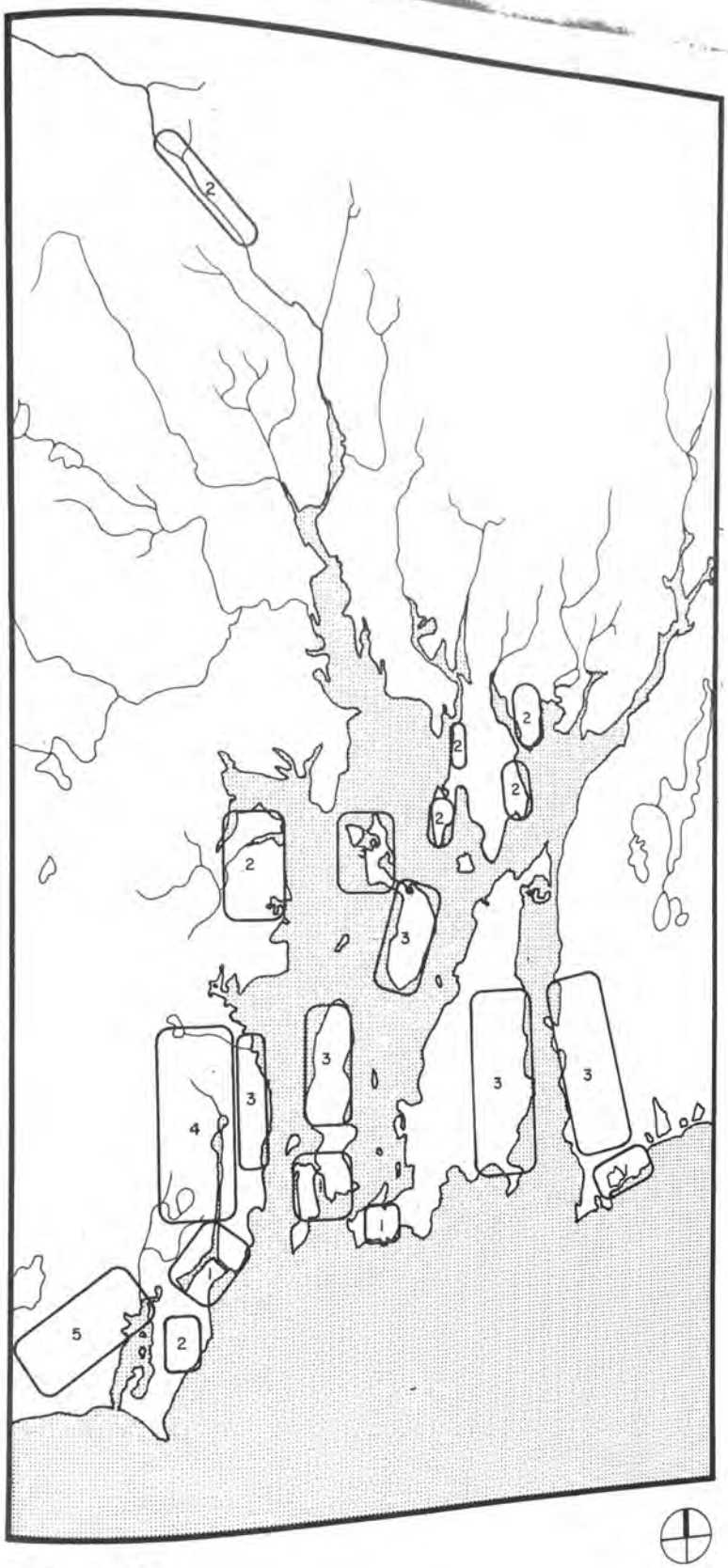
Ultimately, we are not only concerned with the utilitarian aspect of efficiency and calculable costs but the broader issue of the quality of life. Land use in a region is a system of actions and associated responses with all land in the system related. Shortcomings of one area in the region may cause another jurisdiction additional pressure. The system should provide diversity: urban concentrations supporting a cultural climate, rural farms and woodlands, seasonal resorts, and

changing scale and spatial arrangements. Large/small and close/remote relationships present variety destroyed by undifferentiated suburban development.

The diagram "Endangered Scenic Open Space" classifies the undeveloped open space in the Narragansett Bay Region. These specific parcels of land summarize the finiteness of open space and scenic amenity remaining in the bay region. Some open space areas exist as isolated parcels of land while others form continuous open space zones. These zones can be further identified by similar geology, topography, and land use. For the purpose of generalization, they will be considered sub-regions and are graphically represented by NBR diagram "Related Open Lands as Subregions."

The islands in the bay which are responsible for the handsome views from the mainland are Coanicut Island and Prudence Island. Being viewed from many angles, an analogy can be drawn to that of a monument in an urban plaza, located for strategic views. The diagram "Bay Islands as Scenic Monuments" illustrates the visual impact the islands have on the mainland and reinforces their priority for open space preservation.

Transportation Around the Bay. A major part of the transportation problem in the region is the almost total dependence upon the private auto. The private automobile has woven a complex relationship of development, open space, and scatterization. The multi-mode transportation system existing at the turn of the century has disappeared. As in the turn of the century paradigm, fixed route public transportation systems offer a mechanism to control growth, land use patterns, and resource con-



NBR

0 1 2 5

ENDANGERED SCENIC OPEN SPACE

1 HIGHEST SCENIC VALUE
2 CRITICAL OPEN LAND ENCLOSED BY URBANIZATION (MOSTLY AGRICULTURAL)
3 SCENIC AGRICULTURAL WATERFRONT LAND
4 ELEVATED AGRICULTURAL LAND W/ VIEW
5 AGRICULTURE AND SOME ESTATE LAND

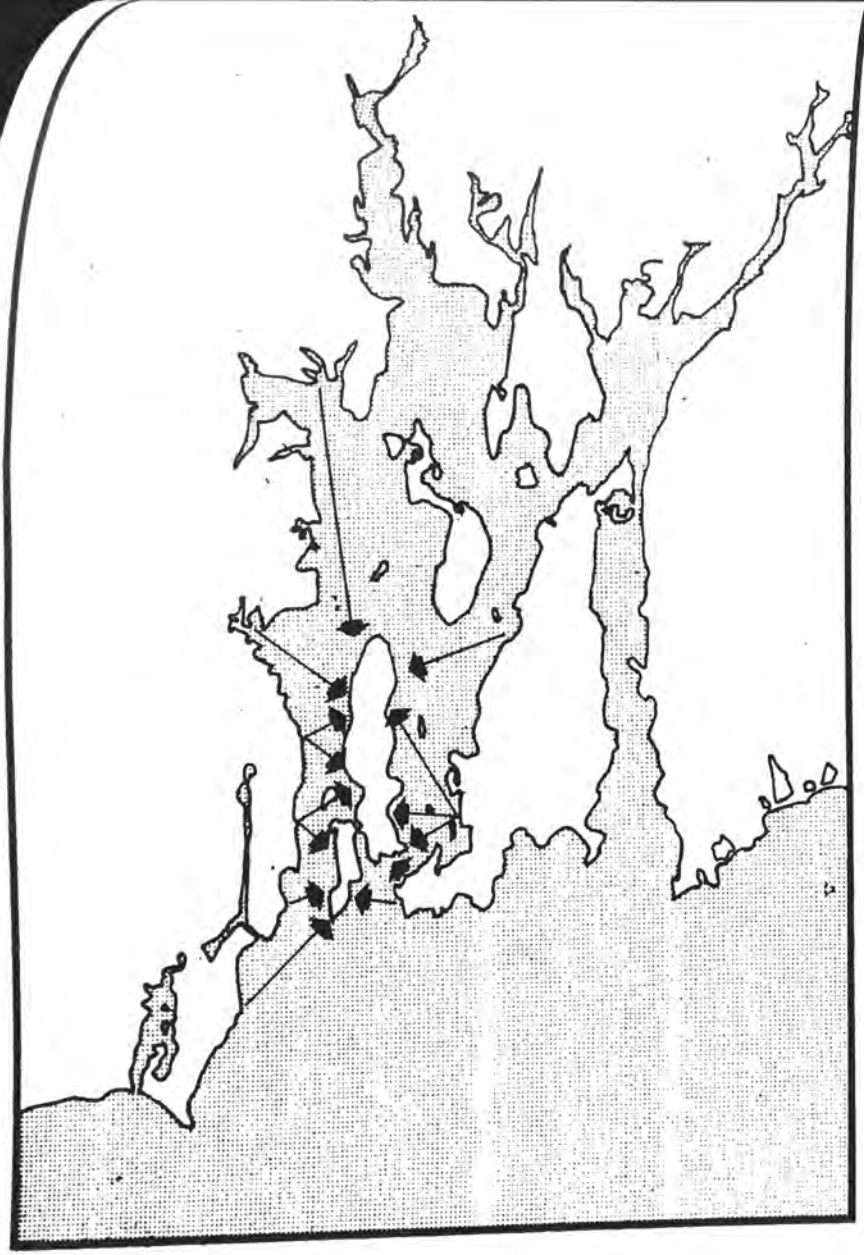


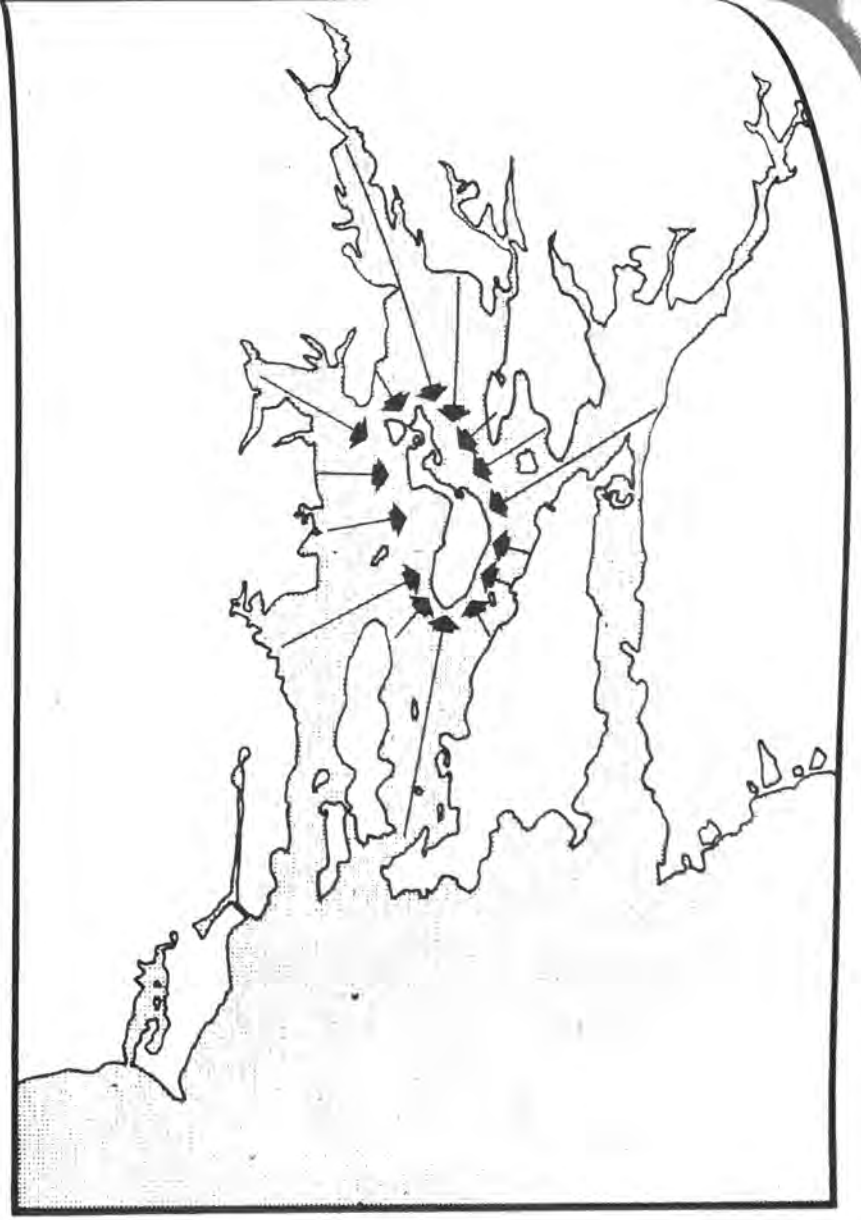
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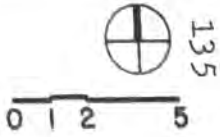
RELATED OPEN LANDS AS SUBREGIONS

1 ENTRANCE TO NARRAGANSETT BAY
2 ENTRANCE TO SAKONNET RIVER
3 SAKONNET RIVER LANDS
4 WEST PASSAGE LANDS
5 CONTINUOUS OPEN LAND FROM TOWER HILL TO WEST PASSAGE

0 1 2 5





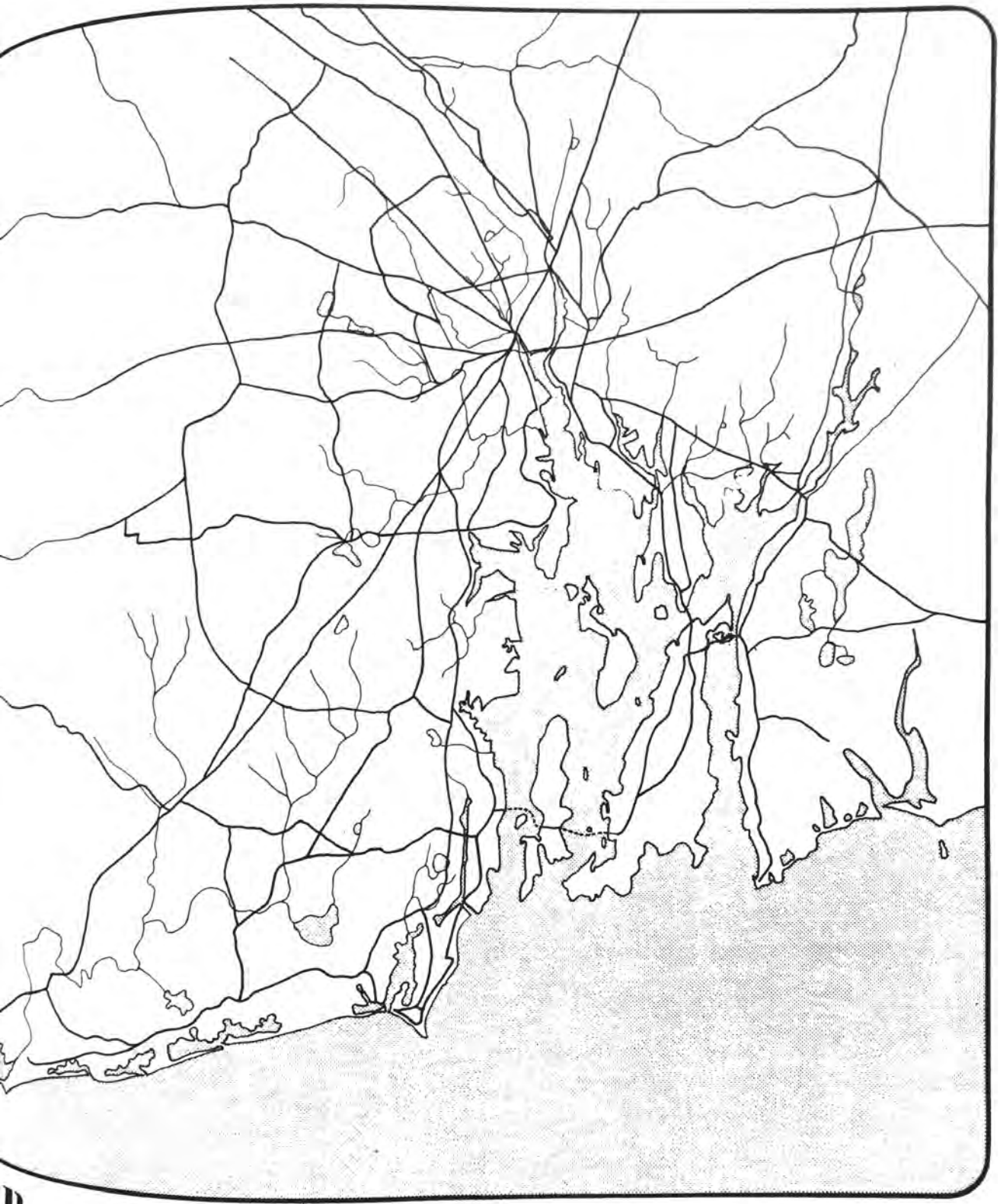


NBR

BAY ISLANDS AS SCENIC MONUMENTS

servation. They have the potential to reinforce planned developments and concentrate commercial development. Since transit stops are specified, strip development would be unprofitable. The flexible system provided by the automobile is ultimately unsystematic. When total flexibility exists, the multiple combinations of land development conflicts become overpowering. The basic issue remains that with a totally flexible system providing access to almost anywhere, the land itself must be controlled. With a more restricted fixed path system of limited access, it does not. Much of the land in the Bay Region will have to be controlled directly because an automobile infrastructure already exists. Federal highway loans and FHA suburban mortgages have encouraged highway construction, automobile travel, and decentralization. Since most of the state recreational facilities are in the southern portion of the state and public oriented private establishments closer to the metro have degenerated, the overburdened highways on a summer day may change a fifty minute trip from Providence to a South County beach into a two hour, congested, dangerous, and certainly not enjoyable drive.

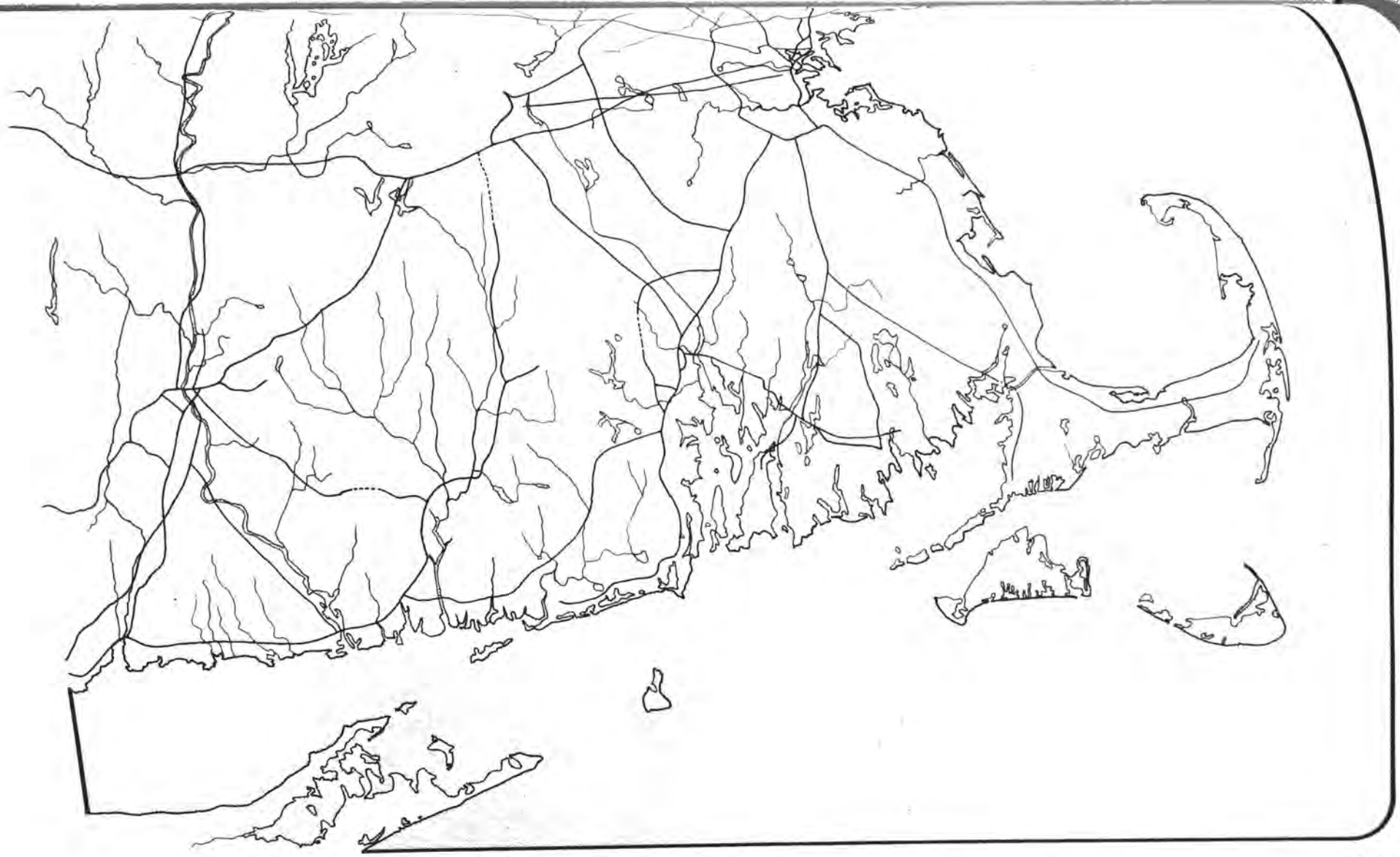
The means of transportation can afford a positive or negative experience. The old Jamestown-Newport ferries discontinued in 1969 are fondly remembered by most Rhode Islanders and the reestablished San Francisco Bay ferries have been most successfull. The mode of transportation - either ferry boat or trolley - could hold considerable significance in a trip. An open air summer railroad or trolley servicing the various re-



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ROADS 1940

SOURCE: 1939 Highway Map of R.I.
Dept. of Public Works, Division of
Roads and Bridges.

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NBR MACRO REGION SOURCE: 1971 Highway Map of Conn., Mass., R.I.
Texaco, Rand McNally & Co. Copyright.

DIVIDED HIGHWAYS 1974

0 5 10 20 mi

sorts and major state beaches on the west side of the bay could be reestablished on a corridor line, as were the Sea View Railroad and the Oakland Beach Railroad. A water-oriented system similar to the bay steamers is not only functional but could be a great attraction.*

Strategies for Preserving Open Space. It will be useful to examine other regional large scale views on patterns of urbanization, their controls in inplementing a strategy, and the success of the controls. Endeavors concerned with more finite areas than regions will also be examined for application to smaller functional units within the regional system.

At an open space conference held in 1964, Open Space Through Water Resource Protection, at the University of Pennsylvania; models of open space areas were explored. These dealt for the most part with linear configurations of contiguous open land following distinctive natural landscape features. Such features are river valleys, low flood plains, bands of steeply sloping land, and areas of a distinctive nature which contrast with the typical fabric of the land. The specific topographical episodes played against the more or less neutral background, form patterns of continuous eco-systems. They are the conscious image of a region and qualify the more neutral areas by contrast. Social and ecological justifications for maintaining these unique areas are abundant. The emphasis placed upon these environmental patterns was that they exist

*Note: Revised and abridged from author's section of a joint effort paper, An Analysis of the Ecological Impact of the Proposed Development of East Matunuck Beach, South Kingstown, Rhode Island. By Chmura, Gillan, Lacher, Wald.

in most regions and if large enough will actually define the region. Consideration of such features in urbanizing areas should influence, direct, and sometimes form the actual patterns of urbanization. This contrasts with the utilitarian--shortest distance between two points--mentality, actively campaigning in state highway commissions. The issue was stressed that the environment is not an anonymous two-dimensional plateau.

Four patterns found in the environment were identified: "Scientific Patterns" - a continuous eco-system; "Environmental Corridor Patterns" - an area usually dominated by a natural feature, as a river valley or similar differentiating feature from adjacent land; "Personality Patterns" - continuous areas without development. This type of area may have varying land formations and is not based on a homogeneous characteristic; "Resource Node Patterns" - the plotting of all remaining natural and constructed features in undeveloped land.[86]

Developing an open space system based on natural features of the land would require certain legal controls. One would think that by the title of the conference that legal controls to maintain water quality would subsequently govern related lands, but this is not so. Ann Louise Strong discusses the implementation of such a system and legal problems. Change in land value incurred by "regulation" required "compensation." General guidelines for equating diminished value and commensurate compensation were established. The three categories recommended were: a diminished value of 25% or less did not require compensation;

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[86]Ann Louise Strong, ed., Open Space Through Water Resource Protection: An Approach Applied to the Philadelphia Metropolitan Area (Philadelphia: University of Pennsylvania, 1965). pp. 46-53.

25-75%, "Compensation non-fee"; more than 75%, "fee acquisition" was required.[87]

Five land forms were identified: .."marshes, acquifer recharge, flood plains, steep slopes, and forests." Recreation was the prevalent use suggested for the land affording minimum disturbance and interference with the ecological balance. The small amounts of coverage allowed was for automobiles and necessary service buildings.

The controls and compensation rules which accompanied the recommended use of the land directly reflected the amount of public access permitted. If the land is to be freely used by the public on a permanent basis, then fee acquisition would follow. Passive recreation would not eliminate full value of the land and therefore "compensable regulations" and/or easements would be equitable.[88] Zoning ordinances or similar devices could be employed to promote forms of development having a minimum impact on the natural land; cluster housing, woodland preservation in subdivisions, and others. Overall, this is ineffective in preserving the eco-system and open land. Compensable regulation and easements were recommended for the majority of open lands under passive recreation. For reasons of economics, acquisition for passive recreation land was not considered. In almost all cases some form of compensation was required in order to regulate the use of land. The fact that the land forms under investigation directly influenced water quality did not restrict the owner's use of the

[87] Ibid.

[88] Ibid.

land or lessen the financial compensation necessary to restrict the land.

In Rhode Island, the regulations of the Wetlands Management Act are administered by the Department of Natural Resources. Land use cannot be regulated, even as it relates to water quality, without compensation. In fact, in the Coastal Zone, penalties for infractions have not been enforced because property owners will claim "taking"[89] for which there are no available compensation funds. Massachusetts, however, has zoned such land but will repeal specific regulations if the property owner seeks damages.[90] A case in Wisconsin which upheld the "Critical Natural Features Theory"91 was Just. V. Marinette County.

> "Just v. Marinette County stands as an explicit judicial recognition that regulations preserving certain publicly critical features of land may be upheld without compensation despite great loss in economic development potential."[92]

The Wisconsin Supreme Court took negative position on ... "the basic rationale which permeates the decision that an owner has a right to use his property in any way and for any purpose he sees fit."[93] Courts throughout the country vary on this issue.

89Fred Bosselman, David Callies, John Banta, The Taking Issue (Washington, D.C.: U.S. Government Printing Office, 1973)

Rhode Island Statewide Planning, Summary of Report on the State Land Use Policies and Plan (Providence: Rhode Island Statewide Planning, 1973) p. 72.

90R.I. Planning, Summary, p. 72.

91Report of the Council on Environmental Quality, Environmental Quality (Washington, D.C.: U.S. Government Printing Office, 1973) p. 146.

92Ibid. p. 147.

93Ibid.

Edward Williams, as A. L. Strong, equates the degree of limitation imposed on land use with the appropriate control mechanism and amount of compensation required. These control mechanisms are of three generic types. "Acquisition of fee" - this method is used only for critical lands which are going to receive incompatible use or be potentially exploited. Another requirement is that the area will be used as fully active open space or is pertinent to water quality. The preservation of the land in a natural state will be absolute. There are variations on purchase such as ..."Lease purchase, purchase and leaseback, purchase with life tenancy, excess condemnation, and mapping with time purchase."[94] Purchase and sale with restrictions is not recognized. This would have application in the Narragansett Bay Region to desirable waterfront areas varying from beaches to a minimum edge strip as Cliff Walk in Newport. In Oregon, all but 28 miles of more than 400 miles of coast is under public ownership.[95]

"Acquisition of Less than Fee" - This device is used for lands which require control but no access by the public. The owner still maintains some value in the land and is compensated for the particular restrictions placed on the land. These restrictions can be ..."scenic easements, conservation easements,

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[94]Edward A. Williams, Open Space: The Choices Before California (San Francisco: Diablo Press, 1969) pp. 67, 68, 96-99.

[95]John Delafons, Land-Use Controls in the United States (Cambridge, Massachusetts: Joint Center for Urban Studies of The Massachusetts Institute of Technology and Harvard University, 1962) p. 68.

and development rights." The use of the land as economically productive open space need not be severely limited. Development may only be restricted to a lower more desirable density.

The more rights the property owner maintains, the lower will be the cost of control for the municipality. For financial reasons, purchase of unnecessary rights should be avoided, although it is generally recommended that when compensation is approximately 75% of the value that purchase of the land should be made.[96] This approach would be applicable to large amounts of land forming the Narragansett Bay Region's Open Space Infrastructure.

"Zoning and Development Controls" - This tool is to be used when it can accomplish a sufficient amount of control over the desirable quality of the land. This has two subcategories: "Zoning for Public Safety" and "Zoning for Conservation or Scenic Amenity." The former refers to land which cannot carry construction either because of soil bearing, slide, flood plains, sanitation reasons or others. The latter is assigned to ... "agricultural preserves, exclusive agricultural districts, areas for mineral extraction, scenic conservation districts, open space zones, special treatment or design control zones and estate size property zones."[97] This imaginative use of zoning however, in many cases would necessitate some form of compensation at the same time and may or may not preserve open space land. They are, however, the least expensive and merit further

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[96] Williams, Choices, pp. 68, 71, 97.

[97] Ibid. p. 97.

investigation. Two of the zoning controls in the latter category--the agricultural district and large lot zoning--may be used for specific bay lands. These along with shoreline zoning will be explored for effectiveness and application to the Bay Region.

The California Land Conservation Act of 1965 provides for the creation of an agricultural district or preserve only with consent of the land owner. The Act does not rely on zoning methods but legal agreements affirming continued use of the land for agricultural purposes. The agreement period is for 10 years and is renewable for another year. If the municipality during the agreement period reassesses the land at a higher value, the contract states that the landowner will be reimbursed in an amount which more than covers the additional taxes. The purpose is to maintain the land at a fixed value and inhibit land reevaluation.[98] Essentially, this is much like contemporary preferential tax assessment employed in many areas of the country.

The problem of preserving open space still remains. Preferential tax assessment only encourages maintaining open land and is somewhat a supposition. In fact, some of the preferential assessments with less restrictive "roll-back agreements" may encourage land holding by land speculators. This tax reform may work well hypothetically in a benevolent society with land philanthropists but has little reality to land speculators particularly in the more scenic and desirable bay lands. I am not saying that this tax reform along with tax deferral, capital

[98] Ibid. pp. 73-75.

gains reform, and inheritance tax reform has no merit but simply that it is too weak to maintain open space in specific highly pressured areas. However, it will slow the pace of development and give planners more time for a solution.

Leasing is also an impermanent method of maintaining open land. It is a workable tool predominantly for timing development but is of limited use for the fixed large open space infrastructure which will be used to channel and compact growth in a prescribed manner.

Agricultural zoning has been used to protect fertile lands for continued use in the agricultural industry. The zoning generally exists to restrict incompatible uses and obstructions which would inhibit the efficient use of the land. Today this is particularly relevant to small parcel residential intrusions in agricultural areas. These intrusions form discontinued patterns of farms and impede efficient production and distribution. The agricultural industry must be pertinent to the local or larger economy to justify such zoning. Also the owner of the land must be able to receive a "reasonable" financial return on his land. Restricting land to agriculture that cannot make a profitable return would be considered "taking" of the land.[99]

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[99]Bureau of Governmental Research and Service, Rural Zoning: A Suggested County Ordinance Format and Illustrative Examples of Use Zone Provisions (Eugene, Oregon: University of Oregon, 1970)

Department of Finance Library, Exclusive Agricultural Zoning Law: Provisions in State Law and County Ordinances for the Preservation of Agricultural Land (California: State Office of Planning, 1962)

Jack Lessinger, Exclusive Agricultural Zoning: An Appraisal (Berkeley: Bureau of Business and Economic Research, University of California, 1958)

U.S. Department of Housing and Urban Development, Urban Planning in Rural America (Washington, D.C.: U.S. Government Printing Office, 1968)

Preservation of prime agricultural land has more potential for being upheld in the courts than the less fertile lands. Preservation of irregular, hilly, and rocky farm land would have little chance of success. A reasonable return on the land as it relates to farming or the other uses permitted in an agricultural district would take considerable calculation. A very reasonable return on investments is generally considered a 15% annual return. If an owner or farmer of cleared fertile land could receive a market price on his land for suburban house lots of $1000/acre without improvements, agricultural zoning could be upheld if the owner could profit $150/acre by working or tenant farming the land. The $1000/acre for 300 acres with residence and agricultural buildings was the recent asking price for Westmoreland Farm in North Kingstown, Rhode Island.[100]

If we are serious about "recapture", then freezing such land as agricultural land while it is still within the realm of reasonable return may be upheld by the constitution. These land owners should then be given all the tax breaks possible. This permanency does not exist at the present time under zoning.

The less fertile, rocky, and uncleared land can yield little agricultural return and is also considered in the Narragansett Bay Region to be more desirable for wooded suburban development. If the undeveloped land market price of such land were $2000/acre, there is little possibility of a $300/acre return, and therefore under present interpretation of the law it would be unconstitutional to zone this land as exclusive

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100Rhode Island Statewide Multiple Listing of Real Estate.

agriculture. The greater the amount of time that passes in implementing such a scheme, the less the possibility of success since land value is increasing disproportionately to agricultural return.

A variation on this idea might be to give subsidies on agriculturally zoned land to farmers who cannot generate through farming the 15% return on the land. This could be implemented similarly to the Federal Government's payments to farmers for not planting specific crops in the last decade.

The wooded lands in the Bay Region can quite possibly be used for commercial forests. Arthur Jeffrey states in Present Use and Economic Classification of Non-Urban Land in Rhode Island, that R.I. imports 98% of the lumber used in the state while 72% of the land in the state remains unutilized.[101] This 72% figure no doubt has changed but in 1960, woodland and farms occupied 75% of the land and by 1990 it will occupy only 50%.[102] Jeffrey advocates a "Multiple Use" approach to open space. Economic return and water resource protection are used to reinforce the argument.[103] A.L. Strong frequently advocates harvesting the inherent benefits of land capable of production. Other studies undertaken by the Federal Government advocate natural resources management and increased attention to the economics of timberlands.[104] With outstanding shortages of lumber in the country and increased costs of plywood and other woods of as much as

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101Arthur D. Jeffrey, Present Use and Economic Classification of Non-Urban Land in Rhode Island (Providence: Rhode Island Development Council, 1974) p. 16.

102R.I. Planning, Summary, p. 5.

103Jeffrey, Non-Urban Land, p. 16.

104Housing and Urban Development, Rural America, p. 52.

100% in a year, woodland productivity is not only a viable alternative, but a national concern. The market for lumber export is also great. Hence, an argument can be made for preservation of large contiguous areas of woodland. Once again we arrive at the "taking" problem and will be confronted with required compensation for such regulation.

William E. Spangle has described an interesting idea--historic preservation of significant farms.[105] He is not the first person to entertain such an idea. The Rhode Island Preservation Commission has recently recommended several farms for the National Historic Register, but without compensation the preservation may be limited to the buildings and immediate environ. Farms such as those shown of Narragansett and North Kingstown are only a few examples of numerous significant farms in the region.

The validity of historic farms as districts has not been tested in the courts.[106] Contextual surroundings of historic buildings are being increasingly recognized usually in the form of districts. An inventory of historic sites is being undertaken in the state and incorporation as districts should be attempted.

Recently H.U.D. published a Special Mention of the recreation "action plan" for the state of New Jersey. The intriguing element of the whole plan was a continuous historic area of rural farms and residences. A revitalization of derelict and overgrown historic roads and trails apart from the

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[105] Williams, Choices, p. 76.

[106] Ibid.













HISTORIC FARMS
NARRAGANSETT,
NORTH KINGSTOWN

efficient circulation of the nearby interstate routes formed the structure. It is called Liberty Park and has an excellent chance of implementation since the state and Federal Government are going to supply the necessary funds.[107] The application to the Narragansett Bay Region is worthy of serious consideration and could be the focus of the Open Space Infrastructure. The open space would then not only shape urbanization and preserve critical open space areas, but preserve the physical remnants of one of the thirteen original colonies. As the Bicentennial Celebration grows nearer, it would be a good time to voice such recommendations. This would not only be of local or regional significance but national.

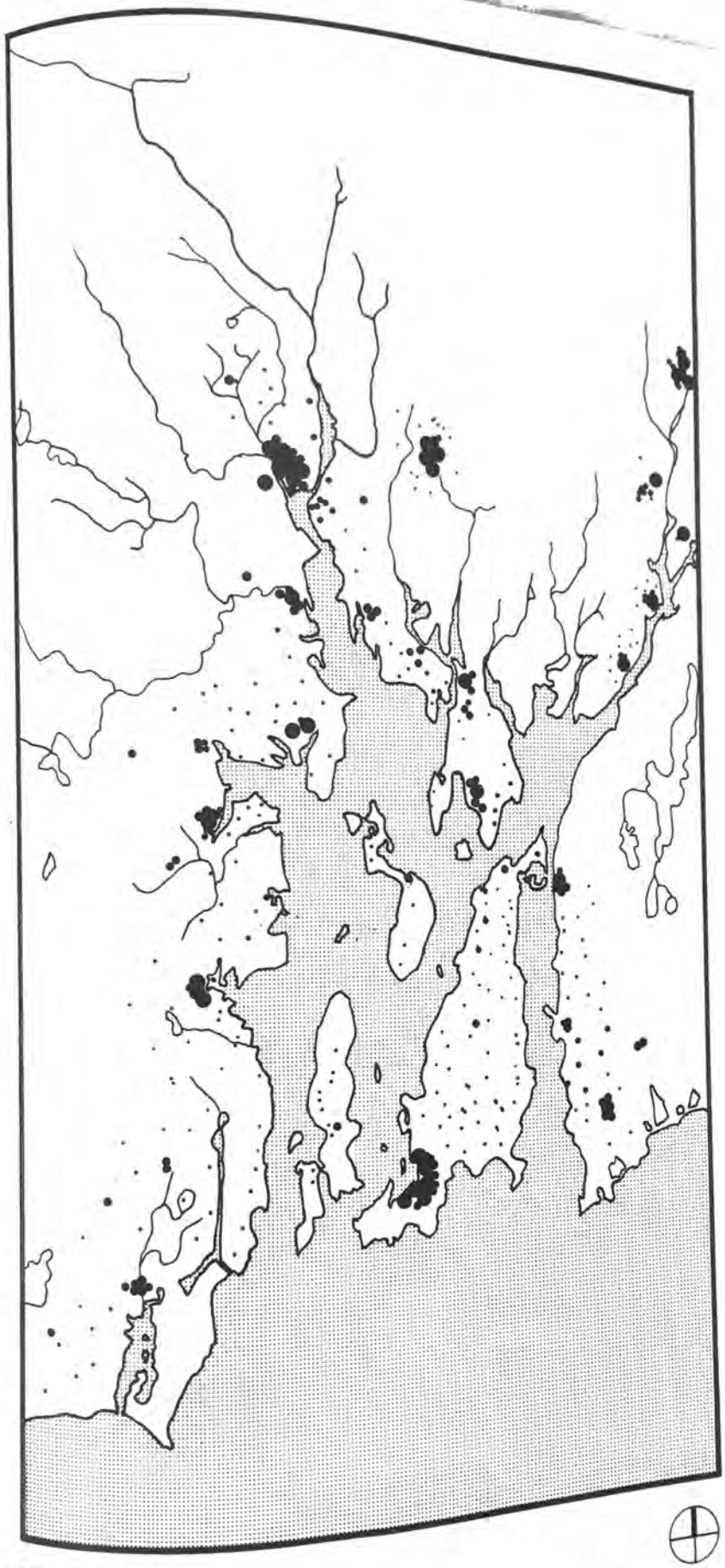
The Bay Lands as I explained in the earlier part of the paper hold almost all of the 18th century towns. This is illustrated by NBR diagram - Population Distribution 1800. How this historic open space plan would reinforce the region's tourist industry cannot be overstressed, especially since tourism does play a significant role in the state's economy.[108] A host of architectural compatability ordinances could be imposed but open space preservation is the issue addressed. This idea would be incorporated with the timber and agricultural productivity of specific lands, together reinforcing the Open Space Infrastructure concept.

A minimum variation on this historic theme would be the establishment of historic districts for each of the towns in

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107Urban Planning Assistance Program, Comprehensive Outdoor Recreation Plan, State of New Jersey, in 4th Biennial HUD Awards for Design Excellence (Washington, D.C.: U.S. Government Printing Office), pp. 62, 63.

108Rorholm, Socio-Economic Study.



NBR

POPULATION DISTRIBUTION 1800

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the polynuclear arrangement which surrounds the bay. The second step would be the revitalization of old coast roads which connect these towns through funds from the Highway Beautification Program. That program also provides for excess condemnation. Scenic highway corridors have been implemented elsewhere in the country, and the bifold benefit of scenery and implementation of an historic preservation plan should receive some priority.

The scenic inventory and plan presently being conducted by Roy Mann Associates for Long Island points out the potential of older roads connecting towns along the Long Island coast. Also a position on "excess condemnation" is presented. When this authority is exercised by the highway department, it is paramount that in the future the excess land is not reused for road expansion or non-scenic use.[109] It would appear that regulating the highway department would be as important as regulating the private land owner.

Another tool in open space preservation, a form of compromise, would be Large Lot Zoning or Low Density Zoning. In view of the Narragansett Bay Region context, it is not inappropriate since 19th century and turn of the century summer villas dot the coast. However, its elitest connotations will be subject to all the exclusionary criticisms found elsewhere. It does offer some compromise for the scenic open land problem and reinforces the summer identity of certain lower bay areas. It should be noted that such a device would be utilized only

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[109]Roy Mann Associates, Long Island Sound: Scenic Resources and Management (Cambridge, Massachusetts: Unpublished Working Draft) p. 259.

in the case of land which is of lower productive value and higher real estate value and when regulation funds are unavailable.

Land in this category would most likely be specific topographical features with extended ocean views. Presently in the Bay Area, this device is only used in Newport where rocky soils are prevalent.[110] The lands which I described as having lower productive capability would also be of a similar geology. These choice residential lands would be of very high value and should be taxed as such without preferential assessment in contradistinction to Fairfax County estate zoning.[111] Historically and today expensive large scenic lots are marketable in sections of this region and the "taking" problem would not be applicable.

The constitutionality of large lot zoning was affirmed by the New Jersey Supreme Court. The particular case involved maintaining neighboring property values and the general fabric of the area. The lot size was five acres. The same has occurred on Long Island with two acre lots.[112] Open space corridors used

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110Technical Committee, State of Rhode Island, Report of the Governor's Committee on the Coastal Zone (Providence: Office of the Governor, 1970) p. 76.

111Fairfax County Planning Commission, The Vanishing Land: Proposals for Open Space Preservation (Fairfax, Virginia: Fairfax County Planning Division, 1962) p. 12.

112Lawrence W. Libby, Joseph B. Bugliari, The Role of Easements in New York's Open Space Planning (Ithaca, New York: New York State College of Agriculture, Cornell University, 1968), pp. 12, 13.

to benefit the greater public and not the exclusionary tastes of particular interest groups should be more acceptable to the courts than normal large lot circumstances.

The problem in Fairfax County and the nullification of the Freehill Amendment was due largely to the fact that large lot zoning for more than 60% of the county could not be justified. There was no critical need and the vast amount of land was to be covered by a single statute. The University of Virginia study noted that urgent exigency must be proven and that a comprehensive use of many land use planning techniques should be employed. The restrictions of the Freehill Amendment were flagrantly exclusionary. Large Lot Zoning is being successfully employed in the Moyaone Reserve in a section of Prince Georges County and Charles County. The lot sizes are 5-10 acres. The Southdown Project on the banks of the Potomac is based on 5-acre parcels to preserve 1500-2000 acres with minimum intrusion upon the land. Other areas in Northern Virginia and Maryland are currently being developed along similar lines.[113]

The success of the Narragansett Bay Region will depend on providing a mix of housing types in properly located corridors of urbanization. The low density zones within the productive land areas, should be formulated on the cluster principle.

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[113]Robert Gladstone and Associates, Very Low Density Zoning: A Practical Tool for Securing Private Open Space in Critical Areas (Riverdale, Maryland: The Maryland-National Capital Park and Planning Commission), pp. 10-12.

Covenants and deed restrictions controlling minimum disturbance to the site should run with the land.

Lawrence Libby illustrates the establishment and support for a "Wilderness Area" in New York State is an indicator of public concern for open space affairs. The direction throughout the country has been for the state or regional authority to preserve land with zoning as the mechanism. Of the 5.7 million acres in the Adirondack Park, 3.5 million acres are under individual ownership and subject to severe regulation to preserve the land as a natural woodland.

A variation on the "Forever Wild Amendment" was the "Little Forever Wild" idea focusing on smaller areas of farmland and water related lands.[114] The significance of this idea is that it is a comprehensive legal approach to the ideas of Ian McHarg. Large regionally identified contiguous areas of land with significant environmental attributes reflect the priorities of A. L. Strong, and are of a similar genre but a much larger scale to the Emerald Necklace of Frederick Law Olmstead.

According to the projected estimate of 1990, active recreation and conservation/recreation lands in R. I. will be deficit 87,429 acres.[115] This is also a terribly conservative estimate because it only takes into account the residents of the state and not the significant number of tourists. It is a strange oversight considering the Coastal Zone study stated,

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114Libby, Easements in New York, pp. 14, 15.

115R. I. Planning, Summary, p. 35.

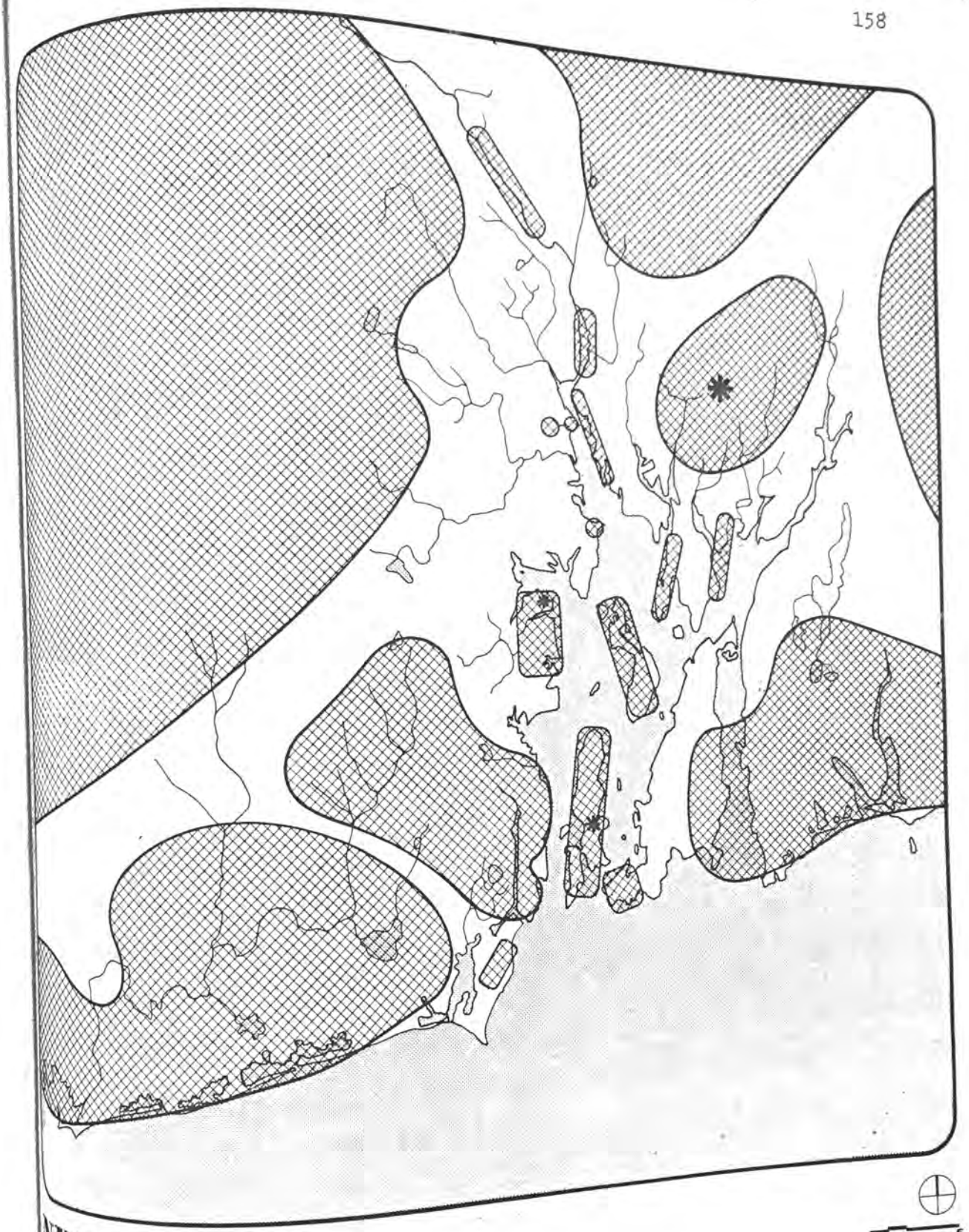
"Tourism can and should be a major industry in Rhode Island."[116]

Also it is most important to integrate open space with residential habitation where the concentrations of population are located--the Narragansett Bay Region--and develop the urban patterns and the open space patterns simultaneously. The regionally contiguous open land areas in the Bay Region have greater potential of performing multi-purpose functions than the remaining lands in the state and therefore their consideration should take priority. This can meet the deficit of recreational open space, provide amenity to population concentrations, protect lands of outstanding scenic quality, restore continuous link patterns of historic 18th century towns via historic trails, and provide order and form to corridors of urbanization with tangental open amenity. The economic benefits of increased tourism, productive lands, and infrastructure savings by ordered growth are considerable.

The NBR diagram "Generalized Pattern of Urbanization and Open Space" is based on the existing patterns of urbanization and population distribution, relation of urban centers to one another, transportation infrastructure, and remaining open space for the entire Narragansett Bay Region. The NBR "Urban Growth Corridors" for the macro region further define the relation of NBR urbanization within the greater context of the tri-state area.

The Coastal Zone area is included in the land of the Bay Region. It comprises a limited amount of the extended bay lands

[116]Technical Committee, Coastal Zone, p. 45.



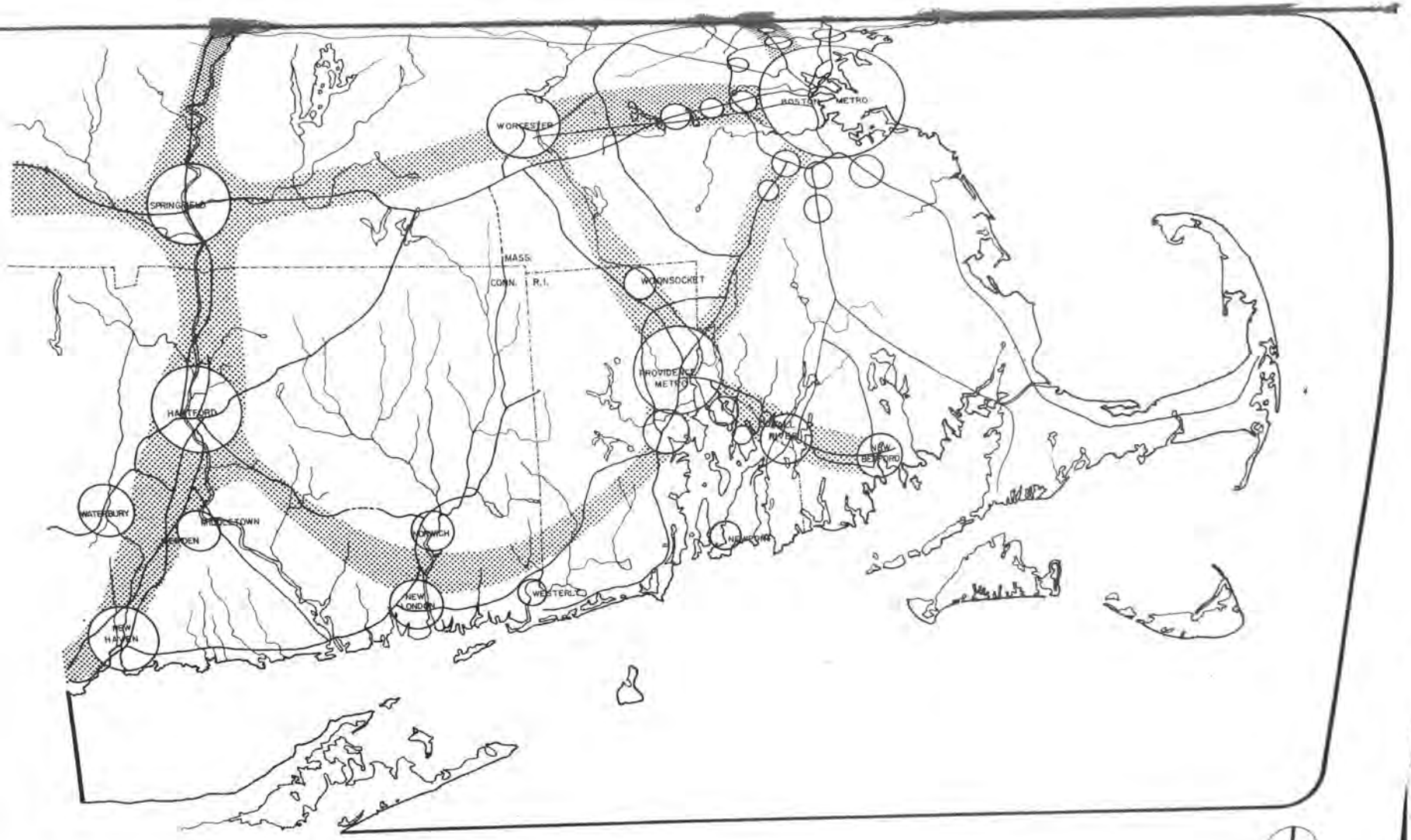
NBR

GENERALIZED PATTERN OF URBANIZATION AND OPEN SPACE

* DEVELOPMENT CONCENTRATION IN OPEN SPACE FIELD

OPEN SPACE AREAS

0 1 2 5



NBR MACRO REGION

URBAN GROWTH CORRIDORS

but is perhaps the most vulnerable, because the land value vs. production value are many folds dissimilar. The inability of the Department of Natural Resources to adequately protect wet-lands has been shown. Much of the remaining shore can support urbanization in the traditional sense being on higher more stable ground. Further misconceptions about the ability of the new Coastal Zone Commission to protect and control the shore should be clarified. At the same time a brief investigation of other state and regional efforts to protect coastlines will be accomplished in relation to improving the Narragansett Bay Region's control.

Much of the Coastal Zone Commission's responsibility is for developing programs, carrying out the programs, and overseeing harmonious operation of all bay related functions. The scope is broad and concerned with pollutants of all kinds, commercial fishing, navigation, submerged land, and enormous amounts of inventoried data. At this time no plan exists for the Coastal Zone in Rhode Island. A moratorium for three years on apparent incompatible uses of coastal land was proposed but not effected.

In the 1973 Land Use Plan for the state, Statewide Planning projected intensive urbanization of the bay lands. The Technical Committee Report on the Coastal Zone has received assistance from Statewide Planning. It would seem reasonable to assume that the forthcoming coastal plan will parallel that of Statewide Planning because Statewide Planning is responsible for both plans.

No comprehensive use of large areas of land is mentioned by the Technical Committee except for maintaining a fixed shore line or bulkhead line to prevent filling of the bay. The legality is not discussed. One interesting contradiction between the Coastal Zone Report and the later published Land Use Plan is that the C.Z.R. calls for prevention of industrial development in proximity to the bay and recommends further inland sites. The L.U.P. with the recent acquisition of the Naval Bases, calls for new extensive industrialization in these locations.

Since the Coastal Zone Commission utilizes other agencies and becomes a comprehensive administrator of their recommendations,[117] the urbanization of the bay lands will most likely continue. The overview is entirely lost. The Coastal Zone Commission will have some positive power within the immediate bay strip of land, but will inevitably reflect current state plans.

One of the more significant legislative proposals for comprehensive land management was the "National Land Policy and Management Act of 1972." This act required...

> "...the state land use planning programs to establish control over areas of environmental concern, large scale developments, key facilities, and developments of regional benefit."[118]

This would have been directly applicable to the bay lands and the resultant impact of reusing the naval bases for industrialization.

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[117] Ibid. p. 115.

[118] Kahl Associates and Ralph Andersen Associates, Preservation and Management of California's Coastline (Washington D.C., 1972) p. 62.

In the Act, 204 million dollars was authorized for control of private lands and the land did not have to be related to water.[119] The National Coastal Zone Management Act addresses itself only to land which has immediate effect on the water.[120]

It may be useful to enumerate federal agencies and Acts which have relevance to the Bay Region. A brief list of some of the more applicable ones follows.

- National Park Service. They have interest in three areas: "natural, historical, and recreational".[121]
- Forest Service, U. S. Department of Agriculture. Due to higher than allowable land values in the Bay Region, no help would be available for reforestation and management.[122]
- Farmers Home Administration. Funding is provided for rural water and waste control.[123]
- Urban Renewal Agency. Funds of up to 20% are provided for acquisition of open space.
- General Services Administration. GSA controls all property of the Federal Government and is transferring ownership of the naval bases to the State of Rhode Island.
- Open Space Land Program. They provide funds of less than 50% for acquisition of open space by a public agency.

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[119] Ibid.
[120] Ibid. pp. 69, 70.
[121] Ibid. p. 44.
[122] Ibid.
[123] Ibid. p. 55.

- Greenspan Program. Limited funds are provided for land purchased involving: recreation, open land, conservation, scenic amenity, public waterfronts, historic sites and farm/recreation.
- Open Space Land Program. Same as above.
- Housing and Urban Development. The department is no longer funded for purchase of land to control urban growth or historic restoration.
- National Trust for Historic Preservation. The trust accepts ownership of historic sites and their management.[124]
- Corps of Engineers. The corps develops, manages, and implements waterway related programs.[125]
- National Environmental Protection Act. NEPA regulates all federal agencies affecting long range environmental considerations.[126]

The usefulness of federal agencies in administering the bay lands will be a direct function of funding with the exception of GSA.

Open space initiatives are becoming more prevalent throughout the country. Review of other state and regional programs will influence the strategy employed to maintain permanent open

[124]Mann, Long Island, p. 213.

[125]Kahl, California's Coastline, p. 48.

[126]Ibid. p. 47.

space in the Bay Region.

Hawaii received a good deal of attention because it is the only state with comprehensive state land controls. All land is zoned either "urban, rural, agricultural, or conservation." Agricultural zoning is a binding agreement with the landowner for periods of at least 10 years. As with other states, preferential assessment is then used for open lands, but it is no more permanent a method of securing the land than anywhere else. Hence, it will not implement a designated plan. In fact, Hawaiian agricultural and rural zoning permits continuous 1/2 acre subdivision.[127] Hawaii's success in preserving open land was possible because the bulk of land is held by an extraordinarily limited number of landowners and corporations. Pineapple and sugar crops are important to the economy but those agricultural lands are still not permanent.

Pennsylvania does not use agricultural zoning but "Covenants" agreed upon by the landowner and the municipality for 5-year periods for which time preferential assessment is applied. The other method of maintaining open space in that state is acquisition. Florida is the same although it is actively acquiring endangered conservation lands. Connecticut has preferential tax assessment without a recapture feature and applies to any open land, agricultural or other. Preferential assessments also exist in New Jersey, Oregon, Indiana, Nevada, Arizona, Utah, Texas, and New Mexico.[128]

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127 Joint Committee on Open Space Land, Preliminary Report, Hon. John T. Knoz, chairman (California: California Legislature, 1969), pp. 88-96.

128 Ibid.

Coastal protection and management programs overseen by state authorities exist in Delaware, California, Maine, Michigan, Washington, and Wisconsin. The land under control of the coastal zones ranges from 100 ft. from the water in California to 1000 ft. inland in Michigan. The control of that zone usually includes environmental concern for: industrial location and permits for such use, land fill, zoning, and water quality influence. The programs have the power to reject atomic plants, oil refineries, and other important key facilities, but what the programs can actually accomplish in preserving open space is surprisingly little. Ordinances regulating aesthetic compatability, cluster zoning, P.U.D. and others will not keep the land open or help direct growth.

Maine has an interesting new slant on environmental protection. Unlike Connecticut which is concerned only with pollution of air and water and related development guidelines, the "Critical Areas Advisory Board" maintains an up to date inventory of significant sites. The wide varieties of classifications are an aesthetic and ecological approach to the environment. It practices control over the greater physical environment.[129]

Regional control is being organized and legally affirmed more frequently now than during the early pioneering days of environmental concern. Two outstanding examples are: the "San Francisco Bay Conservation and Development Commission"

[129]Mann, Long Island, p. 229.

authorized by the Association of Bay Area Governments--ABAG--and the "Adirondack Park Local Government Review Board." They both exercise zoning or similar restrictive powers, mandatory review, and required permits for development. Acquisition recommendations to a higher authority are also practiced.[130] The organizational unit of regional authority is not new and can be implemented in the Narragansett Bay Region. However, the definition of the region must be comprehensive and control over a sufficient area established to be effective. The San Francisco Bay Area Proposal will be reviewed further because of the region's physical similarity to the Narragansett Bay Region.

Coastal zone management in the San Francisco Bay Area would have marginal effect on urbanization if their control over a very limited 100-foot strip of land was not well integrated into the plan for regional urbanization provided by ABAG. Elsewhere state authorities may encourage open land and discourage scatterization through incentives and influence "key facilities" location but the control of urbanization is still not a reality. ABAG's proposal is unique in its approach--total control of open space and therefore urbanization and not simply encouraging or influencing open space.

130T. J. Kent, Jr., Open Space for the San Francisco Bay Area: Organizing to Guide Metropolitan Growth (Berkeley: University of California, 1970)

Libby, Easements in New York, pp. 14, 15.

Mann, Long Island, p. 230.

A cost/benefit investigation was undertaken by People for Open Space--P.O.S.--sponsored by ABAG. ABAG's original open space program called for 10 times as much public open land by 1990 as was controlled in 1968; 3,434,000 acres compared with 340,000. In the 1990 proposal, 1,801,000 acres would be protected forever, the remainder reserved for urban expansion. Four methods of executing such a plan were reviewed: "Voluntary Contracts" - preferential tax assessment for contractual periods of time; "Buying All Open Space Lands" - literal purchase of all non-urban land; "Purchase plus Zoning" - zoning of only those lands which would be upheld by the courts such as flood plains and prime agricultural land. The remaining land would be purchased; "Regulation with Compensation" - diminished values receive equitable restitution.

At the time, Regulation with Compensation had not been tested in the courts and was not accepted by P.O.S. Voluntary Contracts had been proven impermanent and therefore not acceptable. Purchasing all land was a workable method but Purchase plus Zoning was the favored arrangement.

A comparative study of purchasing land "Immediately" and purchasing land in "Two Stages" within the preferred Purchase plus Zoning proposal was executed. The former was proven to be financially more beneficial since land prices would escalate in the future (especially if available land is decreased) and revenue from land not acquired would be lost. In fact, buying in two stages was proven to be 10% more economical than the expense incurred by contemporary patterns of urbanization.[131]

[131] Kent, Open Space, p. 25.

please see the graphic illustration[132] of other contrasting relationships taken into account which describe a total image of social, economic, and ecological considerations.

Many countries in Europe have shown an ability to positively work with public land acquisition in determining the destiny and physical form of their cities. A most useful device has been the Right of First Purchase which allows a municipality to review private lands which are to be sold and analyze their relation to overall objectives. In fact, it is a type of open space/urbanization chess game. This permits gradual acquisition of public lands and a workable program even with limited funding.

The success of British New Towns is due largely to England's ability not only to control land to be urbanized but to control the residual space or open lands which separate towns. The P.U.D. is quite secondary to the residual space. In the U.S., Reston, Virginia exemplifies an extremely handsome and well planned new town. However, it is acting as a catalyst attracting people to the surrounding land. This surrounding land is presently plagued with all the contemporary problems of sprawl.

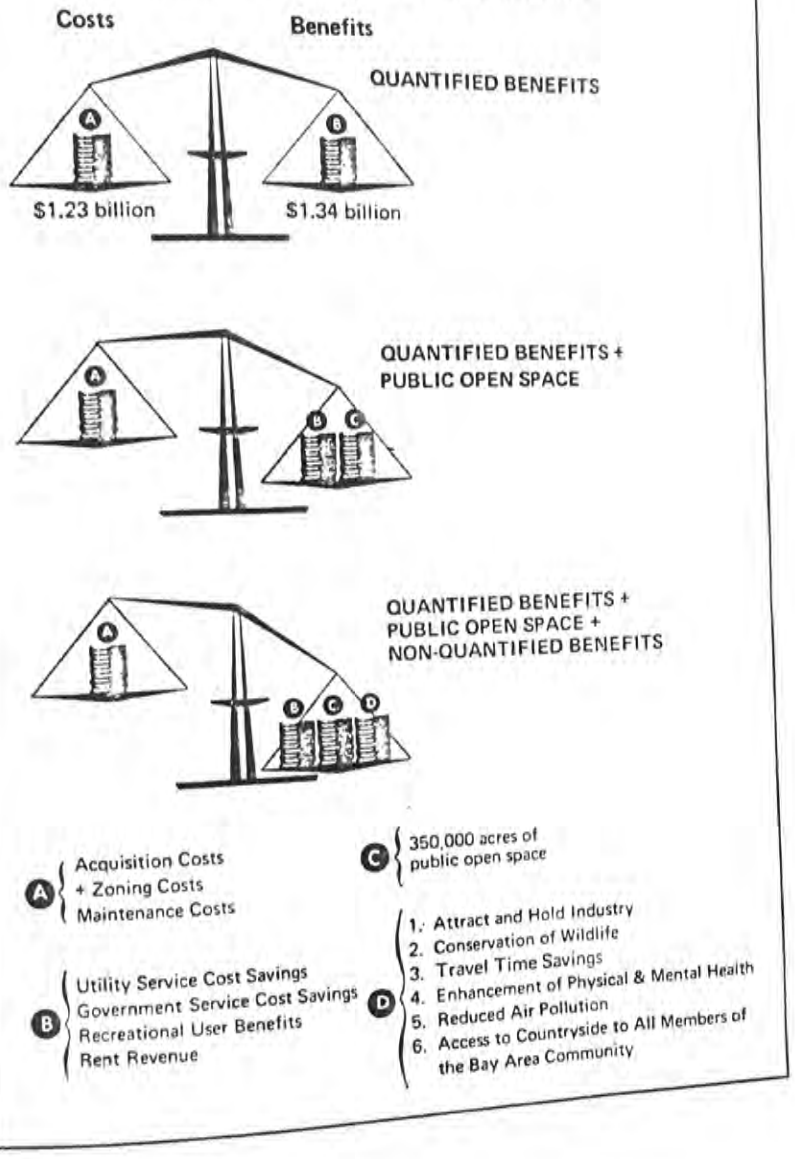
It would be possible in the Narragansett Bay Region to develop an approach somewhat different from the total land use control advocated by ABAG. In this approach, controlled open space would be used to channel and form the general patterns of urbanization. Since the open land is not to be built on, regu-

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[132] Ibid. p. 27.

Figure 1

BENEFIT-COST COMPARISON
PURCHASE-PLUS-ZONING ALTERNATIVE



SOURCE: Reproduced from Association of Bay Area Governments - Preliminary Regional Plan.

lation with compensation instead of acquisition may frequently apply; although purchase will play an important role as will permanent zoning. The permanent zoning which I described earlier in the paper must be tested in the courts but changing judicial attitudes on "taking" in relation to upholding public welfare is encouraging.

The land which is to be urbanized and not under open space control in the Narragansett Bay Region, would then be subject to the host of devices for encouraging quality in urban form such as: key facilities control, infrastructure control, P.U.D., density bonuses and transfers, and others. The spatial open space infrastructure will be the main part of the urban scaffold while the utilitarian infrastructure in the urban corridors reinforces the planned system and programs the urbanization.

An open ended corridor form of urbanization is necessary to accommodate inevitable growth. London and Moscow are two primary examples of green belted cities pressuring their own open space. Topographical parameters such as Manhattan's shore-line promote vertical growth but infill of water bodies is common to that city as most other waterfront cities. Less pressure would be placed on open space boundaries if growth had a directed place to go with appropriate infrastructure services.

Summary of Proposals for the Narragansett Bay Region

I. Regional Open Space Models

1. Conservation areas
2. Wilderness areas
3. Commercial Forests
4. Agricultural districts
5. Preservation of historic farms

6. Unique environmental features of the land and regionally identified contiguous areas of land
7. Large lot zoning within open space areas of high land value
8. Scenic highway corridors, scenic parkways, elimination of strip development

By limiting the available land to be urbanized, development should refocus upon the existing land in the metropolitan area.

II. Proposed Form of Regional Urbanization

1. Maintaining the existing urban environment
   a. Restitution of the metropolitan waterfront
   b. Redevelopment of blighted areas - urban and resort
   c. Protection of existing residential environments
   d. Provide additional open space within the city
   e. Landscaping of all arterial roads and elimination of commercial strip development
   f. Reuse of the Naval Bases
      - Limited development by non-polluting industries which require harbor access
      - Civilian use and expansion of below ground oil storage tanks replacing oil storage facilities along the metropolitan waterfront
2. Urban Expansion
   a. Urban growth corridors
   b. Extension of infrastructure - roads, water, electricity, sewers, etc. - to only those areas programmed for urbanization

III. Historic Preservations

1. Historic districts - 18th and 19th centuries. These comprise the early polynucleated arrangement of bay towns
2. Historic farms
3. Isolated historic buildings
4. Historic roads: post roads, trails and others; especially those linking historic districts

IV. Transportation

1. Development of scenic highway corridors, scenic parkways, and elimination of commercial strip development
2. Revitalization of coastal roads, post roads, and trails

3. Reestablishment of coastal railroads, bay ferries, and excursion boats similar to the steamers
4. New public and private transportation infrastructure programmed to implement proposed urban growth corridors

To implement the proposed form of urbanization and open space, it will be necessary to create a Regional Authority for the Narragansett Bay Region with sufficient powers to control the development of the region. New legislation should be enacted to provide the NBR regional authority with "Right of First Purchase."

V. NBR Authority

1. Plan for regional urbanization and open space
2. Detailed regional land use suitability inventory
3. Scenic inventory of the region
4. Inventory of significant sites: aesthetic and ecological
5. Legal staff to effect plan implementation and land regulation through the use of the following land controls

VI. Land Controls

1. Encourage donation of private properties
2. Agricultural districts and agricultural zoning
3. Farm subsidies used in agricultural districts where return is disproportionate to value
4. Large lot or low density zoning, preferably based on cluster principle requiring
5. Lease purchase, purchase and leaseback, purchase with life tenancy
6. Covenants and deed restrictions
7. Acquisition of fee
8. Compensable regulation or easements
9. Mapping with time purchase
10. Excess condemnation - mostly for scenic roads
11. Architectural compatibility ordinances

Whether the urban configuration employed in the Narragansett Bay Region is order on a series of corridors, radial plan, or "Capital Web",[133] the void becomes the most important part of

[133] Boston Redevelopment Authority, 1965/1975 General Plan for the City of Boston and the Regional Core (Boston: Boston Redevelopment Authority, 1965)

the spatial structure. An ordered control of that space will protect critical environmental areas of the region, provide cultural diversity, preserve the region's significant historic identity for future generations, promote the tourist industry while reinforcing resort centers, and provide a range of amenities for the projected urban areas. The limited land to be urbanized would also encourage more intensive development at higher densities than before, facilitate efficient mass transit operation within corridors, allow programmed utility paths, and provide other economic savings inherent in ordered urbanization.

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