NPS Form 10-900
(7-81)

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EXP. 12/31/84

United States Department of the Interior
National Park Service

National Register of Historic Places Inventory—Nomination Form

For NPS use only
received AUG 18 1983
date entered

See instructions in *How to Complete National Register Forms*
Type all entries—complete applicable sections

1. Name

historic FORD MOTOR COMPANY EDGEWATER ASSEMBLY PLANT

and/or common

2. Location

street & number 309 RIVER ROAD ___ not for publication

city, town EDGEWATER ___ vicinity of ~~congressional district.~~

state NEW JERSEY code 34 county BERGEN code 003

3. Classification

Category	Ownership	Status	Present Use	
___ district	___ public	___ occupied	___ agriculture	___ museum
_X_ building(s)	_X_ private	_X_ unoccupied	___ commercial	___ park
___ structure	___ both	_X_ work in progress	___ educational	___ private residence
___ site	**Public Acquisition**	**Accessible**	___ entertainment	___ religious
___ object	___ in process	_X_ yes: restricted	___ government	___ scientific
	___ being considered	___ yes: unrestricted	___ industrial	___ transportation
	N/A	___ no	___ military	X other: VACANT

4. Owner of Property

name EDGEWATER ASSOCIATES

street & number 1200 UNION TURNPIKE

city, town NEW HYDE PARK ___ vicinity of state NY

5. Location of Legal Description

courthouse, registry of deeds, etc. BERGEN COUNTY RECORDER OF DEEDS

street & number BERGEN COUNTY COURTHOUSE

city, town HACKENSACK state NEW JERSEY

6. Representation in Existing Surveys

title Historic Preservation Tax Reform Act Application for Certification, Part 1 has this property been determined eligible? X yes ___ no

date July 15, 1982 X federal ___ state ___ county ___ local

depository for survey records Office of New Jersey Heritage

city, town Trenton state New Jersey 08625

7. Description

Condition		Check one	Check one
___ excellent	___ deteriorated	___ unaltered	X original site
___ good	___ ruins	X altered	___ moved date _____
X fair	___ unexposed		

Describe the present and original (if known) physical appearance

The former Ford Motor Company Edgewater Assembly Plant is located in the southern area of the Borough of Edgewater, Bergen County, New Jersey (Photographs 4-6, 8-15, and 28-29).[1] The plant was commissioned by the Ford Motor Company, probably just after the purchase of the land on May 13, 1929.[2] The commission for this project was given to Albert Kahn of Detroit, Michigan (Photograph 1).[3] Kahn was the preeminent American architect of industrial building and the designer of hundreds of buildings for Ford Motor Company, General Motors Corporation, Chrysler Corporation, and Packard Motor Car Company among others. The property contains 38 acres generally rectangular in shape which includes rights to erect piers out into the Hudson River. The property is bordered by the Hudson River to the east, the site of the former Corn Products Refining Company to the south, River Road to the west, and the tracks of the New York, Susquehanna and Western Railroad to the west and north.

The property includes the following structures:

1) the access overpass from River Road;
2) the podium beneath the Assembly Building;
3) the Assembly Building;
4) the Boiler House;
5) the Oil House;
6) the Water Tower;.

8. Significance

Period	Areas of Significance—Check and justify below			
___ prehistoric	___ archeology-prehistoric	___ community planning	___ landscape architecture	___ religion
___ 1400–1499	___ archeology-historic	___ conservation	___ law	___ science
___ 1500–1599	___ agriculture	___ economics	___ literature	___ sculpture
___ 1600–1699	_x_ architecture	___ education	___ military	___ social/ humanitarian
___ 1700–1799	___ art	_x_ engineering	___ music	___ theater
___ 1800–1899	___ commerce	___ exploration/settlement	___ philosophy	_x_ transportation
_x_ 1900–	___ communications	_x_ industry	___ politics/government	_x_ other (specify) History
		___ invention		

Specific dates 1929-30 **Builder/Architect** Albert Kahn, F.A.I.A., Detroit, Michigan

Statement of Significance (in one paragraph)

The former Ford Motor Company Assembly Plant in Edgewater, New Jersey (Bergen County), was designed by Albert Kahn in 1929 and built in 1930. The assembly plant is significant on five levels:

1) the buildings are among the finest examples of Albert Kahn's genius in industrial architecture;

2) the structures are outstanding examples of engineering achievement, not only Kahn's design of the internal spaces; but also in his design of the massive supporting system beneath the building;

3) the development of the site is a highwater mark in the development of industry and commerce on the New Jersey side of the Hudson River;

4) the site was chosen as a nexus of various transportation modes at which examples of the newest transportation mode would be assembled; and

5) the history of the assembly plant as it can be reconstructed during the years of operation by the Ford Motor Company provides an almost unique vantage point from

9. Major Bibliographical References

SEE CONTINUATION SHEETS, SECTION 9

10. Geographical Data

Acreage of nominated property ~~37.19 acres (28.36~~ land and pier; 8.83 under water)

Quadrangle name Central Park, NY-NJ **Quadrangle scale** 7.5 minute scale

UMT References

	Zone	Easting	Northing
A	18	585180	4517900
B	18	585400	4518040
C	18	585840	4517840
D	18	585700	4517620
E			
F			
G			
H			

Verbal boundary description and justification

The boundary as specified in the Attachment represent the property boundaries as purchased by the Ford Motor Company in 1928. See Attachment for the legal boundary description.

List all states and counties for properties overlapping state or county boundaries

state	code	county	code
state	code	county	code

11. Form Prepared By

name/title James C.A. Thompson, Ph. D., Architectural Historian

organization **date** February 1983

street & number 3501 St. Paul Street #430 **telephone** (301) 889-5399 (home) (301) 244-5390 (office)

city or town Baltimore **state** Maryland 21218

12. State Historic Preservation Officer Certification

The evaluated significance of this property within the state is:

___ national ___ state X local

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service.

State Historic Preservation Officer signature Russell W. Myer for Helen C. Fenske

title Deputy State Historic Preservation Officer **date** 6/30/83

For NPS use only

I hereby certify that this property is included in the National Register

Entered in the National Register

Keeper of the National Register **date** 9/15/83

Attest: **date**

Chief of Registration

7) the Tank Pond; and

8) the Power Substation.

Each structure will be described as built and used until the Ford Motor Company ceased assembly operations at Edgewater in 1955. Then the present condition of the structure will be described.

I. The Overpass (Photographs 11, 86)

The site purchased at Edgewater had many advantages for Ford Motor Company, but one minor disadvantage. The tracks of the New York, Susquehanna and Western Railroad run north to south parallel to River Road. In order to have access across those busy tracks, Albert Kahn was asked to design an overpass for both motor vehicles and pedestrians. The automobile overpass is two-lanes wide and built of reinforced concrete on a steel supporting structure. The pedestrian overpass was built along the north side of the automobile overpass upon the same steel structure, but separate from the automobile platform. The pedestrian overpass is also enclosed to afford some protection from the weather.

The entrance to the overpass from River Road is south of the Ford Motor Company Assembly Plant. One bears right (east) off River Road, up an incline parallel to River Road; then at the maximum height turns further east, continuing on this curve for a short distance; then the roadway

straightens out towards the east; and descends to the ground level again The entrance to the plant area proper is found by making a 90° left turn at the east end of the overpass ramp. Simple utilitarian construction, neither the automobile overpass nor the parallel pedestrian overpass has any architectural merit.

II. Site (Photograph 7)

When the Ford Motor Company purchased the site in 1929, they acquired 38 acres of open, unimproved land and water. However, the land as purchased was not ready to support the weight of a modern building. As is outlined in more detailed in Section 8 of this nomination, the land which was purchased had been filled since 1876 when the Hudson River bank was extremely close to River Road. Before the Assembly Building and other structures could be erected, the site required extensive preparation. Plans called for the Assembly Building to be built on land and on a pier out over the Hudson River to the approved pier line.[4] Because of the soil conditions and the decision to build over water, Albert Kahn and his staff were asked to design a structural platform upon which the Assembly Building could be erected. Given the difference between the mechanics of dry fill and subaquaeous sediments, two different piling systems were used to ensure that there would be no differential movement within the Assembly Building.

Ford Motor Company Edgewater Assembly Plant
Section 7
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The land area was simpler: pilings were driven into the ground in sufficient numbers to provide a firm base for the concrete footings. On the Hudson River, pilings were driven into the sediments probably from barges like those used at the Buffalo, New York,Assembly Plant. While the land piles were clustered according to the weight of the areas to be built above, the water pilings were set in uniformly dense double rows under the center of the building, with triple rows under the outer aisles and docks which would carry gantry cranes as well as trains. The pilings were bound to each other by thread bolts. Within each row of pilings, batter piles were driven at an angle outward to the building as a counter in the river currents. Once the pilings were in place, a period of time elapsed before the caps or "bands" were put in place. The reason, as documented in a Kahn drawing, was to assess the movement of the piles. In some areas, perhaps where the river current was stronger, the deflection reached 24 inches.

The next step was to add the caps. In the land section, the caps are uniformly regular, the shape being determined by the number of pilings in the group. In the water section the caps are regular, running north-south. Thus the caps in the water section form continuous beams beneath the Assembly Building. Concrete columns (7'6" tall) were built above the beams to serve as footings. These columns are linked along the length of the building with tie walls. The continuous slab of the first

floor was built upon the top of these columns. The height of the space between the piling caps and underside of the first floor is somewhat shorter in the land section than in the water section.

The final work on the podium was essentially trim. The perimeter of the pier was built up to protect the structure against the bumping of boats while docking. Two large dolphins or pile clusters were placed in the water at the northeast and southeast corners to provide further protection. Train tracks were laid in the wharf along the north and south sides of the Assembly Building. A third rail was also laid for the gantry crane which would load the waiting ships and barges (Photographs 9-10, 12, and 14). When the dock was complete, the area around the three sides was dredged to a uniform depth of 25 feet to accomodate ocean-going vessels. The original depth had varied from 13 to 18 feet.

III. Assembly Building (Photographs 16-27 and 30-85)

The main Assembly Building as designed by Albert Kahn is 1500 feet long and 360 feet wide. Most of the building has two floors, bringing the total area inside the building to approximately 950,000 square feet. The rectangular building is divided by rows of steel columns set 25 feet apart.[5] Thus the building is 60 bays and 12 bays wide with a 60 foot-wide Central Hall which runs the length of the building. The Central Hall and the Export Bay, located in the southeast corner of the building, are the only two areas of the Assembly Building which are two stories

tall. The exterior is punctuated by pavilions, separated by expanses of glass, steel, and brick curtain walls.

The exterior materials are brick; limestone for sills, coping, and decorative bands; glass; steel sash; cast iron door guards; concrete bases; and wooden doors. The brick is sandy yellow in color with flecks of dark red: the flecks are iron particles contained in the slag, a by-product of the iron-making process.[6] Originally all sash and doors were painted a green-black.

On the interior the materials of the Assembly Building in its present condition are steel columns and concrete slabs (Photographs 77-84). There are remanants of office partitions in the Administrative Pavilion (Photograph 85). Originally much of the concrete floor was covered with a wood block flooring.[7]

The roof has two types of surfaces: the glazed areas which permit light to flood into the upper story of the Assembly Building and built up areas of cement tile. The roof surfaces are arranged to follow the division of spaces below. From above (Photographs 8 and 13) the different levels can be seen clearly. The glazed areas were built above the Central Hall, the Export Bay, and the centers of the assembly work areas flanking the Central Hall. The roof over the Central Hall rises vertically to a peak following the lines of the central pavilions of the

east and west facades. The other two raised areas do not correspond to the flanking pavilions, but are raised above the horizontal limestone coping. Separating and flanking these glazed roof areas are areas of built up roof having a very shallow pitch. The north and central glazed roof areas run the full length of the building east to west. The south run, however, has a break in the eastern end of the building. This discontinuity reflects the placement of the Export Bay below and the wider truss spans required there: 60 feet rather than the 50 foot span consistently used throughout the building except over the Central Hall.

Exterior

The east facade (Photographs 10, 12, 28, and 53-55) is the most elaborately detailed part of the Assembly Building, probably because it faces Manhattan Island. The facade has three pedimented pavilions. The outer two are identical with strong corner piers separated by four narrow piers with glass panels between the piers. Each flanking pavilion has a double door in the center. The central pavilion is similar with one less inner pier but two sets of double doors. The brick in the three pediments is set in a decorative pattern. The outer edge of this brick work is set vertically. The broad expanses have a pattern of interlocking squares which are set 45° to the horizontal. A roundel decorates the center of each pediment (Photograph 55). The well-laid brickwork and finely dressed limestone together with Kahn's deft handling of proportion and balance makes the decoration as exhibited in the pediments elegant

but decidedly understated.

The corner pavilions return on either side down the north and south facades, thus giving an impression of independent structures linked together. This impression is mitigated by the overall planar quality of the surfaces and the tight balance drawn between the verticals of the pavilions and the horizontals of the linking curtain walls. Both north and south facades have great runs of the curtain wall. This wall has several distinct courses (from ground to roof): a brick dado approximately four feet high; 2) steel and glass fenestration; 3) a brick spandrel panel serving as a second floor dado; 4) steel and glass; 5) a brick parapet with limestone coping. The lowest level, the ground level dado, is the simplest in design. The only decorative element is the insertion of headers into the fifth, tenth, and fifteen courses. The limestone sills are likewise undecorated. The glass and steel fenestration on two levels occupies over 50% of the elevation. Simple industrial sash has been used. Within the basic 25 foot bay unit, there are four sash, each five panes wide and six panes high. Within each sash unit there are two operable sections which rotate for ventilation. The lower level of fenestration is interrupted frequently by doorways for trucks, trains, and personnel. There are 23 garage-type doors on the north facade and 27 on the south facade. The steel framework of the Assembly Building has been set behind the wall surface so the columns are not

part of the wall. The brick spandrel between the two bands of windows has a dentil course at the top and a vertically laid course at the bottom. The broad middle area has horizontally laid brick set in a step pattern: one course in, one course out; giving a shallow rhythmic texture to the surface. A similar pattern is repeated in the brick parapet except that the dentils have been replaced by a second row of brick laid vertical. A continuous steel mono-rail runs the length of each facade just below the parapet coping. As can be seen in the oblique views of the north and south facades (Photographs 37, 44-45, 56, 59-60, and 64-66), these horizontally banded areas of glass and brick comprise the great majority of the exterior surface, interrupted only by minor vertical pavilions.

The minor pavilions (Photograph 58) are scaled down versions of the east pavilions. There is only one vertical band of glass flanked by two wide brick piers. Above the glazing is an attic rather than a pediment. The attic does have decorative brick panel similar to those described previously but without the central roundel. There are two minor pavilions on the north facade and two on the south facade as well as the corner pairs on the northwest and southwest corners of the Assembly Building The north and south pairs are not identically placed. The arrangement of the south pair was determined by the placement of the east pavilion just west of the dividing line between land and water. Its respond on the north facade was then placed a distance from the northwest corner

equal to the distance of the east pavilion from the northeast corner. The south facade placement is slightly different. The east pavilion was also placed just west of the dividing line, but its respond was situated with a different reference point. Rather than make the southern pavilions symmetrical with respect to the corners, Kahn decided to place them symmetrically about the center line of the Administrative Pavilion. Thus the two minor pavilions are set equidistant from the Administrative Pavilion, not the corners. This decision has two visual results: it makes the Administrative Pavilion grouping more monumental and it creates two unequally long expanses of curtain wall.

At some point, a change was made on the north facade. In one bay of the second story, the sash and brick spandrel were removed and a truck doorway was installed. Then a long wooden ramp was built running towards the west alongside the building to connect this new doorway to the ground. Unfortunately few of the period photographs show the north facade, but none that do show this area include the ramp. The addition may even have been made after Ford Motor Company abandoned the plant in 1955.

Unlike the east facade the west facade which faced the railroad tracks and is barely visible from River Road has only one pedimented pavilion (Photograph 32). Set in the center of the facade, this pavilion is very similar to the central pavilion of the east facade with one exception.

In order to accomodate railroad freight cars and trucks to either side of the railroad tracks, the center pier is stopped about halfway down from the pediment. Below this break Kahn designed three projecting canopies to provide some relief from the elements and three large doorways: the taller center doorway for trains and the flanking doors for trucks. The center doorway also extends below grade: in order for the freight cars to be easily accessible inside the Assembly Building, the track descends below grade outside the building so that inside the building the car doors when opened will be on the same level as the first floor. The two corners of the west facade have minor pavilions identical to those on the north and south facade. Glass, steel, and brick curtain walls link the three pavilions together as on the other facades. The only unique feature on the east facade is the seven doors of the employees' entrance which are located just to the south of the central pavilion (Photograph 35).

The south facade is the second most important: visible from Manhattan Island, it is also the facade towards which visitors are directed by traffic patterns. In terms of minor pavilions and stretches of curtain wall, the south facade is identical to the north facade. There is no special articulation of the Export Bay, a two-story high area, on this facade. However, the south facade has one large distinctive feature: the Administrative Pavilion (Photographs 9, 39-43, and 45). Fourteen bays

wide the Administrative Pavilion projects only about three feet forward of the wall plane for the rest of the facade. The bays are marked by brick piers with limestone bases and caps linked by brick spandrels on the second floor and limestone lintels and dentils above the second floor windows. The pavilion is capped with a large rectangular attic in which brick has been laid in the same decorative pattern seen in the other pavilions. The attic does not have a roundel or any other device to disrupt the brickwork pattern.

The doorway is not set into the center of the Administrative Pavilion, but is located in the second bay from the east (Photograph 43). Handsomely detailed, the limestone door surround has flanking fluted pilasters linked by a broad undecorated lintel. The upper edge of the lintel has carved dentils and a simple cornice moulding. On the surface of the lintel it is possible to see where a bronze or copper script "Ford" was bolted to the stone. Bolt remnants of paired lanterns can also be seen in the pilasters. The metal framework of the entrance is steel on the exterior. The entrance originally had a bronze revolving door.

Interior

Passing through the revolving door a visitor would have entered a lobby area which when executed as Kahn designed it would have been rather elegant. The drawings indicate marble pilasters separated by plaster walls scored like stone and linked by plaster cornices. The inner

doorway surround had fluted pilasters similar to the exterior. However, these were more ornately decorated: the inner edges and the lintel above the entrance were clad with bronze cut in very delicate classical patterns. The elegance of the lobby was further enhanced by the marble floor and treads on the stairway to the second floor (Photographs 16 and 17). The offices of the Administrative Pavilion were generally large and well lit: those offices facing into the assembly areas had windows to allow light from that area to enter. The office walls and partitions were typical of the period: a wooden panel dado with glass, either clear or smoked, above and reaching to the ceiling (Photograph 85). While handsomely executed, these spaces and walls were not exceptional in any way.

The interior of the Assembly Building is divided into three areas longitudinally: the Central Hall which is two stories tall and the flanking assembly areas, each having two floors. The north assembly area on each floor is continuous without interruption for the entire 1500 feet length of the building. The sunken railroad track runs the length of the Central Hall and could accomodate roughly thirty railroad freight cars (Photographs 18, 20, and 67-74). The Central Hall is 60 feet wide and had a gantry crane capable of lifting 10 tons which traveled the length of the hall. Once the freight cars were inside the Assembly Building the crane would be used to move the parts to the storage areas. As can

be seen in Photographs 18 and 21, both floors to either side of the Central Hall were crammed with stored parts. Despite the vast storage areas within the Assembly Building, parts particularly chassis were often stored outside the building. In Photograph 6, one can see parts stacked in front of the west facade and along the length of the north facade. Along the length of the Central Hall, a series of balconies on the second floor protrude 8½ feet into the hall. The crane would bring parts along the hall to a balcony and lower the crates into the balcony, rather like a second story loading dock. To facilitate the movement of personnel, the space of the central hall is spanned by three steel bridges: one at either end of the hall and one in the center. The western bridge was also used for a conduit for many pipes which carried steam, hot and cold water, various fuels and lubricants, and paints and varnishes from the two auxiliary buildings north of the Assembly Building to the south area of the Assembly Building. By using the bridge, the weight of the pipes was not added to the roof trusses. Photograph 18 also provides an excellent view of the roofing system. The great double winged roof is actually wider than the hall: the sloping glazed sides extend beyond the vertical limits of the hall to create a form of clerestory, lighting and ventilating not only the Central Hall but also the adjacent area of the second floor. The delicate spider web of truss elements not only extend across the hall and up into the twin wings of the roof, but include lateral cross-bracing between trusses and a series of longitudinal wind braces above the second floor level.

Despite its complexity and physical weight, the entire upper area truss system is visually light and does not appreciably impede the flood of light and flow of air.

The north and south assembly areas are plain, open spaces. The lower floor is 17 feet high; the upper floor is 14 feet high (to the lower chord of the roof truss). The second floor is lit like the Central Hall by two large double wing roofs which, while not as wide in span as the Central Hall roof truss, are equally impressive. The south assembly area does not run the length of the Assembly Building uninterrupted like the north assembly area because the Administrative Pavilion offices and the Export Bay are set into this area. When parts or cars destined for overseas shipment had reached the finished stage, they were taken to the Export Bay for crating and transfer to barges and freighters docked outside (Photographs 23 and 24). This bay, 60 feet wide like the Central Hall, was also equipped with a gantry crane capable of lifting ten tons. Finished cars and trucks could be driven into the Export Bay while parts could be delivered to the projecting balconies for transfer by the crane to the packing area. The entire north side of the Export Bay was filled with steel sash and glass and steel spandrels to separate this area from the assembly areas. The extremely heavy steel columns along the outer (south) wall are not required to support the roof truss, but to carry the weight of two gantry cranes: one inside the Export Bay and one outside on the dock (Photograph 14.)

Ancillary features of the interior of the Assembly Building include:

1) six toilet and shower facilities located with staircases along the inner line of the Central Hall;
2) staircases in the northeast, southwest, and northwest corners of the building (none in the Export Bay);
3) a first-aid station and employment office at the west end of the first floor, south of the Central Hall;
4) a garage on the first floor between the Administrative Pavilion and the Export Bay;
5) four large freight elevators to move equipment too heavy for the conveyor tracks.

The interior of the Assembly Building is extremely impressive by virtue of its immense size and vast ranges (Photographs 18 and 77-84) as well as by the technical virtuosity of the roof trusses. The area of the Export Bay while planned exclusively to fulfill utilitarian requirements has been conceived and executed with an understated elegance. The exterior of the Assembly Building has been designed like a tight band encompassing the various internal functions in one comprehensible whole. By using the simple rectangular form with the accents of the pavilions, Albert Kahn gave a coherent unity to a building which on the interior would become an almost bewildering maze when occupied and operational.

The exterior as viewed from the Manhattan Island side of the Hudson River has a classic quality not typical of industrial sites, but absolutely typical of Albert Kahn's architecture.

IV. BOILER HOUSE

Sited to the north of the Assembly Building, the Boiler House is the easternmost of the row of subsidiary structures and was built on the land area quite near the river edge. The Boiler House exterior is identical to the northeast and southeast corner pavilions of the Assembly Building, only the Boiler House is free-standing and therefore complete on all four sides. Because it is essentially a pavilion, the Boiler House does not have any ranges of curtain walls, but instead has four massive corner piers separated on the east and west by three bays and on the north and south by seven bays. The structure is capped by a tall circular smokestack. Kahn's designs indicate an octagonal smokestack as first choice, but include a "radial" design as an alternate. For reasons unknown the alternate was built. The east and west facades of the Boiler House have pediments similar to the pediments on the east facade of the Assembly Building: a background field of brick set into a decorative pattern with a roundel in the center. The north and south facade have an attic similar to that on the Administrative Pavilion of the Assembly Building: a broad rectangular field of decoratively-laid brickwork.

All the detailing on the elevations is cut limestone as on the Assembly Building. There is one unique detail to the exterior of the Boiler House. Unlike the Assembly Building, the Boiler House has a full, functional basement. Because of the ground water level, this basement could not be too deep and therefore extends above grade. Consequently part of the basement is visible. To differentiate between the basement and the upper area of the Boiler House, Kahn designed the brickwork of the exposed basement to be laid vertically (Photographs 88 and 89). This change clearly defines the two different floors and serves as a visual indication that the basement is supporting the upper area. The vertical brickwork terminates uniformly at the window sill level with only one exception: the entire entrance enframement is set in vertically-laid brick which are chamfered back to the door itself (Photograph 90). This distinctive touch serves to keynote the door without the expense of limestone as used on the Administrative Pavilion.

When built the Boiler House contained three boilers which occupied the western half of the building (Photographs 91-92). The eastern half contained three air compressors in the northeast quadrant, two heaters in the southeast quadrant (with room for another aircompressor in the future), and two water circulating water pumps in between. All of this machinery extended downward into the basement. The Kahn drawings for this building include a whole series of incredibly beautiful drawings of the machinery to be placed within the building. A large exhaust

system leading to the smokestack and the support system for the smokestack were built above the boilers. The roof is carried on open steel trusses and the interior wall surfaces are all glazed brick.

V. OIL HOUSE

The Oil House is a low one-story, rectangular structure with pedimented east and west end (Photograph 93). Unlike the Assembly Building and the Boiler House, the decorative trim on the Oil House is cast concrete not limestone and the pediments do not have any decorative pattern in the brickwork.

The interesting aspect of this structure involved the machinery inside. The floor plan was laid out with two larger rooms at the east and west ends flanking a smaller central room. Behind is a loading dock and railroad spur. The west room, the Oil Storage Room, contained large storage tanks: two for enamel, four for fuel oil, and four for gasoline. The east room, the Tank Room, contained smaller tanks: three for motor oil, four for enamel, two for used enamel, two for axle grease, and one for fuel oil. The fuel oil tanks in both rooms had internal steam coils to make the liquids more fluid. These liquids flowed through pipes into the center room, the Pump Room, which contained 16 paint mixers and a variety of pumps: two for enamel, one for each fuel oil, motor oil, thinner, and axle grease. The fluids were pumped in pipes through an underground tunnel into the Assembly Building.

VI. WATER TOWER

The Water Tower is situated between the Boiler House and Oil House (Photograph 87). It is a standard industrial type: a large steel container hoisted up on four steel legs with a central drain pipe. The Water Tower was not specifically designed by Albert Kahn although the required pilings, caps, footings, and slab were.

VII. TANK POND

The Tank Pond is located to the west of the Oil House. The pond consists of a oval concrete bowl set above ground inside which two large fuel tanks have been placed. The concrete bowl is designed to contain any spill, overflow, or leak from the fuel tanks. The concrete bowl was designed by Kahn, but not the fuel tanks.

VIII. POWER SUBSTATION

The Power Substation is located to the west of the Assembly Building. Here the electrical supply for the entire complex was received and routed to the other structures. The structure is one-story high and was designed like a miniature pavilion in three dimensions (Photograph 94). Like the much larger Assembly Building and Boiler House, the Power Substation has cut limestone detailing including a coping with dentils and an attic with the decorative brickwork pattern seen on the other two buildings.

The Edgewater Assembly Plant complex demonstrates Albert Kahn's ability to imbue industrial architecture with all the refinements of public architecture while satisfying the operational requirements of the client. At Edgewater he designed three structure of artistic merit (the Assembly Building, the Boiler House, and the Power Substation), one structure of engineering merit (the pier and substructures), and four structures which served their functions handsomely (the Overpass, the Oil House, the Water Tower, and the Tank Pond).

PRESENT CONDITIONS

I. Overpass

The automobile overpass appears to be in reasonably good condition although the parapet wall is cracked in several places. The pedestrian overpass is badly deteriorated.

II. Substructure

To all appearances the substructure is in good to excellent condition. After 52 years, only one area of settlement can be noted at the dividing line between the land and water sections

III. Assembly Building

The problems with the Assembly Building are due to two causes: lack of maintenance and vandalism. Many windows and doors are broken or missing. Water intrusion into the walls has caused the steel members to corrode

expand, and pop bricks out (Photograph 56). When the dock cranes were removed, the building rail was cut off at the surface of the brick, leaving the through-wall steel supports to rust. Similar instances can be seen wherever exterior fixtures have been removed. On the interior the Administrative Pavilion has been virtually destroyed (Photograph 85). The entire north wall of the Export Bay has been removed (Photograph 75). As can been seen in Photographs 76, 83, and 84, the failure of the roof together with the broken windows now permit rain and snow within the building. The concrete slabs appear to be in good condition while the structural columns are heavily rusted. When Ford Motor Company abandoned the Edgewater Assembly Plant, all machinery and equipment were removed, leaving the Assembly Building with an open appearance it never had when active. Only in the Central Hall would it have been possible to see from one end of the Assembly Building to the other. Despite the deterioration the Assembly Building is in good condition.

IV. Boiler House

The same problems that plague the Assembly Building can be seen here: windows and doors are missing, letting water into the building. All of the machinery has been removed. The exhaust hood, smokestack supports, and roof trusses are present but heavily rusted. The steel wall columns are also heavily rusted.

V. Oil House

The roof is completely deteriorated and rust has caused most of the steel window and door lintels to deflect. As elsewhere all the machinery has been removed.

VI. Water Tower

The water tower is rusting, but a structural assessment is not possible without climbing the tower.

VII. Tank Pond

The concrete retaining wall appears to be in reasonably good condition though the two tanks are rusting.

VIII. Power Substation

The power substation is in rather poor condition. The roof and windows are gone. The floor slab is broken and there are several settlement cracks in the brick walls.

Rehabilitation Plans

The present owners, Edgewater Associates, are actively pursuing rehabilition of the Assembly Building. The Historic Preservation Certification Application - Parts 1 and 2 were submitted to the New Jersey Office of Historic Preservation in April 1982. The entire complex was determined eligible for the National Register of Historic Places on July 15.

1982. The Part 2 application has been approved conditionally by the National Park Service in Philadelphia.

The rehabilitation plan as submitted to the New Jersey Office of Historic Preservation and the National Park Service included the following:

1) conversion of the Assembly Building into rental housing units;
2) demolition of the Oil House, Water Tower, and Tank Pond;
3) removal of the Power Substation to another location within the former Ford Motor Company property and subsequent restoration; and
4) mothballing of the Boiler House.

The conversion of the Assembly Building involves the following actions:

1) restoration of the exterior brick work;
2) replacement of the existing sash with new sash, having a similar but not identical pattern as the original;
3) removal of all garage doorways and replacement with brick walls and glazed sash;
4) erection of a wooden fence about the perimeter to form private gardens for the ground floor rental housing units;
5) removal of all interior walls and partitions;
6) creation of three interior courts for pedestrian and vehicular traffic by using the Central Hall and cutting out the second story floor slab beneath the main roof trusses for almost the entire length of the building:

7) insertion of the rental housing units in four rows between the courts and the perimeter walls;

8) removal of the glass, built up roofing, and decking over the courts, but rehabilitating the existing truss network;

9) Selective removal of the glass and doors from the three pavilions of the east facade and the central pavilion of the west facade; and

10) reuse of the sunken railroad pit as a mechanical and electrical conduit.

The request for permission to demolish the auxiliary structures was based upon the deteriorated condition and the lack of a rehabilitation scheme which was economically viable.

Photographic Descriptions

Photograph Number	Description
1	Albert Kahn, Rendering presented to the Ford Motor Company for the Edgewater Assembly Plant, undated (Photograph courtesy Albert Kahn Associates, Inc., Architects and Engineers, Detroit, Michigan).
2-6	Area around the Edgewater Assembly Plant, late 1930s. Possibly taken in conjunction with the Works Progress Administration, Edgewater Historical Survey (Photographs courtesy Edgewater Public Library).
7	Edgewater Assembly Plant, shortly before completion (photograph courtesy Albert Kahn Associates).
8-9	Edgewater Assembly Plant, November 1933, when ocean-going vessel SS. Cristobal docked (Photograph courtesy Albert Kahn Associates).
10	Edgewater Assembly Plant, from Manhattan Island (Photograph courtesy Edgewater Public Library).
11	Edgewater Assembly Plant, from Bergen Hill (Photograph courtesy Edgewater Public Library).
12	Edgewater Assembly Plant, from Manhattan Island, January 18, 1948 (Photograph courtesy, Henry Ford Museum, Edison Institute, Dearborn, Michigan).
13	Edgewater Assembly Plant, aerial view (Photograph courtesy, Henry Ford Museum, Edison Institute).
14	Edgewater Assembly Plant, south dock and crane, c.1940(Photograph courtesy Henry Ford Museum, Edison Institute).
15	Edgewater Assembly Plant, South Facade, western section, May 28, 1940 (Photograph courtesy Henry Ford Museum, Edison Institute). Compare Photograph 37.
16	Edgewater Assembly Plant, Administrative Pavilion, lobby interior, October 25, 1939 (Photograph courtesy Henry Ford Museum, Edison Institute).

17 Edgewater Assembly Plant, Administrative Pavilion, staircase to the second floor, October 25, 1939 (Photograph courtesy Henry Ford Museum, Edison Institute).

18 Edgewater Assembly Plant, Central Hall, c.1940 (Photograph courtesy Henry Ford Museum, Edison Institute).

19 Edgewater Assembly Plant, assembly line, c.1940 (Photograph courtesy Henry Ford Museum, Edison Institute).

20 Edgewater Assembly Plant, Central Hall (bridge in center was not original and has been removed), c.1940 (Photograph courtesy Henry Ford Museum, Edison Institute.

21 Edgewater Assembly Plant, Central Hall, March 19, 1947 (Photograph courtesy Henry Ford Museum, Edison Institute).

22 Edgewater Assembly Plant, West Facade, chassis loading machinery, c.1940 (Photograph courtesy Henry Ford Museum, Edison Institute).

23 Edgewater Assembly Plant, Export Bay, Fall 1930 (Photograph courtesy Albert Kahn Associates).

24 Edgewater Assembly Plant, Export Bay, c.1940 (Photograph courtesy Henry Ford Museum, Edison Institute).

25 Edgewater Assembly Plant, second floor subsidiary assembly area, c.1940 (Photograph courtesy Henry Ford Museum, Edison Institute).

26 Edgewater Assembly Plant, upholstery subsidiary assembly area c.1940 (Photograph courtesy Henry Ford Museum, Edison Institute).

27 Edgewater Assembly Plant, body side panel conveyor and storage area, c.1940 (Photograph courtesy Henry Ford Museum, Edison Institute).

28 Edgewater Assembly Plant, from Manhattan Island, 1982.

29 Edgewater Assembly Plant, overall view from the Overpass, 1982.

30 Edgewater Assembly Plant, West Facade, 1982.

31 Edgewater Assembly Plant, West Facade, central area, 1982.

32 Edgewater Assembly Plant, West Facade, central pavilion, 1982.

33 Edgewater Assembly Plant, West Facade, central pavilion, doorways, 1982.

34 Edgewater Assembly Plant, West Facade, oblique view, 1982.

35 Edgewater Assembly Plant, West Facade, employees' entrance, 1982.

36 Edgewater Assembly Plant, West Facade, northwest corner pavilion, 1982.

37 Edgewater Assembly Plant, South Facade, oblique view from southwest corner, 1982.

38 Edgewater Assembly Plant, South Facade, southwest corner pavilion, 1982.

39 Edgewater Assembly Plant, South Facade, Administrative Pavilion, 1982.

40 Edgewater Assembly Plant, South Facade, Administrative Pavilion, west section, 1982.

41 Edgewater Assembly Plant, South Facade, Administrative Pavilion, central section, 1982.

42 Edgewater Assembly Plant, South Facade, Administrative Pavilion, central section, attic, 1982.

43 Edgewater Assembly Plant, South Facade, Administrative Pavilion, entrance, 1982

44 Edgewater Assembly Plant, South Facade, eastern half, 1982.

45 Edgewater Assembly Plant, South Facade, western half, 1982.

46 Edgewater Assembly Plant, South Facade, eastern pavilion, west pylon, 1982.

47 Edgewater Assembly Plant, South Facade, eastern pavilion, west pylon, attic, 1982.

48 Edgewater Assembly Plant, South Facade, brick spandrel between first and second floors, 1982

49 Edgewater Assembly Plant, South Facade, oblique view from southeast corner, 1982.

50 Edgewater Assembly Plant, South Facade, Export Bay, curtain wall, 1982.

51 Edgewater Assembly Plant, South Facade, eastern pavilion, south wall, 1982.

52 Edgewater Assembly Plant, South Facade, eastern pavilion, south wall, 1982.

53 Edgewater Assembly Plant, East Facade, oblique view to north, 1982.

54 Edgewater Assembly Plant, East Facade, north pavilion, 1982.

55 Edgewater Assembly Plant, East Facade, central pavilion, pediment, 1982.

56 Edgewater Assembly Plant, North Facade, oblique view from northeast corner, 1982.

57 Edgewater Assembly Plant, North Facade, curtain wall, 1982.

58 Edgewater Assembly Plant, North Facade, eastern minor pavilion, 1982.

59 Edgewater Assembly Plant, North Facade, eastern section, 1982.

60 Edgewater Assembly Plant, North Facade, western section, 1982.

61 Edgewater Assembly Plant, North Facade, curtain wall, 1982.

62 Edgewater Assembly Plant, North Facade, truck ramp (later addition), 1982.

63 Edgewater Assembly Plant, North Facade, end of truck ramp and western minor pavilion, 1982.

64 Edgewater Assembly Plant, North Facade, western section, 1982.

65 Edgewater Assembly Plant, North Facade, truck ramp to the east, 1982.

66 Edgewater Assembly Plant, North Facade, oblique view from northwest corner, 1982.

67 Edgewater Assembly Plant, Central Hall, to the west, 1982.

68 Edgewater Assembly Plant, Central Hall, to the west, from second floor, 1982.

69 Edgewater Assembly Plant, Central Hall, eastern section, 1982.

70 Edgewater Assembly Plant, Central Hall, eastern section, 1982.

71 Edgewater Assembly Plant, Central Hall, central section with bridge, 1982.

72 Edgewater Assembly Plant, Central Hall, north side, and north assembly area, second floor, 1982.

73 Edgewater Assembly Plant, Central Hall, south side, 1982.

74 Edgewater Assembly Plant, Central Hall, north side, to west, 1982.

75 Edgewater Assembly Plant, Export Bay, north elevation, 1982.

76 Edgewater Assembly Plant, Export Bay, to east from second floor, 1982.

77 Edgewater Assembly Plant, first floor assembly area, to east, 1982.

78 Edgewater Assembly Plant, first floor assembly area, to east southeast, 1982.

79 Edgewater Assembly Plant, first floor assembly area, to southeast, 1982.

80 Edgewater Assembly Plant, first floor assembly area, to southwest, 1982.

81 Edgewater Assembly Plant, first floor assembly area, to west, 1982.

82 Edgewater Assembly Plant, second floor subsidiary assembly area, north aisle, to west, 1982.

83 Edgewater Assembly Plant, second floor subsidiary assembly area, north aisle, eastern section, 1982.

84 Edgewater Assembly Plant, second floor subsidiary assembly area, north aisle, eastern section, 1982.

85 Edgewater Assembly Plant, Administrative Pavilion, second floor, 1982.

86 Edgewater Assembly Plant, Overpass, 1982.

87 Edgewater Assembly Plant, Boiler House, from east, 1982.

88 Edgewater Assembly Plant, Boiler House, East Facade, 1982.

89 Edgewater Assembly Plant, Boiler House, South Facade, 1982.

90 Edgewater Assembly Plant, Boiler House, South Facade, entrance, 1982.

91 Edgewater Assembly Plant, Boiler House, main floor, northwest corner, 1982.

92 Edgewater Assembly Plant, Boiler House, main floor, roof trusses and boiler exhaust manifold, 1982.

93 Edgewater Assembly Plant, Oil House, 1982.

94 Edgewater Assembly Plant, Power Substation, 1982.

95 Atlas of Bergen County, New Jersey, 1776-1876... [1876], plates 156-157.

96 Atlas of Bergen County, New Jersey, Volume One..., 1912, plate 1.

97 Atlas of Bergen County, New Jersey, Volume One..., 1912, plate 1, detail.

98 Property Atlas of Bergen County, N.J., Volume 1, 1936, plate 36.

99 Property Atlas of Bergen County, N.J., Volume 1, 1936, plate 36, detail.

100 Property Atlas of Bergen County, N.J., Volume 1, 1936, plate 36, detail.

101 Hagstrom Street and Road Map of Bergen County, New Jersey [1936], detail.

102 U.S. Department of the Interior, Geological Survey, Jersey City Quadrangle, New Jersey - New York, 7.5 minute series (topographic series), photorevised 1981.

103 Diego Rivera, Production and Manufacture of the 1932 Ford V-8 Body at the Rouge, 1932-33, fresco, 212½ x 540 inches, Detroit Institute of Arts, Gift of Edsel B. Ford Fund (Photograph courtesy Detroit Institute of Arts.

104 Edgewater, New Jersey. Ford Motor Company employees on strike, Newark News, October 2, 1933. (Photograph courtesy New Jersey Division, Newark Public Library, Newark, New Jersey).

105 Edgewater Assembly Plant, Completion of the 28,000,000th Ford automobile, April 8, 1940. Edsel Ford is the third person to the right of the car (Photograph courtesy Henry Ford Museum, Edison Institute).

NOTES

[1]For the complete legal description of the property boundaries, please refer to Section 10 of this nomination and the attached tax map. The property is shown on Edgewater Tax Map Sheet No. 7, containing Blocks 85 and 87. See also the attached U.S. Geological Survey Quadrangle Map and various photographs referred to within the text of this nomination for further information concerning the location of the property and buildings.

The Hudson River does not flow quite true north to south. Since all the buildings to be described herein are sited perpendicular to the Hudson River, for ease of reference all directions given in text, notes, and photograph captions will presume that the Hudson River does indeed flow north to south.

[2]New York Times, May 14, 1929, 1.
See also, Journal of Industry and Finance, 3 no. 7(June 1929), 44.

[3]The Edgewater Assembly Plant for Ford Motor Company was Albert Kahn job number 1501. The original drawings are still located in the offices of Albert Kahn Associates, Architects and Engineers, Detroit, Michigan (hereafter referred to as Kahn offices).

[4]In another assembly plant for Ford Motor Company at Buffalo, New York, the site included an area of Lake Erie. There approval was given to fill the site within a bulkhead to the entire plant was on "dry land". A remarkable series of photographs in the Ford Archives, Henry Ford Museum and Greenfield Village, Dearborn, Michigan (hereafter referred to as Ford Archives), as well as several in the files of the Kahn offices, trace the work required to "construct" a land site. Unfortunately, there is no parallel series of photographs for the Ford Motor Company Edgewater Assembly Plant.

Similar tasks to that at Buffalo confronted the architects and engineers at three other Ford Motor Company Assembly Plants designed in the same period by Albert Kahn: Long Beach, California; Richmond, California; and Seattle, Washington.

[5]This bay system is consistent within the first or main floor. On the second floor the bays are rectangular, 25 x 50 feet in dimension.

[6]The brick was made by Pittsburgh Clay Products Company which is no longer in business.

[7]Moritz Kahn, "Planning of industrial buildings," Architectural Forum, 51(September 1929), 265-272, explains the finctional reasons for wood block floors.

which to examine the macro-political and economic changes affecting the United States on a micro-level.

Significance number 1 will be discussed in this section under the heading Architectural Significance. Significance number 2 has been discussed in detail as part II of Section 7 (Description) above. Significances number 3,4, and 5 will be discussed in this section under the heading Historical Significance.

ARCHITECTURAL SIGNIFICANCE

When Albert Kahn received the commission for the Edgewater Assembly Plant, he was at the height of his powers as an architect and was on the verge of the most demanding phase of his career.[1] Albert Kahn was born in Germany in 1869 and moved to Detroit, Michigan, with his family in 1880.[2] He began to work in various Detroit architectural firms in 1885 and worked with several partners before opening his own office in 1902.[3] His first automobile factory commission came in 1903 from the Packard Motor Car Company.[4] A most important commission came in 1910 when Henry Ford asked Kahn to design the new facilities for the Ford Motor Company in Highland Park, Michigan.[5] It was at this plant that Henry Ford perfected and implemented the modern assembly line. From 1910 on he was constantly employed not only by Ford Motor Company, but also by the Dodge Brothers Co. (later part of Chrysler Corporation), General Motors

Corporation, and automakers no longer operating such as Hudson and Packard, as well as many other companies. He also designed the homes of many of Detroit's leading citizens and was responsible for much of the central campus of The University of Michigan in Ann Arbor.

Kahn was largely self-taught, although he learned a great deal in the architectural offices where he worked in the late nineteenth century. In addition his increasingly frequent trips to Europe added to his education. Kahn was influenced by three currents in contemporary architecture: the classicizing architecture of McKim, Mead and White which he respected very much, the Prairie Style architecture of Louis Sullivan and Frank Lloyd Wright, and the new industrial architecture in Germany particularly the work of Peter Behrens. In looking at Kahn's buildings at the Edgewater Assembly Plant and elsewhere in the late 1920s and early 1930s, we can see the threads from each of these currents in his work.[6]

There are two places to look for Albert Kahn's ideas in the late 1920s: this group of buildings and an article which he wrote in early 1931, shortly after the Edgewater Assembly Plant opened.[7] The article is important because it reveals his thoughts on architecture at precicely the time under consideration. He states his definition of architecture in the second paragraph:

> "Architecture is the art of building, adding to mere structural elements distinction and beauty."[8]

Taking this definition in hand he goes on to indicate which architects he admires and which he dislikes. The former includes Alfred Messel, Ludwig Hoffman, Peter Behrens, and Paul Bonatz, from Germany; and H.H. Richardson, Richard Morris Hunt, and Charles F. McKim in the United States. The latter include the post-World War I architecture of Walter Gropius, Erich Mendelsohn, and Le Corbusier. His comments on McKim, whom he considered as extremely important architect, are revealing:

> "I have little patience with those who claim his work archaeology and not architecture. Indeed, he found his inspiration in the past, but he knew how to employ the best of the old to do service in the new. His was never slavish copyism but a judicious adaptation of established forms with plenty of his own individuality incorporated."[9]

Two other comments complete the précis of Kahn's ideas:

> "I insist that the re-use of well tried forms when invigorated by a stong personality is not only unobjectionable but desirable, the opinion of many of our modernists to the contrary notwith standing."

and

> "The best in architecture has always been expressive of the particular function and purpose of the building."[10]

Essentially Kahn is expressing thoughts similar to Peter Behrens: architecture must adapt to the requirements of the modern age, but within the historical context of earlier architecture. In applying these thoughts to his drawing board, Kahn set himself a difficult task: mould the classical heritage of Western architecture to the requirements of the modern industrial environment. How well he succeeded may be best judged at the Edgewater Assembly Plant.

The Edgewater Assembly Plant is not an isolated occurrence. Between 1928 and 1932, he designed at least six major assembly plants for Ford Motor Company at: Buffalo, New York; Chester, Pennsylvania; Long Beach, California; Richmond, California; and Seattle, Washington; as well as the Edgewater Assembly Plant. It is a tribute to his creativity that no two of these assembly plants are alike. Of the group Edgewater Assembly Plant is certainly the most imposing and the most classical with its three pedimented facades on the Hudson River side of the Assembly Building. Of these six assembly plants, Edgewater is the most successfully organized and unified into one cohesive whole while demonstrating Kahn's debt to these three architectural currents.

The influence of German architecture is most clearly seen in the industrial architecture of Peter Behrens and the commercial architecture of Alfred Messel in Berlin.[11] The most important Behrens building is the

AEG Turbine Hall in Berlin (1908-1910).[12] Reasonably small (80 x 400 feet), the Turbine Hall is important as an innovative union of classicizing massing and industrial vocabulary. Behrens looked back to the early nineteenth-century architect Karl Fredrich Schinkel for his massive corner piers and drew upon industrial advances for the steel and glass curtain walls between the corners. Like Behrens, Albert Kahn not only stressed the weighty corner but also the full pediment. As Anderson states:

> "Behrens sought to bring the factory under the rubric of the embassy -- not to bring the embassy under the rubric of the factory."[13]

From the Prairie School architects and his knowledge of English Arts and Crafts architecture, Kahn developed a profound understanding of brick and its potential. The best examples of his work in decorative brick patterning and the successful integration of this decoration into his architecture can be seen in three buildings on The University of Michigan campus: Hill Auditorium (1913), Natural Science Building (1917), and the General Library (1919).[14] The brick work is beautifully detailed with the decoration enhancing the architectural elements. At the Edgewater Assembly Plant, Kahn had a more restrictive program, but he still was able to incorporate decorative brickwork where it would highlight the architecture the best: the pediments and the attics.

Kahn's third source is the classical sense of order, proportion, and organization: clarity through unity of design. He need look no further than a major building by one of his favorite architects: Charles F. McKim's Pennsylvania Station in New York City. Here the disparate elements of a major transportation center are collected, organized, and unified by an all-encompassing classical screen wall while within the spaces are defined by steel and glass.

In sum Albert Kahn drew upon the conceptual background of architects like McKim for his sense of organization, upon the Arts and Crafts and Prairie School for his brillant use of brickwork, and upon Peter Behrens and other Germans for his merger of classicizing forms onto the needs of an industrial environment. The Edgewater Assembly Plant is the culmination of these processes and as such is the pre-eminent industrial building of Albert Kahn's middle period.

The other Kahn assembly plants for Ford Motor Company during this period may be described briefly:[15]

1) Buffalo Assembly Plant - this plant is essentially rectangular, but has a variety of heights. Some sections of this building are one story, some two-story, and one (the Export Bay) is three stories high.

2) Long Beach Assembly Plant - within one rectangle, this plant has four distinct elements: a two-story Administrative Pavilion, a one-story assembly area, a three-story Export Bay, and a two-story shipping wing. The water tower is within the rectangle, above the assembly area.

3) Richmond Assembly Plant - another rectangle with a tall two-story Administrative Pavilion, a two-story assembly area, a one-story assembly area, and a three-story Export Bay. The Boiler House is contained within the rectangle.

4) Seattle Assembly Plant - an L-shaped structure with a one-story assembly area, a two-story assembly area, a two-story Export Bay, and the Boiler House in the outside corner of the L.

Of this group the Edgewater Assembly Plant is the one which exemplifies best Albert Kahn's drive for clarity and monumentality while conforming to the client's requirements. Kahn delivered to the Ford Motor Company an assembly plant which would not become functionally obsolete for 25 years (longer than any other assembly plant in this group) and a building which today is still strikingly beautiful and monumental.

HISTORICAL SIGNIFICANCE

Edgewater, New Jersey, is located in the southeast corner of Bergen County, bounded on the south by Hudson County. The west borough boundary

is defined by the Bergen Hill and Palisades which rise abruptly from the narrow river plain to a height of almost 500 feet.[16] To the north is the town of Fort Lee and the George Washington Bridge connecting New Jersey to Manhattan Island. The Hudson River forms the eastern border. The WPA Writers' Program on Bergen County refers to Edgewater as "three miles long but three blocks wide."[17] The shape is determined by the Bergen Hill and the Hudson River. The river plain which forms Edgewater River was not as wide orginally as it is today. Studying a series of maps from 1876 to 1936, one can see the eastward movement of the shoreline. This movement is particularly evident in the southern area of the borrough which includes the Ford Motor Company site.[18] In a map of 1876 (Photograph 95) the shoreline is extremely close to River Road. By 1912 with the growth of industries in this area and the expansion of the Erie Railroad through its controlled subsidiary, the New York, Susquehanna and Western Railroad, large areas of fill had been made east of River Road (Photograph 96).

The future site of the Ford Motor Company Assembly Plant was owned at that time by New York Edison Company and represented one of the few vacant sites in south Edgewater (Photograph 97). By 1936 Ford Motor Company had acquired and developed their site while the New York, Susquehanna and Western Railroad had acquired the area to the north between the Ford Motor Company site and its earlier yards for a vastly expanded facility for coal and freight transfer.[19] Additional evidence of the

eastward movement of the shore line can be seen in another map (Photographs 98 and 99) which the "old" bulkhead and pierhead lines approved October 18, 1890, can be compared to the more easterly "new" bulkhead and pierhead lines approved January 22, 1915. A detail of this same map (Photograph 100) shows the close proximity of the Ford Motor Company Edgewater Assembly Plant to its neighbors. The plant was bordered on the south by the Corn Products Refining Company, to the west and north by the numerous lines and extensive yards of the New York, Susquehanna and Western Railroad. Another map of 1936 (Photograph 101) lists the various industrial complexes which occupied the southern sector of Edgewater. Only the Hills Brothers Co. facility which was built in 1940 remained to complete the industrial landscape of Edgewater.

However, the industrial development of Edgewater was not isolated growth. Beginning in the early nineteenth century, but particularly after the adaptation of the steam engine to both water and land vehicles, the New Jersey shore of the Hudson River began to be developed. As might be expected the earliest industrial and commercial developments were located in the southern shore area of Jersey City and Bayonne which were opposite the areas of earliest development on Manhattan Island. In this area the shore plain was relatively wide and the Bergen Hill at its lowest height. The earliest railroads were able to skirt the Bergen Hill entirely by rounding its southern tip, passing through Bayonne and crossing Newark Bay. With the parallel increases in population, industry, and railroad

facilities, development spread northward up the Hudson River through Hoboken, Union City, Weehawken, and finally to Edgewater.

Because the shore plain ends in the northern section of Edgewater, no development on the river was possible north of the present Borough Hall and the then-terminus of the 125th Street Ferry to New York City.

The most important key to the industrial development was the rapid growth of the railroads. The first terminus on the Hudson River was at Jersey City and was built in 1838 by the New Jersey Rail Road and Transportation Company.[20] Construction required excavation of a ..."40-foot deep cut through the solid basalt of Bergen Hill...."[21] This railroad connected with Robert Fulton's steam ferry Jersey to carry passengers over the Hudson River to Manhattan. By 1839 continuous service was available over trains and ferrys from New York City to Washington, D.C.[22] Other railroads followed: the Pennyslvania Railroad reached the Hudson River in 1871 at Harsimus Cove[23]; the New York and Erie Railroad (later reorganized as the Erie Railroad) spanned the run from the Hudson River to Dunkirk on Lake Erie in 1851[24]; the Central Railroad of New Jersey reached Jersey City in 1864[25]; the Delaware, Lackawanna and Western reached Hoboken in 1862[26]; the Lehigh Valley Railroad over Pennsylvania Railroad tracks reached Jersey City in 1892[27]; the New York, Ontario and Western reached Weehawken

in 1883, as did the New York, West Shore and Buffalo[28]; and the New York, Susquehanna and Western reached Edgewater in 1894. Of special importance was the New Jersey Junction Railroad, a five mile connecting line controlled by the New York Central and Hudson River Railroad which connected the Weehawken terminus to the Hoboken, Jersey City, and Harsimus Cove complexes by 1888[29]. A spur of this line to the north of Weehawken connected to the New York, Susquehanna and Western at Edgewater.

In each of these examples, the magnitude of the engineering feats which were required should not be underestimated. To pierce the Bergen Hill, each railroad had to tunnel or cut through some of the hardest rock known.[30] Once through the Bergen Hill, the engineers were confronted with Newark Bay, Hackensack River, Passaic River, Hackensack Meadows, and innumerable smaller waterways and marshes. In addition each of these terminal facilities being built on the shoreline or recent fill and extending out into water deep enough for ferry boats and lighters required vast piling system to support the tremendous weight of these large structures.[31] Each road required fill, pilings, bridges, and trestles on a scale heretofore not seen. By 1894 at least six major routes had pierced the Bergen Hill and conquered the north Jersey waterways.[32] The magnitude of the engineering accomplishments should not detract from an appreciation of the architectural qualities of these terminals: the Central Railroad of New Jersey Terminal at Jersey City the now-lost Pennsylvania Railroad Station at Jersey City, the now-lost Erie Railroad Terminal at Jersey City

and the Delaware, Lackawanna and Western Railroad (later Erie-Lackawanna) Station at Hoboken constitute an assemblage of architectural and engineering quality matched only by the vast terminal systems of nineteenth-century London.

By 1894 the stage was set: the New York, Susquehanna and Western Railroad had driven a two-track tunnel through Bergen Hill to Edgewater. The New York, Susquehanna and Western Railroad was a independent road at the time the Bergen Tunnel was built. However, in 1898, the Erie Railroad took over the New York, Susquehanna and Western Railroad. Even under Erie Railroad ownership, the New York, Susquehanna and Western Railroad remained largely a coal hauler as can be seen in the photographs from the 1930s and 1940s of the area around the Ford site.[33] Interestingly, the Ford Motor Company assembly plants at Kearny, Edgewater, and Mahwah, New Jersey, were all on the Erie Railroad lines, as well as the major plant in Buffalo, New York, which was built at the same time as the Edgewater Assembly Plant. The Erie Railroad mainline west also connected at Lima, Ohio, with the Detroit, Toledo and Ironton Railroad which was owned by Henry Ford and which served his River Rouge and Dearborn complexes.

The 1876 map (Photograph 15) indicates only residential settlement in the Edgewater section of Ridgefield Township. On December 7, 1894, shortly after the Bergen Tunnel was completed, the Edgewater section of Ridgefield was incorporated as the Borough of Undercliff, the name referring to the

the prominence of the Bergen Hill.[34] Soon thereafter, the Borough changed its name to Edgewater.[35]

The WPA history of Edgewater chronicles the industrial development of the southern section. Although there were several smaller industries in Edgewater before 1894, the greatest growth occurred after that date.[36] The first large complex was built by the Corn Products Refining Co. in 1896. In part because of this facility, the connecting railroad to Weehawhan was built.[37] Between 1896 and 1930, other companies to locate in this area included:[38]

Spencer Kellogg and Sons, Inc. (1909-1910)

National Sugar Refining Company of New Jersey (1902-1903)

F.G. Schaefer Iron Works (1919)

Lever Brothers Co. (1930)

Barrett Manufacturing Co. (1920s)

All of these companies were sited to the south of the Ford Motor Company Edgewater Assembly Plant.[39] Companies located to the north of the Ford Motor Company included:

Colgate-Palmolive

Archer-Daniels Midland Co.

Valvoline Co.

Aluminum Company of America

Warner Sugar Refining Company

All of these industries combined to rank Edgewater as the second highest municipality in Bergen County in total assessments.[40] The Hills Brothers Coffee Plant (1940) appears to be the only industrial facility built in Edgewater after the Ford Motor Company Assembly Plant.

The Ford Motor Company facility in Edgewater was not their first plant in New Jersey. The Edgewater Assembly Plant actually was built as a replacement for the then out-moded assembly plant in Kearny, New Jersey (Hudson County), at the juncture of the Passaic and Hackensack Rivers.[41] Designed by Albert Kahn, the Kearny Assembly Plant was opened in November 1918[42] and was modelled on the Ford Motor Company plant in Highland Park, Michigan, where Henry Ford's first fully developed assembly line was implemented. The Kearny Assembly Plant had several drawbacks as the technology of the assembly line developed. The trend was away from the four-story buildings like the Kearny and Highland Park Plants to two-story buildings like the Edgewater Assembly Plant. At Kearny operations were spread between five separate buildings, not under one roof as at Edgewater.[43] Also, the location at Kearny Point (Photograph 102) could not accomodate deepwater vessels, so crated vehicles for export had to be lightered southward into and through Newark Bay; then east at the juncture of Newark Bay, Arthur Kill, and Kill Van Kull along the lattermost water-

way between Bayonne and Staten Island; then north up the Hudson River to a deepwater docking facility for transfer to an ocean-going vessel. The more the Ford Motor Company emphasized export of cars and trucks, the more irritating and costly the lighterage became.[44] Henry Ford visited the Kearny Assembly Plant on March 17, 1928, and, according to a New York Times notice, pronounced himself pleased with the operation there.[45]

In light of two developments, one may question Ford's statement. First, Ford Motor Company sales of the Model T had been declining from a high in 1923,[46] in part due to the lack of enhancement of the model by Ford Motor Company and in part due to the increased competition from Alfred Sloan's General Motors Corporation and Walter Chrysler's new corporation. Second, Ford's reaction once he decided to meet the challenge presented by General Motors and Chrysler was twofold: the new model long argued for by his son Edsel, who was President of Ford Motor Company, was developed; and a vastly expanded production and assembly capacity were built.

Ford had founded the company which bore his name in 1903 with eight partners. The first Ford factory "...was 250 feet long by 50 feet wide and was rented at $75 a month."[47] By 1926 the enormous industrial empire he and Edsel oversaw included "...no less than thirty-six industries, usually carried on independently."[48] The changes Ford made in reaction to General Motors Corporation and Chrysler Corporation were entirely ty-

pical of his character: bold, tenacious, incredibly innovative, and a gambler with total ultimate confidence in himself. Rather than develop a new car while the Model T was winding down, he simply ended the T's production. Shortly after the 15,000,000th Model T was produced in July 1927, the lines were shut down. Except to produce spare parts for the Model T, nothing was built. The Ford engineers lead by Henry, but increasingly by Edsel, began to develop the Model A. An entirely new car in all respects, the Model A took over 6 months to create. The cost to Ford Motor Company in terms of lost sales and new machinery to build the Model A was estimated at $1,000,000 a day.[49] Ford had no fear of the national economy in his vision: he would simply flood the market with the best car available.[50] The first Model A was produced on December 3, 1927.[51] By January 2, 1929, the first million Model A's had been built, and only six months later (July 21, 1929), the level reached two million cars.[52]

The effects of these actions were felt immediately. Employees at the Kearny Plant had been laid off in mid-June 1927[53] and expected to return in September. Because it took longer to develop the Model A and to restock the assembly plants, the Kearny workers did not go back until early December 1927.[54] While the Kearny Plant was expected to produce 500 units per day, in April 1928 with two assembly lines operating, production was only 250 cars per day.[55] So Henry Ford could hardly have been as pleased as his press comments seemed to indicate.[56] Similar production goals for

the entire company and specific plants were not being met.[57]

Henry Ford's response to the production problem was as bold as his decision to end the Model T and build the Model A: vastly increase the production capacity of his company. While Ford Motor Company had been somewhat decentralized, the scale was to be changed completely. In part the decision to build new assembly plants was based on costs: it was cheaper to make the parts in the Detroit area and then ship them to various plants around the country for final assembly.[58] However, the most important factor was quantity: "...the year 1929 must be one of expansion."[59] This expansion began in 1928 with small additions to existing plants such as Green Island, New York[60], and continuing increases to the production capacity of the Detroit and Dearborn plants.[61] However, the major plans were not unveiled until 1929. Ford Motor Company agents assembled land for six new assembly plants in the United States in addition to sites in England, Holland, and Germany. The two requirements were large open areas of land and deepwater frontage.[62] In the United States the site closer were in addition to Edgewater were:[63]

1. Buffalo, New York - opened in 1931 to replace an earlier facility, this plant on the shore of Lake Erie was built on land purchased from the Erie Railroad[64];

2. Chester, Pennsylvania - opened in March 1928 to replace a facility in Philadelphia, on the Delaware River ;

3. Long Beach, California - opened on May 3, 1930, on the channel behind Terminal Island; an addition was made almost immediately[65];

4. Richmond, California - opened in August 1931, on San Francisco Bay; and

5. Seattle, Washington - opened in January 1932, to replace earlier facility, on Puget Sound.

Buffalo, Chester, Edgewater, Long Beach, Richmond, and Seattle Assembly Plants were all designed by Albert Kahn. This expansion was announced by Edsel Ford in November 1930 when most of these sites were underway.[66] The total cost of the expansion was almost $25,000,000. The new plants would produce 2,100 cars and tracks per day at capacity and employ 15,500 men. Total expansion announced by Edsel Ford which included work Dearborn and in Europe was valued at $60,000,000.[67]

As Nevins and Hill state,

> "Of the new plants, that at Edgewater, N.J., replacing the old Kearny plant..., was the most important...it was one of the largest industrial establishments in the East. At capacity, 6000 men working on shift could make about 800 cars a day, though only 4500 men were initially employed."[68]

Less than 14 months after Henry Ford's visit to Kearny, Ford Motor Company announced the purchase of 38 acres in Edgewater for $1,250,000, from the New York Edison Company. The New York Times article noted that the site

> "...is within the free lighterage limit zone, just a little south of the Fort Lee [125th Street] Ferry, in the area of the great Hudson River Bridge, now building, in close proximity

to an excellent labor market and enjoys also exceptional advantages for display advertising through large electric signs visible from Riverside Drive."[69]

The article also noted the rail links and the deepwater frontage. Two weeks later it was announced that the Kearny facility had been sold to Western Electric, with occupancy to take place after the Ford Motor Company transfer to Edgewater. The Kearny site had 85 acres and was "said to be valued at about $10,000,000."[70] The Bergen Record on May 15, 1929, wrote that the new facility at Edgewater was "one of the most important industrial expansions [Bergen] county has known."

Given Henry Ford's willingness to tear down and rebuild on existing Ford Motor Company sites, particularly at the Rouge facility the major factor in his decision to move from Kearny to Edgewater had to be the deepwater accessibility for the increasingly important export trade.[71] Later when the export trade ceased to be a primary concern and the cramped quarters Edgewater did, Ford Motor Company moved from Edgewater to Mahwah, New Jersey.[72]

Between the time the Edgewater site purchase was announced and the plant opened in November 1930, two concussions hit the world financial markets: on Thursday, October 24, 1929, prices on the New York Stock Exchange crashed with the culmination on Black Tuesday, October 29, 1929.[73] The effect upon America industry was devastating and quick: by 1931 the entire automobile industry was operating at one-third capacity.[74] Many small

car makers failed as can be seen in the shrinking list of members of the National Automobile Chamber of Commerce.[75]

However, Henry Ford did not falter. In a damn the torpedoes statement printed by the New York Times on November 23, 1924, Henry Ford said:

> "There is to be no cut in production and none is contemplated. The stock market situation has not affected our plans or policy in the least. We are going right ahead on the lines indicated in the views which I presented to the President's Conference."[76]

Shortly after this statement, Edsel Ford announced a rise in the minimun wage at Ford Motor Company to $7 a day, as a pass through of the results of increase productivity to workers.[77] The Ford philosophy was that by keeping the factories at full capacity and paying high wages, the effects of the economic downturns could be overcome and eliminated. According to an announcement by Ford Motor Company,

> "In spite of the business depression the company, instead of curtailing activities, speeded up its program, and thousands of men were given employment in the construction work while other thousands were engaged in producing building materials and machinery.
>
> "Today, still confident that its business will continue to grow, the company has nine new plants under way throughtout the world while plans are being formulated for several others, not yet announced, that will add other millions to the list of expenditures."[78]

As time would indicate, the noble efforts of Henry and Edsel Ford could not stem the tide: for perhaps the first time the austere figure of Henry

Ford alone was not enough to make a change, let alone to overcome the disaster engulfing the nation.

All parts of the massive expansion program were completed on schedule. Production was begun in each of the new assembly plants, but was gradually curtained as orders failed to materialize. The list of plant openings, closings, layoffs, curtailments, and recalls pepper the New York Times throughout the 1930s. Several plants were closed permanently, several were sold off, but even so isolated examples of expansion continued to be noted. The depth of the Depression as it affected Ford Motor Company can be seen in the annual figures for United States production of cars and trucks:[79]

1929	1,870,257
1930	1,431,574
1931	731,601
1932	395,956
1933	429,638
1934	757,931
1935	1,196,636
1936	1,037,592
1937	1,146,522
1938	597,718
1939	815,500

1940	908,511
1941	948,444

In 1933, Ford Motor Company had two production facilities (Highland Park and River Rouge) and 35 assembly plants in the United States, but only 8 of the assembly plants were active, "...others were used as parts depots or as sales offices..." or closed.[80] Once opened, Edgewater Assembly Plant remained open, although employees did suffer periodic layoffs and inventory adjustments periods.

As mentioned above, the Edgewater site was purchased by Ford Motor Company on May 13, 1929. Construction plans began soon thereafter. The earliest Albert Kahn drawings are dated October 31, 1929, five months later. Work began immediately, probably before all the revisions indicated on the Kahn drawings were completed. However, plans were developed sufficiently by early December 1929, to award the contract for the buildings to Turner Construction Company of New York City for $2,858,700.[81] This contract did not include the pilings so we may presume that this work was already underway. Construction continued at a fast pace and the plant was essentially complete by early September 1930.[82] The Edgewater Assembly Plant began manufacture of cars on November 11, 1930, and had a crew of 4,500 men from the Kearny Plant by November 19.[83]

The transfer was effected without interference to production which indicates that the machinery in the new assembly plant was mostly new, and not transferred from Kearny. The change from a four or five-story operation to a two-story facility may have rendered much of the Kearny equipment obsolete.

The new plant was cause for widespread attention. There seems to have been no formal dedication ceremony, but the plant was opened to the public on December 8, 1930, from 2 to 10 PM so visitors could see the assembly line in production. A description states:

> "The new plant occupies a thirty-three acres site, and the operation of automobile assembly is housed in a two-story building 1,500 feet long by 360 feet wide. The building extends for about 550 feet into the Hudson River, the outer end having been built on piles. Ocean-going steamships may dock right at the plant, and freight cars bringing parts from Detroit are run directly into the building."[84]

More importantly, the article goes on to describe the actual assembly line. This activity was located on the first floor and was 850 feet long. It took 48 minutes for the assembly of a car. Based upon this description and a knowledge of the building plan, it is apparent that the assembly line occupied the northwest quadrant of the building.

The best illustration of the assembly line in 1930-32 can be seen in the fresco by Diego Rivera in the Detroit Institute of Arts. Commissioned and donated by Edsel Ford,[85] the two largest panels on opposite walls of

the central courtyard depict, on the north wall The Production and Manufacture of the 1932 Ford V-8 Motor at the Rouge[86] and, on the south wall, The Production and Manufacture of 1932 Ford V-8 Body at the Rouge.[87] This latter fresco (Photograph 103) depicts a scene which could just easily have been seen at the Edgewater Assembly Plant as at the Rouge. The assembly plant is seen in a cut-away view showing two stories. In the center of the first floor workers are guiding the chassis onto the beginning of the assembly line. To the left and right workers assemble parts to join the assembly line later.[88] Winding in and through the scenes, conveyor tracks bring parts down from the second floor to join the assembly line at the proper place. In the left center can be seen a group of visitors watching the assembling process much like the Edgewater visitors of December 8, 1930. Above, on the second floor, the body of the car is made ready with all interior trim, seats, and eventually steering wheel. The body would not leave the second floor until it descended to join a chassis and motor in the final stages of the assembly line. Hundreds of photographs in the Ford Archive confirm the accuracy of Rivera's portral of an assembly line in 1932. However, unlike the photographer, Diego Rivera captures the constant flow and dynamism of the assembly line as well as the utilization of every cubic inch of space for useful purposes.[89]

Another major description of the Edgewater Assembly Plant was not limited to the main building.[90] The author notes that the deepwater accessibility

and changing technologies were motivating factors in the move from Kearny to Edgewater. He goes on to describe the Boiler House and states incorrectly that it did not use "...coal or other purchased fuel, supplying all the steam requirements from the burning of waste chiefly paper and broken parts of crating materials."[91]

Electric power was used throughout the plant and was supplied by Public Service Gas and Electric Company, the power utility for northern New Jersey. The second structure, to the west of the Boiler House, is known as the Oil House "... where the various finishes are mixed and then pumped through circulating pipe systems to the points where spray painting was done."[92] According to the Kahn drawings, the Oil House had several purposes as described in Section 7 of this nomination, which were not limited to preparation of paints and enamels. Both the Boiler House and the Oil House were connected to the main assembly building by underground tunnels. The second floor was used for body assembly and paint work.[93] From the author's description and the placement of the Oil House on the north side of the assembly building, the body works must have been on the north side of the second floor. The car bodies traveled the entire length of the building and made a U-turn back up the building during the assembly and paint operation. On the return leg the interior trim and upholstery were added before the completed body descended to join the chassis and engine below. The southwest area of the second floor was used for preparation of hoods,

fenders, bumpers, etc. Once open, the Edgewater Assembly Plant began full scale operations. Within two weeks the first shipment of cars overseas was loaded aboard the freighter SS. Schnectady owned by Moore & McCormack Co. The freighter carried 1500 bodies destined for the Ford Copenhagen facility.[94]

Henry Ford frequently displayed an amazing drive for independence of constraints. This characteristic led Ford Motor Company to branch out into other industries when suppliers failed to perform to their standards. With the opening of Edgewater Assembly Plant, the East would see another example of this independence. It has been mentioned that the Edgewater site is located at the confluence of two transportation modes: the Hudson River and the Erie Railroad. The river provided access to the ocean and the railroad provided a land link to the Midwest. However, Henry Ford was not satisfied. Railroads were subject to strike or delays and he could not control the Erie Railroad.[95] So he had two special ships built at the Rouge complex: the Edgewater and the Chester. Ford Motor Company had previously operated a fleet of ore-boats on the Great Lakes, but these two new boats were different: they were meant for inland waterways. Their route was to leave the Rouge complex loaded with parts, cross Lake Erie, enter the Erie Canal System, follow the canal to the Hudson River, and the Hudson River to Edgewater, New Jersey; Chester Pennsylvania; and Norfolk, Virginia; assembly plants. The first boat was launched on May 10, 1931; the second a week later.[96] The boats were identical: 300 feet

long, 43 feet wide, and a 10 foot draft, with a capacity of 2,000 tons. All above deck structures were collapsible to permit the boats to go under the bridges on the Erie Canal System. By August with trials complete, the Edgewater was ready for her maiden voyage. She sailed shortly after August 12, described by the New York Times as the largest boat "...ever built for service through New York State canal system."[97] On August 22, the Edgewater reached Green Island Plant near Albany, New York, and docked at the Edgewater Assembly Plant on August 26, 1931. The Edgewater and Chester remained a service until at least the war years. Nor were they the only boats built for this purpose. In February 1937, Ford Motor Company announced that 2 more boats would be added to the run.[98] These new boats had the same overall dimensions, but could carry 2,200 tons and had slightly more powerful engines.

In February 1931, a minor tempest in a tea pot bubbled over. The Bergen County Board of Taxation decided to hold a special hearing on the assessment of the Edgewater Assembly Plant, after one of the commissioners contended "that the buildings of the plant alone were erected at a contract price of $4,085,143."[99] The assessment at that time was $2,976,056. On April 1, the Board of Taxation added $1,000,000 to the assessment, for a total of $3,258,750.[100] Four months later the Board reversed itself and lowered the assessment to $2,258,000.[101] According to figures in the Ford Archive, the total cost of land, buildings, and equipment was $9,074,433,21.[102] The major consideration as stated in the April article

is that the difference of $1,000,000 would have a significant impact upon the assessment rate of the Borough of Edgewater.[103]

The most important series of events for the Edgewater Assembly Plant during the 1930s was a strike in the fall and early winter of 1933 when workers charged Ford Motor Company with violations of the National Industrial Recovery Act (NIRA) of 1934, specifically Section 7(a) which guaranteed the right of workers to organize unions freely.[104] In order to understand the events at Edgewater a brief history of the NIRA and the bureaucracy set up to enforce it, the National Recovery Administration (NRA), is needed. The NIRA was signed into law on June 16, 1933, by President Roosevelt. In essence,

> "...the N.R.A. sought to stimulate re-employment by a a shorter work week and to augment purchasing power and production by the increase of wages and payrolls. Quite apart from these immediate goals, the statute pointed, in the long run, to the stabilization of eco-mic activity through the cooperation of government, business, and labor. To this end, businessmen, through their trade associations, were on permitted to control "destructive" competition free, on whole, from the restraints of the anti-trust legislation. To balance this concession to the business community, the right of employees to organize and to engage in collective bargaining was proclaimed."[105]

The two major points were Section 7(a), the right to organize, and the authority given to trade associations "to draw up codes of fair competition whose provisions were to become the standards of fair competition when the codes had been approved by the President."[106] Both points were to draw fire from Henry Ford.

The trade association for automakers was the National Automobile Chamber of Commerce. As mentioned above, Ford Motor Company was not a member, but contact was maintained through the membership of its subsidiary, Lincoln Motor Company. The Chamber set up a committee to draw up the automakers code; Edsel Ford, representing Lincoln Motor Company, was a member of the committee.[107] The code was drafted reviewed, discussed, and signed by all automakers - except Henry Ford. He would not accept interference in his company, particularly in setting wages and hours, nor would he accept Section 7(a). The code was approved by President Roosevelt on August 26, 1933.[108] Henry Ford's position represented an enormous gap in the code's coverage. Ford could, and did, justifiably maintain that his company was in full conformance with the code, citing his pioneering efforts for better wages and hours. So the ground was set for a struggle: Henry Ford, arch-capitalist and industrialist v. the NRA and the Government.

At first various parties tried to persuade Ford to sign the agreement or meet with President Roosevelt to discuss their differences. Despite the efforts of Edsel Ford, Charles Edison (the inventor's son), and Hugh Johnson, head of the NRA, no meeting took place and Henry did not sign. While the arguments continued through September and into the fall, the spotlight was suddenly turned to one of the Ford plants where the question of Section 7(a) was put to the test. In conformance with the code, Ford

Motor Company announced on September 22, 1933, that the work week would be cut from five to four days in order to employ more men for the same production.[109] Workers at the Chester, Pennsylvania, Assembly Plant were disturbed because there was no commensurate increase in their hourly wage to guarantee them the same salary. On September 26, the workers at Chester shutdown the main assembly line. The plant superintendent, Angus M. Harris[110], tried to get the men back to work, failed, then ordered the plant closed. Outside the plant the workers formed a committee which drew up their demands presented the demands to Harris and decided to form an American Federation of Labor (A.F. of L.) local. By the next morning when the committee returned to the plant to hear the Ford Motor Company response, they found that the plant had been closed indefinitely as ordered by Ford Motor Company headquarters. The Chester Assembly Plant was reopened on October 19 to a smaller work force, but the strikers continued to picket because Ford Motor Company had not negotiated their demands or recognized their local.

Two days after the initial confrontation at Chester, the trouble spread to the Edgewater Assembly Plant. On September 28, 1933, strikers from Chester arrived at Edgewater. Rumors had circulated that Henry Ford was ready to close the Chester Assembly Plant permanently and shift all Chester's scheduled work to the Edgewater Assembly Plant.

Since an A.F. of L. local had already been formed at Edgewater, the Chester strikers felt correctly that their fellow employees would give them a sympathetic hearing. Several hundred Edgewater workers joined the picket lines (Photograph 104) and over the next several days the plant workforce declined from 2,044 to 395.[111] That the workers at Edgewater were predisposed to strike may be inferred from a disturbance the previous October. Learning that their daily wage was being cut from $6 a day to $4 a day, 400 workers walked out on October 3, 1932.[112] The next day the company denied that there was a strike, but the background was set.[113]

The Edgewater Assembly Plant workers presented their grievances to the plant management on September 29, 1933. On the same day a sympathy strike by the unionized automobile trailers drivers halted shipments to local car dealers.[114] By October 4, the plant had only 350 workers and was producing only 40 cars per day.[115] Cars for local dealers were either shipped out of Edgewater by barge, or the dealers themselve drove the cars out. The first reported violence took place on October 5, when six workers were arrested for stoning non-strikers[116]; a reoccurrence was reported on October 16.[117] Also on October 5, longshoremen refused to handle barges carrying Ford cars. During these weeks the plant management was in constant contact with Ford headquarters. While strategies were discussed, one of the most insistent urgings came from Edsel Ford. When the plant manager C.A. Esslinger reported his refusal to meet with the workers, Edsel said, "Be careful - section 7A of code."[118] The

workers submitted their demands to the plant management on October 19 during a meeting at the plant. These were referred to Ford Motor Company headquarters. The response was given to the workers on October 31 and indicated that Ford Motor Company policy already included three of the four demands. The committee was not satisfied, even though the response said Ford Motor Company adhered to Section 7(a). On November 1, Ford Motor Company officially recognized the workers' right to bargain and the next day the NRA said Ford Motor Company was in compliance. Despite the committee's attitude, the general body of workers seem to have been either satisfied or tired of the strike. By November 5, 1933, the plant had 1200 workers.[119]

Ford Motor Company announced on November 6 that it would layoff half its workers to meet the code requirement of 35 hour work week.[120] This announcement provoked more charges from the Edgewater workers to the NRA.[121] The government was very slow to respond, leading the workers to telegraph President Roosevelt on December 7, 1933, asking when will the government act?[122] The president of the A.F. of L., William Green, intervened on December 15, with a statement that he would file changes on behalf of the Edgewater workers which he did one week later.[123]

On January 8, 1934, weary of government inaction, the strikers called off the strike.[124] Ford Motor Company estimated that only 300 workers were

still on at strike that time. The governmental process was not yet completed. An investigation was reopened in late February when changes of black listing surfaced.[125] Eventually the NRA compiled evidence which they felt showed Ford Motor Company had violated the law. The NRA's concern then was the risk of prosecuting Henry Ford and losing. As Assistant Attorney General Harold Stephens said in a letter dated March 16, 1934, to William Davis, NRA Compliance Director:

> "You will appreciate that a suit against the Ford Motor Company would be of such national importance and would be so ably and vigorously defended that it should be based only upon the clearest and highest proof of violations of the sections involved. The proof referred to must necessarily be of such evidentiary value as to render the Government's position on the facts impregnable."[126]

In the end Ford Motor Company was not prosecuted and on May 27, 1935, by a unanimous 9-0 decision, the U.S. Supreme Court declared the NIRA to be unconstitutional.

What effect did the Chester and Edgewater strike have on Ford Motor Company: except for the nuisance problem, very little. Production did not cease, the code was not signed, and the code boycott did not slow Ford sales appreciably. The effect upon the workers at these two assembly plants is much more difficult to assess. Certainly the workers had to realize that they had lost in all respects, particularly after the law was declared unconstitutional. Perhaps the greatest loss was the suffered by the A.F. of L. When unionization came to Ford Motor Company and

other automakers, it was lead by the United Automobile Workers, an affiliate of the Congress of Industrial Organizations, the A. F. of L.'s great rival for labor leadership in the United States.

Before turning to a chronology of the Edgewater Assembly Plant during the 1930s, a somewhat more felicitions event should be noted. After the Edgewater Assembly Plant was completed, Ford Motor Company erected a large neon sign aimed at Riverside Drive above the central eastern pavilion of the assembly plant. When illuminated, the large red script "FORD" could be seen from much of the upper Manhattan shoreline. The sign was in place by July 31, 1934, when Mary M'Dougal Axelson wrote a letter to the New York Times commending Ford Motor Company for agreeing to leave the sign off for one hour longer each evening so the residents of upper Manhattan could more fully enjoy the beauty of sunset on the Hudson River.[127]

During the years between the end of the Edgewater strike in 1934 and World War II, Edgewater Assembly Plant was subject to the same ups and down as all other industrial facilities. The sketch outline of these events as reported by the New York Times is as follows:

10/31/33 - Edgewater Assembly Plant at full time; 2500 employees; 400 cars per day assembled.[128]

12/25/34 - Hired 720 more workers yesterday out of 2,000 in line. Employment now averages 3,500;

production goal is 500 cars per day. "The Edgewater Plant is reserved strictly for a automobile assembling purposes.", i.e. no trucks.[129]

12/27/34 - Hired 200 more workers yesterday; employment is now at 3000.[130]

10/12/35 - 2,000 workers recalled (probably from an extended inventory closing); employment is now at 4,000; production goal is 500 cars per day.[131]

9/27/36 - Work suspended until October 15: 1,500 laid off. Will employ 3,000 when 1937 models begin in late October.[132]

6/17/37 - Inventory closing announced; expected to be 7-10 days long.[133]

7/14/37 - Inventory closing scheduled for July 23 to August 9.[134]

8/10/37 - Work resumed at all Ford Motor Company plants.[135]

8/7/38 - Ford Motor Company has one manufacturing plant (River Rouge) and 16 assembly plants (compare to statistics given above for 1933).[136]

A new period for the Edgewater Assembly Plant began October 6, 1938, when the new model, the Mercury, was announced.[137] On November 3, 1938, The New York Times reported that production of the Mercury had begun and that the cars would be assembled at Edgewater,

New Jersey; Dearborn, Michigan; Kansas City, Kansas; Louisville, Kentucky; and Richmond, California.[138] Since the production goal for Edgewater that month was 7000 units of which 2100 would be Mercury's, it is apparent that the layout of the assembly line had been altered to provide separate lines for Mercury and Ford cars.

At some time during the late 1930s trucks began to be assembled at the Edgewater Plant. One adjustment had to be made to accomodate the longer truck chassis. A mechanical device was installed at the west end of the Assembly Building just north of the train doors which lifted the chassis up and through the windows into the plant (Photograph 22). The device then turned the chassis 90° and placed it on the assembly line.

Ford Motor Company was an active participant in the 1939 New York World's Fair and for 1940 season, it decided to designate one of Edgewater's cars as the 28,000,000th Ford produced. This car rolled off the assembly line on April 8, 1940.[139] To celebrate the event, Edsel Ford was present with the men in charge of the Ford Motor Company eastern operations (Photograph 105). The gray car with the distinctive lettering on both sides proclaiming it as the 28,000,000th Ford was driven to the Fair where it stayed for several days. Then it left on a goodwill tour which included Mexico, the West Coast, and Canada before returning to Dearborn.

The onset of World War II created major changes at Edgewater Assembly Plant. Domestic car production was curtailed and light trucks and jeeps began to be assembled. Production, however, was not entirely smooth: due to delays in parts reaching Edgewater, the plant was closed twice in April 1942.[140] A major change occurred in the work force at Edgewater Assembly Plant. As more and more men were called into the armed forces, manpower shortages began to plague industries across the country. Facing the only alternative possible, women were hired to work in many plants including Edgewater, giving Rosie the Riveter a place alongside G.I. Joe. The first women were hired at Edgewater on February 16, 1943.[141] Ford Motor Company hoped to have 1,000 women in the Edgewater Assembly Plant work force. It was stated that there was "...no differential in the wage scale for men and women."[142] The U.A.W. had no opposition to the presence of women so long as they too joined the union. Unfortunately, once the war ended, the women were all laid off to make room for the returning veterans. Several notices of rehiring at Edgewater Assembly Plant mention that although the workforce was expanding, none of the women previously employed at Edgewater would be rehired.[143] Obviously, some concern were raised, but to no effect.

The only labor problem at the Edgewater Assembly Plant during World War II to reach print concerned the seemingly minor disagreement about who would dispense aspirin to the workers: the foreman or the medical staff?[144] However, the argument reveals a concern with maintaining production

schedules for the war effort. Production goals and results were constantly monitored by War Department investigators. The time required for an employee to leave his or her station on the line, walk the considerable distance to the medical offices at the westend of the Assembly Building, and return to the line could easily mount up. However, other views of this ruling may be considered.

With victory in Europe imminent, the transition to civilian production was planned.[145] During the war years Edgewater Assembly Plant was credited with producing"...more than 130,000 trucks, jeeps, and other military vehicles..."[146] At that early date it is unlikely that anyone in Dearborn could have foreseen the tortuous path the reconversion would involve. Plans were announced on May 5, 1945, to revert to a pre-war, 5-day schedule. On August 1, 1945, Ford Motor Company announced that all war contracts at Edgewater Assembly Plant had ended and it hoped to return to civilian production in 10 days.[147] At that point employment was down to 2,000, with plans stated to rehire some employees soon. The first civilian car came off the line at Edgewater Assembly Plant on August 13, 1945, driven by Capt. E.V. Rickenbacker accompanied by Carole Landis.[148] By early November, Edgewater Assembly Plant was turning out 95 cars and 110 trucks per day; but no Mercury's were to be assembled at Edgewater until at least year end. Progress, however, was not to be smooth. In late January 1946, a closing at Edgewater Assembly Plant was

was threatened by the steel strike.[149] The closing took place in early February when the plant was producing 290 Fords, Mercurys, and trucks a day with a workforce of 2,800. The plant reopened five weeks later with a full force of 3,500, but no women for the first time.[150] Suddenly, "...work on the assembly line is deemed by the women themselves as being too strenous." Again in early April, steel shortages forced the plant to close for one week.[151] Barely reopened, a variety of strikes at suppliers forced Edgewater Assembly Plant to close. Despite a prediction that the plant would reopen on June 24, 1946, delays in parts shipments further delayed reopening until July 1, 1946.[152] This pattern was repeated in late October and December 1946 and August 1947.[153] Gradually supply lines returned to normal so plant management was able to resume tours of the assembly line in July 1948.[154]

Within the Ford Motor Company major changes took place in the post-war period. Henry Ford II, now head of Ford Motor Company, realized that he had a very sick company on his hands. Three major problems faced him and his staff: deteriorated or antiguated physical plant, inadequate corporate management, and lack of innovative new models for the car-starved public. In November, 1947, Ford Motor Company announced a $250,000,000 program of expansion and improvement.[155] In 1950 another program of $600,000,000 over 10 years was announced.[156] In New Jersey the first signs of the revitalized Ford Motor Company came before the November 1947 statement. In October 1945, the company purchased 78 acres in Raritan

Township for a Lincoln-Mercury assembly plant which at capacity would employ 2,500 workers and produce 350 cars per day.[157] Scheduled to open in late 1946 or early 1947, the contract was awarded in early March 1946 and Benson Ford, Henry Ford's brother, broke ground for the new plant.[158] The cost of the buildings and equipment was estimated at $8,500,000. The construction schedule turned out to be optimistic, because actual production did not begin until mid-March 1948.[159] The formal opening of the plant, now named Metuchen, took place on June 14, 1948[160], attended by Benson Ford, now vice president of Ford Motor Company and director of the Lincoln-Mercury Division. The implication for Edgewater Assembly Plant was simple: all Mercury production was transferred to Metuchen after being done at Edgewater for nearly 10 years.

One part of the second expansion program announced in September 1950, spelled the end of Edgewater as an assembly plant. In May 1953, Ford Motor Company purchased 200 acres at Mahwah, New Jersey, in northern Bergen County along the main Erie Railroad lines west.[161] Ford Motor Company acquired the land via the Erie Land and Improvement Company, an Erie Railroad subsidiary. In January 1954 it was announced that when the Mahwah Assembly Plant was completed, Edgewater Assembly Plant would be either limited to truck production or abandoned. Before the transfer took place one event occurred which may have helped to seal the fate of the Edgewater Assembly Plant. On the night of June 1, 1954, fire

destroyed four buildings to the south of the Edgewater Assembly Plant which were owned by the Corn Products Refining Company as well as 200 new cars parked on the pier.[162] Finally, in April 1955, the announcement was made that Edgewater Assembly Plant would close when Mahwah Assembly Plant opened.[163] The new Mahwah Assembly Plant was Ford Motor Company's largest assembly facility with 1,900,000 square feet.[164] The total capacity was 800 cars and 250 trucks per day while the total cost of structures and equipment was over $70,000,000, nearly ten times the cost of the Edgewater Assembly Plant in 1930. Mahwah Assembly Plant was dedicated by Henry Ford II on September 29, 1955.[165]

The end at Edgewater Assembly Plant came on July 15, 1955.[166] Having produced 1,817,938 cars in 25 years, it was declared that:

> "The two-story Edgewater plant, having made history in its time, had become obsolete as a factory and not too desirable as to location."[167]

The plant was offered for sale on March 1956 in a notice which noted that the main building would accomodate 30 railroad freight cars, trailer-trucks, and ocean-going vessels[168]: incredibly similar to the notices of the plant when first opened. For the next several years Ford Motor Company and others used the vacant building for storage. Finally, in 1961, the complex was sold to Irving Maidman and K.B. Weisman of New York City.[169] Ford Motor Company would still use a small part for storage. Although the purchase price was not stated, Ford Motor Company took back a $3,000,000 purchase money mortgage for 15 years.

Ford Motor Company Edgewater Assembly Plant
Section 8
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Since that sale, the Edgewater Assembly Plant has been largely under-used. The present owner, Edgewater Associates, purchased the property on December 5, 1980 from LMS Associates. Present plans call for the rehabilitation of the Assembly Building as rental housing units (see above, Section 7 of this nomination for the rehabilitation plans).

NOTES

1 The standard texts on Albert Kahn are:
Grant Hildebrand, Designing for Industry: The Architecture of Albert Kahn (Cambridge, Mass.: MIT Press, 1974).

The Legacy of Albert Kahn (Detroit, Mi.: Detroit Institute of Arts, 1970).

George Nelson, Industrial Architecture of Albert Kahn, Inc. (New York: Architectural Book Publishing Company, Inc., 1939).

2 Legacy of Albert Kahn, 8.

3 Ibid., 8-10.

4 Ibid., 11.

5 Ibid., 12

6 It may not be an understatement to say that the location of the Edgewater Assembly Plant so close to New York City, the citadel of classicizing architecture in this country, may have provided the impetus for the Hudson River (east) facade.

7 Albert Kahn, "Architectural trend," Journal of Maryland Academy of Sciences, 2 (1931), 106-136.

8 Ibid., 106.

9 Ibid., 113-114.

10 Ibid., 114.

11 Stanford Owen Anderson, "Peter Behrens and the new architecture of Germany, 1900-1917," Unpublished doctoral dissentation, Columbia University, 1968.

Tilman Buddenseig and Henning Rogge, "Peter Behrens and the AEG architecture," Lotus International, 12 (1976), 91-127.

Tilman Buddenseig, Henning Rogge, Gabriele Heidecker, and Karin Wilhelm, Industrielkultur: Peter Behrens and die AEG 1907-1914 (Milan: Editrice Electra, 1978).

Alan Windsor, Peter Behrens: Architect and Designer (New York: Whitney Library of Design, 1981).

12
Anderson, "Peter Behrens," 278.
Buddenseig and Rogge, "Peter Behrens," 114-115.

13
Anderson, "Peter Behrens," 269.

14
Legacy of Albert Kahn, 62-67.

15
None of these buildings has been published in detail. The information given is based upon photographs and drawings in the Albert Kahn offices and the Ford Archives.

See, Nelson, Industrial Architecture, 129, for an interior photograph of the Buffalo Assembly Plant Boiler House and 151 for an exterior photograph of the Long Beach Assembly Plant Export Bay.

16
Carl W. Condit, The Port of New York: A History of the Rail and Terminal System from the Beginnings to Pennsylvania Station, (Chicago, Ill.: University of Chicago Press, 1980), 10.

17
Bergen County Panorama, written by Workers of the Writers' Program of the Works Projects Administration in the State of New Jersey (Hackensack, N.J.: Bergen County Board of Chosen Freeholders, 1941), 268.

18
The Hudson River does not flow quite true north to south. Since the buildings to be discussed herein are all perpendicular to the Hudson River, for ease of reference all directions given in text, notes, and photographic captions will presume that the Hudson River does indeed flow north to south.

19 C.E. Denney, "Erie activity develops service," Journal of Industry and Finance, 4 no. 3 (February 1930), 40-41.

20 Condit, Port of New York (1980), 48.

21 Ibid.

22 Ibid., 48-49

23 Ibid., 58.

24 Ibid., 66.

26 Ibid., 69.

27 Ibid., 70.

28 Ibid., 72.

29 Carl W. Condit, The Port of New York: A History of the Rail and Terminal System from the Grand Central Electrification to the Present (Chicago, Ill.: University of Chicago Press, 1981), 109.

30 Condit, Port of New York (1980), 9-10.

31 "Unusual Foundations at the Hoboken Terminal of the Lackawanna R.R.," Engineering Record, 52 (November 11, 1905), 546-547.

32 Condit, Port of New York (1981), 150, Figure 31 is a map of most of these facilities.

33 New York, Susquehanna Western and Wilkes-Barre and Eastern. The Next Station Will Be...An Album of Photographs of Railroad Depots in 1910 (Roselle Part, N.J.: Railroadians of America, Inc., 1977).

34 Borough of Edgewater, Edgewater Historical Survey, Project No. 693, Works Progress Administration (Typescript in Edgewater Public Library), vol. 6, 1.

William Starr Myers, editor, The Story of New Jersey (New York: Lewis Historical Publishing Company, Inc., 1945), Vol. III, 431.

35 Bergen County Panorama, 311, gives date as 1895.

Borough of Edgewater, vol. 6, 2, gives date as 1899.

Frances A. Westervelt, editor, History of Bergen County, New Jersey, 1630-1923 (New York: Lewis Historical Publishing Company, Inc., 1923), 353, gives date as 1895.

J.M. Van Valen, History of Bergen County, New Jersey (New York: New Jersey Publishing and Engraving Company, 1900), 577-580, still listed Edgewater as "Undercliff".

36 Borough of Edgewater, vol. 11, 8.

37 Ibid., vol. 11, 22

38 Ibid., vol. 11, 9-27.

39 Ibid.

40 Bergen County Panorama, 311.
Westervelt, Bergen County, 353.

41 The Ford Motor Company Kearny Assembly Plant was located along the Hackensack River shore just above Kearny Point.

42 Ford Motor Company, Branch Histories, dated June 18, 1941, unpublished manuscript, Henry Ford Museum and Greenfield Village, Ford Archives, Dearborn, Michigan.

43 John T. Cunningham, Made in New Jersey: The Industrial Story of a State (New Brunswick, N.J.: Rutgers University Press, 1954), 173.

44 The Hackensack River in the first 30 years of this century was not as deep as shown in the current U.S. Coast and Geodetic Survey Map. The increased depth is the result of post-World War II dredging. During World War I, Kearny was to perform final assembly of the Ford Eagle boats built at the River Rouge complex for the Department of the Navy. These boats were 200 feet long, 21 feet wide, and displaced 200 tons (Allan Nevins and Frank Ernest Hill, Ford: Expansion and Challenge, 1915-1933 (New York: Charles Scribner's Sons, 1957), 68-73). These boats would probably displaced 10 feet of water or less, near the then depth limits of the Hackensack River.

45 New York Times, March 18, 1928, 21. An aerial view of the Kearny Assembly Plant was published in the Journal of Industry and Finance, 3 no. 8 (July 1929), 17.

46 Allan Nevins and Frank Ernest Hill, Ford: Decline and Rebirth, 1933-1962 (New York: Charles Scribner's Sons, 1962), Appendix I.

47 New York Times, January 23, 1927, Section 8, 4.

48 New York Times, February 14, 1926, Section 9, 10.

49 New York Times, July 25, 1927, 1.

50 New York Times, September 25, 1927, 22.

51 New York Times, July 22, 1929, 33.

52 Ibid.
New York Times, August 14, 1929, Section 10, 15, puts the date as July 24, 1929.

53
New York Times, June 18, 1927, 25

54
New York Times, December 6, 1927, 14.

55
New York Times, April 12, 1928, 17.

56
New York Times, March 18, 1928, 21.

57
New York Times, March 27, 1928, 30.
New York Times, May 20, 1928, 9.

58
Robert Greenhalgh Albion, "Engines, ships and other transportation equipment," in: William Starr Myers, editor, The Story of New Jersey (New York: Lewis Historical Publishing Company, Inc., 1945), vol. III, 249.

59
Nevins and Hill, Ford: Expansion, 469.

60
New York Times, September 25, 1928, 52.

61
New York Times, December 31, 1928, 1.

62
Nevins and Hill, Ford: Expansion, 543, 554 .

63
Ford Motor Company, Branch Histories.

64
New York Times, August 14, 1930, 31.

65
New York Times, May 4, 1930, Section 7, 14.

66
"Ford Spends $25 Millions on American projects," Business Week, November 12, 1930, 8, exclusive of the Chester Assembly Plant.

67 New York Times, November 19, 1930, 16.

68 Nevins and Hill, Ford: Expansion, 574. The ellipses are to excise numerical errors by the authors.

69 New York Times, May 14, 1929, 1. See also, Journal of Industry and Finance, 3 no. 7 (June 1929), 44.

70 New York Times, May 28, 1929, 10.

71 And for the transport of parts from Dearborn to the new facility (see below).

72 New York Times, July 17, 1955, 53.

73 Nevins and Hill, Ford: Expansion, 477, 570.

74 Ibid., 572.

75 The Ford Motor Company was not a member of the National Automobile Chamber of Commerce. Its subsidiary, the Lincoln Motor Company, had been a member before Ford Motor Company acquired it and remained a member, probably at Edsel Ford's insistence, to keep the lines of communication open to the national association.

76 New York Times, November 23, 1929, 2.

77 New York Times, December 4, 1929, 1.

78 New York Times, November 19, 1930, 16.

79 Nevins and Hill, Ford: Decline and Rebirth, Appendix I.

80
Ibid., 8-9. The footnote is incorrect as to new Ford Plants.

81
New York Times, December 7, 1929, 36.

82
Progress photograph #191, dated September 4, 1930, Turner Construction Company, New York City. An article in the New York Times, on June 8, 1930, 13, erroneously stated that the Edgewater Assembly Plant was already open.

83
Bergen Record, November 11, 1930, 2 and 24.
Although Edgewater Assembly Plant began production on November 11, 1930, full production levels were not reached until November 18 or 19, 1930. See New York Times, November 19, 1930, 16, and Journal of Industry and Finance, 5 no. 1 (December 1930), 26.

The official start date was considered by Ford Motor Company to be November 19, 1930 (Ford Motor Company, Branch Histories).

84
New York Times, December 7, 1930, Section 2, 22. Minor inaccuracies in this description have been corrected in Section 7 of this nomination.

85
On behalf of the Detroit Arts Commission whose members, besides Edsel Ford, were Albert Kahn, Charles T. Fisher, and Julius H. Haas. (The Rouge: The Image of Industry in the Art of Charles Sheeler and Diego Rivera (Detroit: Detroit Institute of Arts, 1978), 48). Albert Kahn provided "three tons of specially prepared limestone" to be used as pigment (Ibid., 51).

86
Ibid., 66.

87
Ibid., 108.

88
Edgewater Assembly Plant did not have the huge stamping press depicted on the right.

89
A number of publications describe Ford Motor Company operations, but only the latest depicts a schematic assembly line:

Horace Arnold and Fay Leone Faurote, Ford Methods and the Ford Shops (New York: Engineering Magazine Company 1919).

Hartley W. Barlay, Ford Production Methods (New York: Harper & Brothers, 1936).

The Ford Industries: Facts about the Ford Motor Company and its Subsidiaries [prepared by Wm. Carl Chapman] (Detroit, Mi.: Ford Motor Company, 1924).

Ford Motor Company, Ford at Fifty, 1903-1953 (New York: Simon and Schuster, 1953) includes a schematic diagram of an assembly line.

90
John Ward French, "Ford's largest assembly plant opens." Journal of Industry and Finance, 5 no. 2 (January 1931), 14-16.

91
Ibid., 14.

92
Ibid.

93
Ibid., 15.

94
New York Times, December 4, 1930, 9.

95
The Erie Railroad had recently rebuilt the Edgewater yards (Denney, "Erie Activity.").

96
New York Times, May 9, 1931, 37, and May 16, 1931, 37.

97
New York Times, August 12, 1931, 12.

98
New York Times, February 18, 1937, 40, and February 21, 1937, Section 2, 12.

99 New York Times, February 19, 1931, 17.

100 New York Times, April 2, 1931. All figures are taken from the New York Times.

101 New York Times, August 11, 1931, 23.

102 Ford Archives, unpublished manuscript.

103 In 1940 the assessed valuation of the Borough of Edgewater was $26,006,159. If Edgewater Assembly Plant was assessed at $3,000,000, then Ford Motor Company contributed 11½% of the property taxes in the entire borough while occupying only 1.8% of the land (Bergen Panorama, 311). Based upon the 1935 figures, Ford Motor Company would have paid $46,500 per year in taxes on Edgewater Assembly Plant (Borough of Edgewater, vol. 6, 6), where it is noted that

> "...the rather enormous increase in taxable valuation from $350,000 in 1894 to $25,519,000 in 1935 a large part of which is, of course, due to the large industrial plants now located in Edgewater."

In 1935 the assessment of Edgewater was exceeded in Bergen County by only one other municipality, the city of Hackensack (Ibid., 10).

104 Nevins and Hill, Ford: Decline and Rebirth, 42-43.

Sidney Fine, The Automobile under the Blue Eagle (Ann Arbor: University of Michigan Press, 1963),75-95.

Sidney Fine, "The Ford Motor Company and the N.R.A.," Business History Review, 32(1958), 353-385.

105 Fine, "Ford and N.R.A.,"353-354.

106 Ibid., 354.

107 Ibid., 358.

108
Ibid., 359.

109
Ibid., 371-385.
Fine, The Automobile, 85-94.

110
Augus M. Harris was later the superintendent at Edgewater Assembly Plant and Mahwah Assembly Plant.

111
Fine, "Ford and the N.R.A.," 377.

112
New York Times, October 4, 1932, 13.

113
New York Times, October 5, 1932, 45.

114
New York Times, September 30, 1933, 30.

115
New York Times, October 5, 1933, 10.

116
New York Times, October 6, 1933, 6.

117
New York Times, October 17, 1933, 11.

118
Cited by Fine, "Ford and the N.R.A.," 378, from a transcript in the Ford Archives.

119
New York Times, November 6, 1933, 6.

120
New York Times, November 7, 1933, 3.

121
New York Times, November 9, 1933, 4.

122
New York Times, December 8, 1933, 3.

123 New York Times, December 16, 1933, 7, and December 23, 1933, 6.

124 New York Times, January 9, 1934, 8.

125 New York Times, February 26, 1934, 1.

126 Quoted in Fine, "Ford and the N.R.A.," 383.

127 New York Times, August 6, 1934, 14.

128 New York Times, October 31, 1934, 31.

129 New York Times, December 25, 1934, 2.

130 New York Times, December 27, 1934, 2.

131 New York Times, October 12, 1935, 25.

132 New York Times, September 27, 1936, Section 2, 14.

133 New York Times, June 17, 1937, 2.

134 New York Times, July 14, 1937, 5.

135 New York Times, August 10, 1937, 3.

136 New York Times, August 7, 1937, Section 10, 6.

137 Nevins and Hill, Ford: Decline and Rebirth, 119.

138
New York Times, November 3, 1938, 24.

139
New York Times, April 9, 1940, 22 and 43.

140
New York Times, April 29, 1942, 25.

141
New York Times, February 17, 1943, 10.

142
Ibid.

143
New York Times, February 18, 1946, 15; March 13, 1946, 20 (no women now in workforce); May 16, 1946, 1.

144
New York Times, July 12, 1944, 6.

145
New York Times, May 5, 1945, 16.

146
New York Times, August 14, 1945, 16.

147
New York Times, August 2, 1945, 21; August 7, 1945, 15, indicates that Edgewater Assembly Plant and two other assembly plants were to commence civilian work in August.

148
New York Times, August 13, 1945, 21, and August 14, 1945, 16.

149
New York Times, January 29, 1946, 14.

150
New York Times, March 13, 1946, 20.

151
New York Times, April 4, 1946, 28.

152
New York Times, June 20, 1946, 21; June 25, 1946, 13; and July 2, 1946, 6.

153
New York Times, October 26, 1946, 30; December 21, 1946, 10; and August 7, 1947, 12.

154
New York Times, July 29, 1948, 23.

155
New York Times, November 23, 1947, Section 2, 20.

156
New York Times, September 12, 1950, 35.

157
New York Times, October 13, 1945, 17.

158
New York Times, March 19, 1946, 15.

159
New York Times, February 15, 1948, 54.

160
New York Times, June 15, 1948, 32.

161
New York Times, May 6, 1953, 28.

162
New York Times, June 2, 1954, 1.

163
New York Times, April 22, 1955, 38.

164
New York Times, June 25, 1955, 17.

165
New York Times, October 1, 1955, 22.

166
New York Times, July 16, 1955, 17.

167
New York Times, July 17, 1955, 53.

168
New York Times, March 16, 1956, 39.

169
New York Times, September 8, 1961, 51.

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FORD
DESCRIPTION
LOTS 7, 8, PORTION OF 9, 19 BLOCK 85
LOTS 2, 4, 5, PORTION OF 6 BLOCK 87
TAX MAP SHEET NO. 7
BOROUGH OF EDGEWATER
BERGEN COUNTY, NEW JERSEY

PARCEL FOUR - LOT 19 BLOCK 85

Beginning at a point formed by the intersection of the southerly line of Drevici and Sons Corp. and the easterly line of land formerly of the New York Susquehanna and Western Railroad, and now or formerly of the Delaware Otsego Corp., and running; thence,

1) Along the boundary line between lands now or formerly of the Delaware Otsego Corp. and lands now or formerly of Edgewater Associates, S 47°-53'-22" W; 915.50 feet to a point; thence,

2) S 63°-26'-38" E; 90.76 feet to a point; thence,

3) N 64°-58'-37" E; 77.98 feet to a point of curvature; thence,

4) On a curve, bearing to the right and having a radius of 359.27 feet, an arc distance of 188.14 feet to a point; thence,

5) S 56°-25'-10" E; 181.64 feet to a point; thence,

6) N 26°-33'-22" E; 185.99 feet to a point; thence,

7) S 63°-26'-38" E; 350.91 feet to a point; thence,

8) N 26°-33'-22" E; 517.06 feet to a point; thence,

9) N 63°-26'-38" W; 490.81 feet to the point or place of beginning.

PARCEL ONE - PART LOT 2, PART LOT 8 BLOCK 85,
LOT 1, PART LOT 4, PART LOT 5 BLOCK 87

Beginning at the southwest corner of lands conveyed by the New York Edison Company to the Corn Products Refining Company by deed dated November 22, 1918, and recorded in the Office of the Clerk of Bergen County in Book 1003 of Deeds at Page 52, said point also being on the dividing line between lands now or formerly of the New York Edison Company and formerly the Corn Products Refining Company and now or formerly of the Celotex Corporation distant southeasterly along the same, 126.60 feet from the southeasterly side of River Road, as it existed on July 11, 1961, and running; thence,

1) Along the southeasterly line of lands formerly of New York Susquehanna and Western Railroad Company, now or formerly Delaware Otsego Corp., N 34°-52'-20" E; 60.03 feet to a point of curvature; thence,

2) On a curve, bearing to the right, northerly and easterly, having a radius of 131.00 feet, an arc distance of 68.83 feet; thence,

3) Still along the same, N 64°-58'-37" E; 673.63 feet to a point of curvature; thence,

4) Still along the lands of Delaware Otsego Corp. on a curve to the right having a radius of 359.27 feet, an arc distance of 188.14 feet to a point; thence,

5) Still along the same, S 56°-25'-10" E; 181.64 feet to a bend point; thence,

6) Along lands now or formerly of Edgewater Investment Corp., S 63°-29'-10" E; 838.33 feet to a point in the exterior line of solid fill adopted by the Riparian Commission of New Jersey on April 28, 1904, and running; thence,

7) Along said exterior line for solid fill, S 28°-33'-17.4" W; 825.04 feet to a point in the northerly line of lands now or formerly Celotex Corporation (formerly Corn Products Refining Company); thence,

8) Along said lands, N 63°-26'-38" W; 828.69 feet to a bend point; thence,

9) Still along said lands, N 57°-03'-08" W; 769.00 feet to the point or place of beginning.

PIER AND DOCK RIGHTS IN SCHEDULE "A" (PARCEL THREE)
PART LOTS 8, 9, 2 BLOCK 85; PART LOTS 4, 5, 6 BLOCK 87

Beginning at a point in the exterior line for solid fill adopted by the Riparian Commission of New Jersey on April 28, 1904, being the terminus of the sixth course in Parcel Two above described, and running; thence,

1) S 63°-29'-10" E; 400.67 feet to the pierhead line approved by the Acting Secretary of War, March 26, 1927, and adopted by the Board of Commerce and Navigation of the State of New Jersey, October 21, 1929, and running; thence,

2) S 27°-12'-47" W along said pierhead line, 824.89 feet to a point; thence,

3) N 63°-26'-38" W; 420.06 feet to a point in the exterior bulkhead line aforementioned, and running; thence,

4) Along the same, N 28°-33'-17.4" E; 825.04 feet along said bulkhead line to the point or place of beginning.

Together with right to erect piers and structures therein but not to fill the same.

PARCEL TWO - LOT 2 BLOCK 91

Beginning at a point in the present easterly line of River Road as widened following a deed from the Ford Motor Company to the Borough of Edgewater dated March 18, 1960 and recorded March 23, 1960 in the Bergen County Clerk's Office in Deed Book 4110, page 358, being in the northerly line of the pumping station site conveyed by the Ford Motor Company aforesaid to the Borough of Edgewater by deed dated February 28, 1950 and recorded March 14, 1950 in the Bergen County Clerk's Office in Deed Book 3051, page 598, and from said point of beginning, and running; thence,

1) S 57°-03'-08" E along said pumping station site, 32.72 feet to a point in lands now or formerly of Delaware Otsego Corp., and running; thence,

2) N 32°-00'-22" E along the lands now or formerly of the Delaware Otsego Corp., 8.87 feet to a point of curvature; thence,

3) Along the same, on a curve bearing to the right, having a radius of 583.69 feet, an arc distance of 162.54 feet to a point of tangency; thence,

4) Still along the same, N 47°-57'-42" E; 9.66 feet to a point of curvature; thence,

5) Northerly, on a curve to the left, having a radius of 499.06 feet, an arc distance of 62.30 feet to a point of tangency; thence,

6) N 40°-48'-32" E; 13.86 feet to a point of curvature; thence,

7) Still along the same, on a curve bearing to the left having a radius of 468.34 feet, an arc distance of 18.57 feet to a point; thence,

8) N 54°-25'-08" W; 3.77 feet to a point in the easterly line of River Road aforesaid, and

running; thence,

9) Southwesterly, along the easterly line of River Road on a curve bearing to the right, having a radius of 248.63 feet, an arc distance of 56.44 feet to a point of tangency; thence,

10) Still along the same, S 49°-09'-52" W; 107.84 feet to a bend point; thence,

11) Still along the same, S 46°-48'-24" W; 116.71 feet to the point or place of beginning.

Subject to the following easements:

1) Easement to the County of Bergen as contained in Deed Book 4753, page 164.

2) Easement as contained in Deed Book 4904, page 199.

3) Terms, conditions and covenants of license agreement as contained in Deed Book 6237, page 69.

4) Easement as contained in Deed Book 4994, page 127.

5) Easement as contained in Deed Book 5152, page 323.

6) Easement as contained in Deed Book 5272, page 300.

7) Easement as contained in Deed Book 5283, page 266.

8) Easement as contained in Deed Book 5314, page 66.

9) Easement as contained in Deed Book 5343, page 439.

10) Easement as contained in Deed Book 519, page 266.

11) Terms, provisions and conditions of riparian grants contained in Deed Book 797, page 331; G-11, page 668; and 1693 page 616.

12) Terms and conditions and provisions and easement as contained in Deed Book 845, page 587.

13) Reservations and easements as contained in Deed Book 880, page 56.

14) Easement as contained in Deed Book 551, page 592.

15) Terms, conditions and provisions of agreement as contained in Deed Book 845, page 592, corrected 1743/495.

16) Easement as contained in Deed Book 1003, page 52.

17) Terms, conditions and provisions of agreement contained in Deed Book 1000, page 258.

18) Easement as contained in Deed Book 1704, page 400.

19) Reservation and easement as contained in Deed Book 1704, page 409.

20) Terms, provisions, conditions, covenants and easements as contained in Deed Book 1700, page 122.

21) Terms, provisions and conditions, covenants and easements as contained in Deed Book 1730, page 116, corrects 845/587.

22) Easement as contained in Deed Book 1737, page 412 and 1737, page 571.

23) Terms, provisions, conditions, covenants and easements as contained in Deed Book 1743, page 495.

24) Terms, provisions, conditions, covenants, and easements as contained in Deed Book 1750, page 325.

25) Paramount rights of the United States Government to regulate and control navigation and in that connection to establish and change bulkhead and pierhead lines.

26) Rights of Federal Government to take without compensation any lands now or formerly flowed by tidal waters for the purposes of commerce and navigation.

27) Restrictions as contained in Deed Book 339, page 77.

28) Conditions and provisions contained in Deed Book 593, page 643.

29) Terms, conditions, reservations, questions and provisions in Deed Book 4653, page 147 and corrective deed in Book 4666, page 173.

30) Survey made by Boswell Engineering Company dated September 27, 1977. Parcels are contiguous with exception of Parcel Two which abuts River Road. Ingress to and egress from premises in question over two existing easements is hereby insured.

31) Insured premises with respect to the Ford Building Parcel is hereby guaranteed as the owner of the uplands.

32) With respect to Pier and Dock rights described in Schedule A Description the fee title is not hereby guaranteed. Title remains vested in Ford Motor Company by deed from the State of New Jersey by Deed Book 1693, page 616, subject to the Terms and Restrictions in that deed.

33) Mortgage made by L.M.S. Associates, a New York co-partnership, to Citibank, N.A., a National Banking Association, dated November 30, 1977 and recorded December 2, 1977 in Mortgage Book 6010, page 357, securing the sum of $6,000,000.