Steve S — Tom W — 3d tan — Anything new or helpful? NW 3/31

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Some great photos/schematics.

March 21, 2006

Major General Riley
US Army Corps of Engineers
Director of Civil Works
441 G Street N.W.
Washington, D.C. 20314-1000

Dear Major General Riley,

Attached is a report from The Board of Levee Commissioners of the Orleans Levee District, "Nature Changes From Moment To Moment," dated September 08, 1972.

Thought you might be interested in this, particularly, that Guy F. LeMieux was President of the Orleans Levee Board. While acting in the capacity of Levee Board President, the barrier plan was his vision. During his time of service with the Levee Board, he remained a Partner in my firm.

Sincerely,

Shelby P. LaSalle, Jr.
President, CEO

Shelby P. LaSalle Jr.

SPL/jwb

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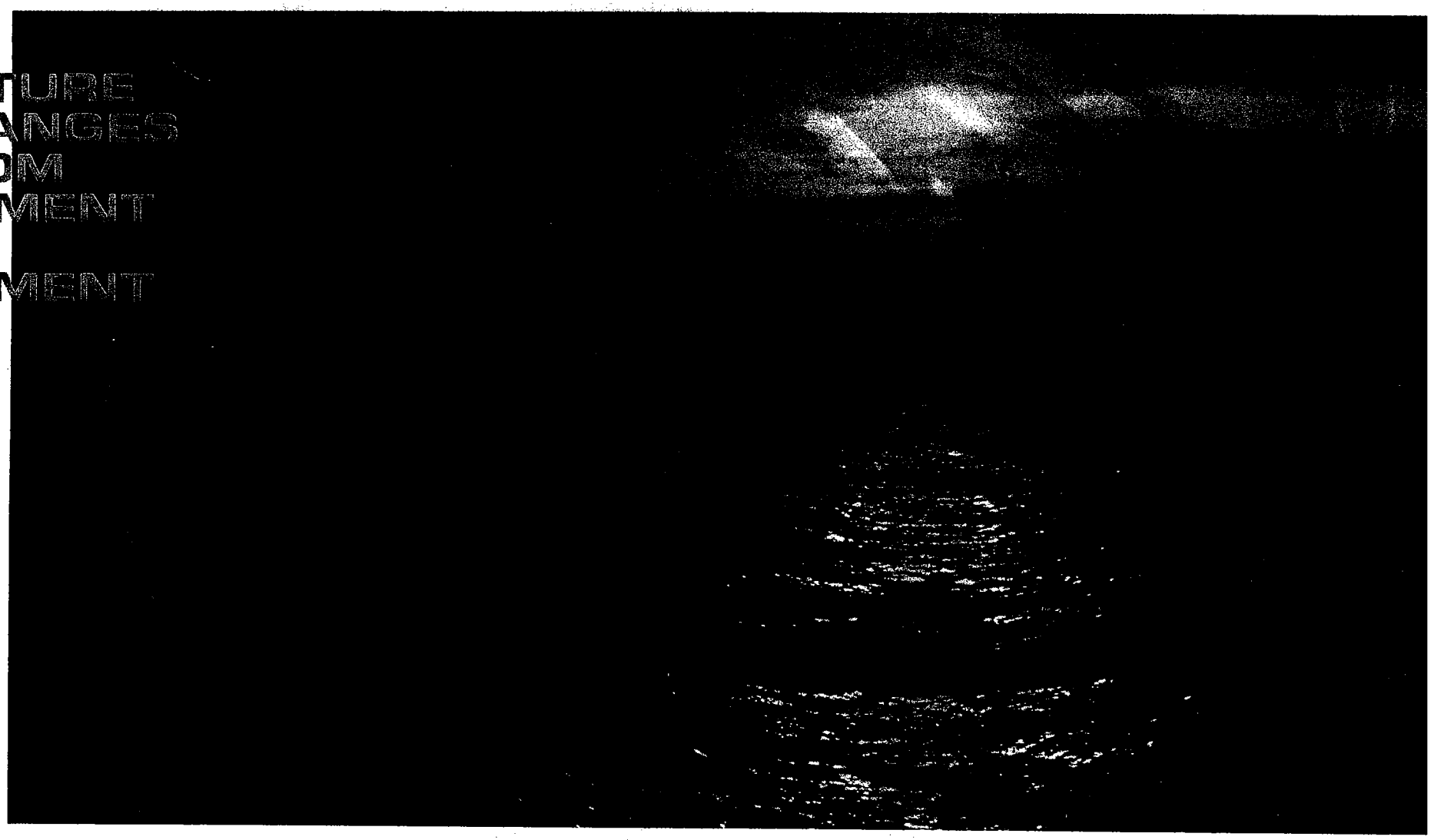
THE BOARD OF LEVEE COMMISSIONERS OF THE ORLEANS LEVEE DISTRICT
418 ROYAL STREET, NEW ORLEANS, LOUISIANA 70130

NATURE CHANGES FROM MOMENT TO MOMENT



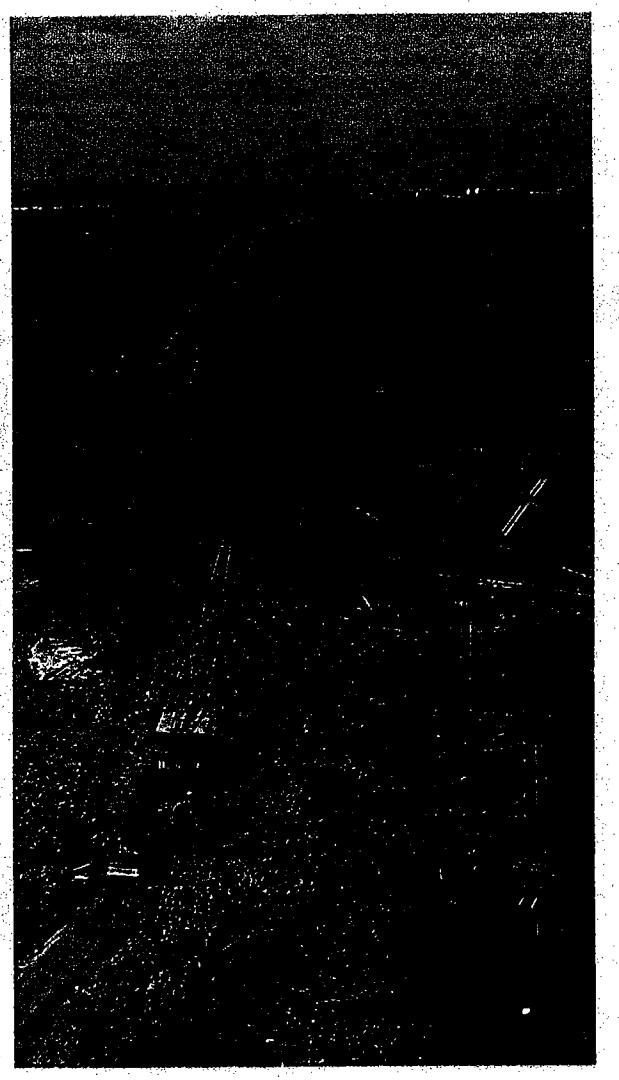
A REPORT FROM THE ORLEANS LEVEE BOARD

JOHN P. MCNAMARA
Chief Engineer
and Secretary
to the Board

The Orleans Levee Board is administered by a commission (opposite page), appointed by the Governor of Louisiana, and operated by a civil service staff divided into two areas—administrative and engineering.

RICHARD J. MCGINITY
General Counsel

GEORGE J. LABRECHE
Executive Administrator



GUY F. LEMIEUX
President

CLAUDE W. DUKE
President Pro-Tem

PHILIP C. CIACCIO

DANIEL P. KELLY

BERNEL R. SANDERS

JAMES C. SCALISE

VICTOR H. SCHIRO

September 8, 1972

The Honorable Edwin W. Edwards and
Residents of the City of New Orleans

Dear Governor Edwards, Ladies and Gentlemen:

Act 93 of 1890 enacted by the General Assembly of the State of Louisiana established the Orleans Levee District and the Board of Levee Commissioners.

This Act, signed into Law on July 7, 1890 by Governor Francis T. Nicholls, charged the Board of Levee Commissioners with the construction, repair, control and maintenance of all levees in the district, whether on river, lake, canal or elsewhere; and to proceed as rapidly and effectually as possible to put the levees in such state as to amply protect the lives and property within the district.

Today, in 1972, the Board is still busily constructing and enlarging levees to meet the growth of the City as it expands to the east and west. We find ourselves involved in the construction of the "Lake Pontchartrain and Vicinity Hurricane Protection System," a project so important to New Orleans that it could well prevent the loss of one hundred thousand lives and one billion dollars of property damage.

The Orleans Levee Board, in addition to the construction of levees to protect the City against flooding, administers the City's lakefront, its beaches, one of its two airports and one of its two marinas. Not only has the Board kept pace with the growth of the City it has been a leader in its development.

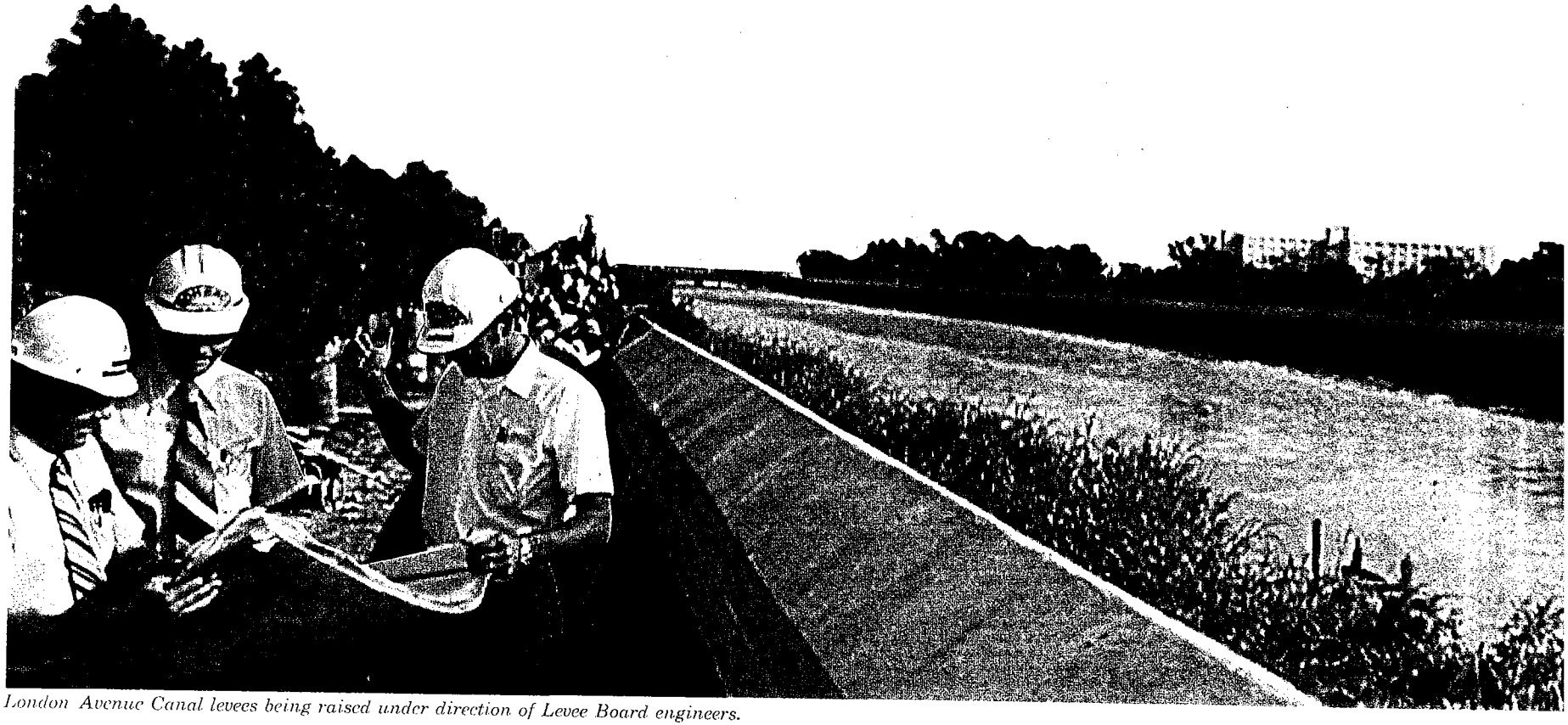
What does the future hold for this Board? Will the Orleans Levee Board be included in the consolidation of State Boards and Agencies? I do not think so! We cannot allow a State Agency that has been as responsive to the needs of the people, as the Orleans Levee Board has been, to be taken away from the City.

In closing, I say that the Orleans Levee Board will continue to carry out the responsibilities given to it by Act 93 of the 1890 State Assembly, while at the same time exercising its responsibility in operating an important airport and in developing our Lakefront.

Very truly yours,

GUY F. LEMIEUX
PRESIDENT

ORLEANS LEVEE BOARD



London Avenue Canal levees being raised under direction of Levee Board engineers.

NATURE CHANGES FROM MOMENT TO MOMENT, WITH EVERY PASSING SECOND . . . and so it is with the Board of Levee Commissioners of the Orleans Levee District, commonly known as the Orleans Levee Board.

Since its inception in 1890, when the General Assembly of the State of Louisiana established 21 similar districts throughout the state, the Orleans Levee Board has undergone more change in varying degrees and for more dedicated reasons than any other contemporary board.

This was done to make the most of several opportunities that arose in the course of time to help make Orleans Parish a safe and attractive place to live and work, and to keep pace with the fast-moving times, including the recent increasing need of adequate hurricane protection.

Originally created as the governing body of the Orleans Levee District, the Levee Board was charged with the responsibility for the control, maintenance and repair of all levees, whether on river, lake, canal or elsewhere in Orleans Parish.

This means that the Levee Board has always had one primary concern: To maintain levee facilities to protect the people and property of Orleans Parish from the ravages of untamed waters . . . and in so doing, the Board also protects 20 percent of the state's total sales and property tax revenues, in addition to a larger percentage of total state revenues collected from the Parish.

In pursuing this objective of protection against the eccentric and devastating elements of nature, it has become feasible and economical for the Levee Board to become . . . developer of subdivisions . . . builder and/or administrator of beaches, an airport, a marina, bridges, parks and scenic drives . . . lifeguard . . . policeman . . . landscaper . . . and, moreover, large contributor to the taxes and economy of the city of New Orleans and the state of Louisiana.

Obviously, the Orleans Levee Board is unlike all other state boards of its kind . . . in the magnitude of what it has done . . . in the magnitude of economic investment that it protects . . . in the magnitude of the state's tax revenue sources that it protects.

The Board's evolution into a many-sided public body has been accomplished also through the foresight and dedication of its commissioners. Appointed by the governor for a term of four years, the members of the Orleans Levee Board—unlike members of other levee boards — serve their term without per diem compensation. They are subject to reappointment by each succeeding governor.

In 1890, protection of the city of New Orleans and adjacent areas from flood waters of the Mississippi River was the primary concern.

Today, with the threat of flooding from the Mississippi greatly reduced, the major objective of the Levee Board is to prevent inundation of the city from the waters of Lake Pontchartrain and Lake Borgne which bear down on New Orleans as a result of hurricanes.

During recent hurricane "Betsy," New Orleans sustained considerable damage. Although hurricane winds destroyed much property, flooding from the waters of the two lakes constituted the major cause of destruction. "Camille" resulted in much wind damage but fewer problems from flooding.

To offset this greatest threat of future hurricanes, the Orleans Levee Board is now seeking additional funds to raise the height of city levees as recommended by the U.S. Army Corps of Engineers following an intense study of the area, to assure further protection of life and property.

Vested with the powers to enlarge and improve flood protection structures, the Levee Board today has under its jurisdiction almost 129 miles of levees and floodwalls. These include 27 miles of Mississippi River levees within the city limits, an additional eight miles of river frontage for the Bohemia Spillway—some 45 miles below New Orleans—and approximately 94 miles of inner levees within the city.

Since the first year of its creation, the Orleans Levee Board has spent more than $70 million for levee construction, improvement and maintenance.

A master flood protection plan, known as "Flood Control—Mississippi River and Tributaries," developed by the U.S. Army Corps of Engineers, was authorized by Congress in 1928, and since then has provided a national system of flood protection and prevention.

As a result of the flood control act, a system of levees, floodwalls and related structures constructed by the Orleans Levee Board, the Dock Board and the federal government, there exists little danger to New Orleans of overflow of the Mississippi—as long as the levee system protecting the city is properly maintained by its watchdog, the Orleans Levee Board.

With the river and its flooding possibilities considerably under control, the Levee Board turned its sights toward the city's northern perimeter, Lake Pontchartrain, which poses flood control problems in addition to the river. During storms, wind-whipped lake waters often back up along the low-lying shore and in time of hurricane create a serious threat to the entire city. According to the Corps of Engineers, this threat can be controlled by elevating the present levee system and installing barriers.

Orleans Levee Board leaders envisioned a lakefront development which would give the city far more than protection alone. They saw the opportunity to reclaim land along the shore, transform the mosquito-ridden swamp into a section of fine homes and parks . . . and they fought for it.

The 1922 Legislature empowered the Levee Board to reclaim lake bottom, to develop and sell it, reserving a minimum of 30 percent of the acreage for public parks and parkways. In 1928 the Legislature gave the Board final authority to implement the Lakefront Improvement Project, as the city of New Orleans was not financially able to carry it out.

(Precedence in such matters had already been established in 1919, when the Orleans Levee Board agreed to assume payments of $925,000 per year, for 50 years, to finance the Industrial Canal [Inner Harbor Navigational Canal] as the Port of New Orleans was unable to assume the financial responsibility. In return the Port agreed to assume construction and maintenance of the Industrial Canal levees.

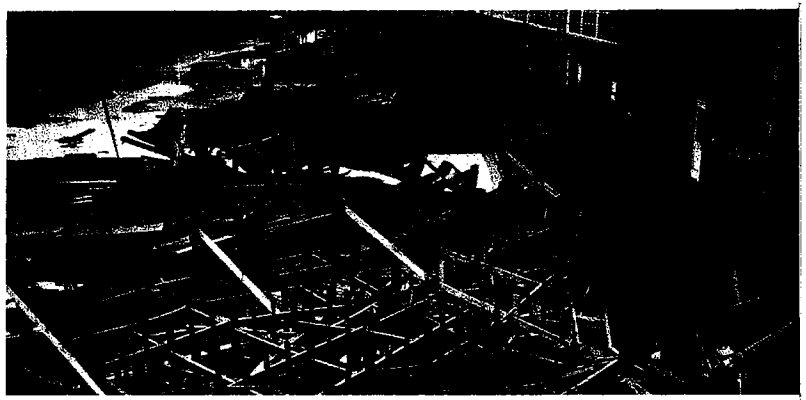
The Levee Board retired its obligation to the Port of New Orleans in 1959 after paying a total of $36,266,040.84 to the Industrial Canal contract.

At that time, the Levee Board again assumed the responsibility for the construction and maintenance of levees along the Industrial Canal.)

The entire Lakefront development was designed as a flood control project. Actual work began in 1926, by the Levee Board. The landfill and the subsequent stepped seawall provided a broad protection levee making available 2,000 acres of land for residential,

Milneburg Road under water, in 1923.

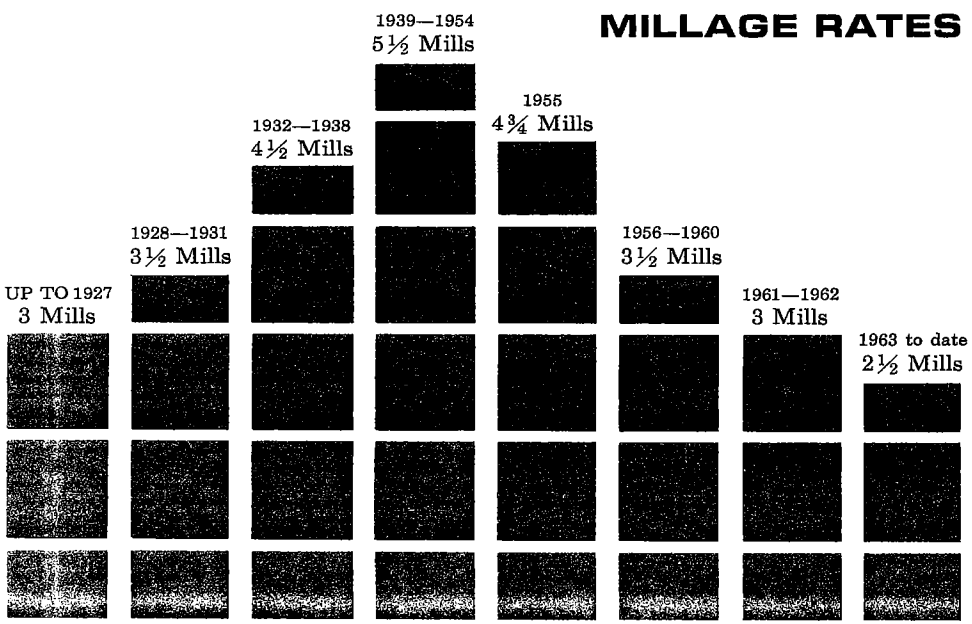
Wind-whipped waters cover a city street.



Storm damage at Michoud, 1947.

Flood waters following 1947 hurricane.

National Weather Service teletype in Levee Board engineering office reports weather conditions round the clock.



recreational and commercial development to amortize the cost of the flood protection.

The Levee Board set aside approximately 30 percent of the new land for public facilities, with wide boulevards and parks tastefully dotting the area. Integral parts of the development are the seawall, New Orleans Lakefront Airport, Pontchartrain Beach, five subdivisions, parks and Lakeshore Drive.

Physically, New Orleans can grow only to the east, so continued Lakefront development in that direction, which has been in the planning stages by the Board, takes on vital importance.

The Orleans Levee Board maintains an operational base similar to other state constituted agencies and commissions. Unlike other Levee Boards, however, the Orleans commissioners do not receive a per diem.

Domiciled as it is in New Orleans, the Board works closely with the New Orleans City Planning Commission, the mayor and the city council, an essential relationship for the effectiveness of both its present and future plans.

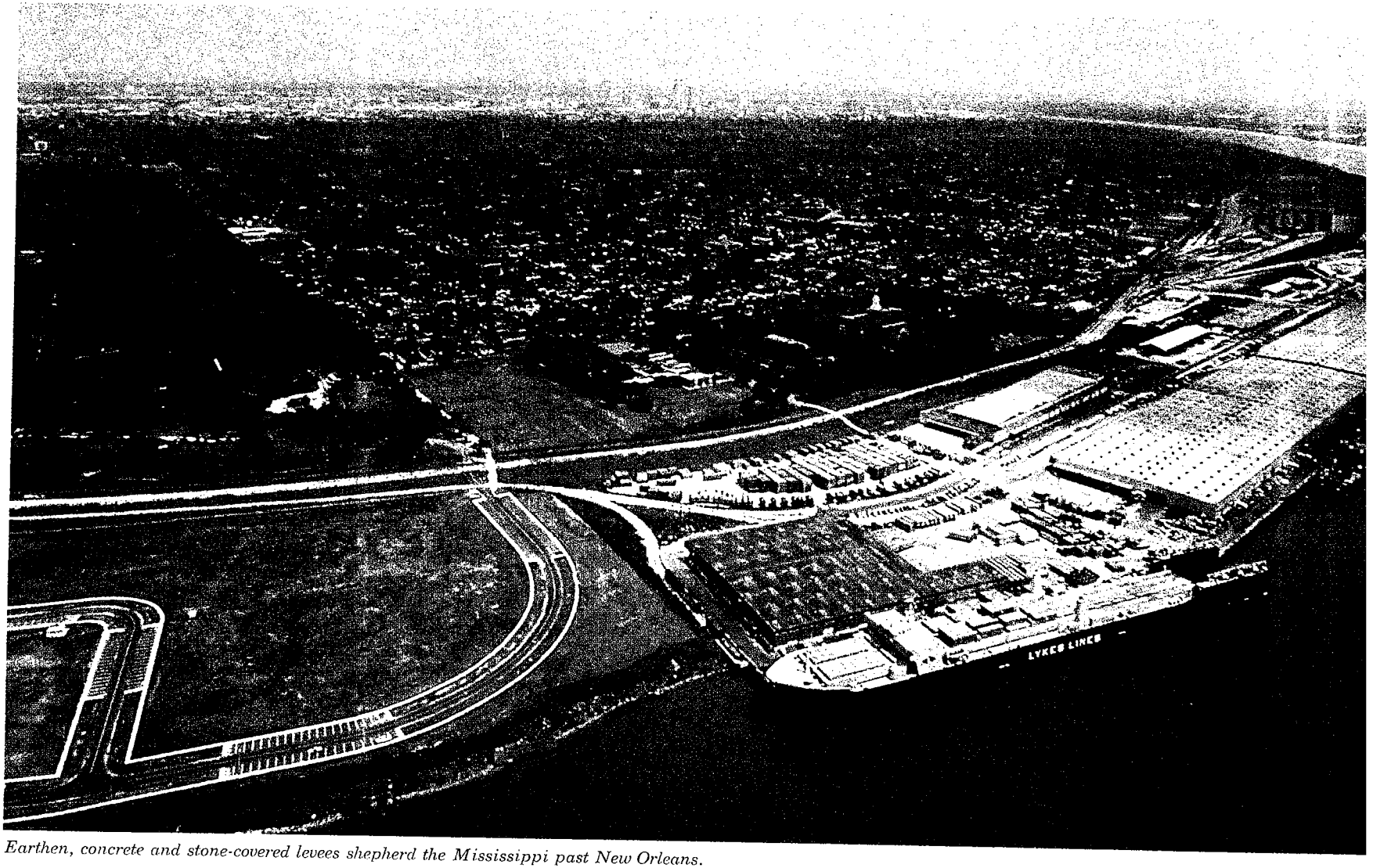
Further state legislation enabled the Levee Board to establish a legal-financing staff and an engineering department. They are now organized in two divisions:

1. *Engineering*—responsible for the planning, construction and maintenance of flood control works and other physical facilities of the Levee Board, including residential and commercial planning of reclaimed land.
2. *Administration*—responsible for execution of the Levee Board's fiscal, logistical and personnel affairs, as well as supervision of the New Orleans Lakefront Airport, Orleans Marina and the various leases let by the Levee Board.

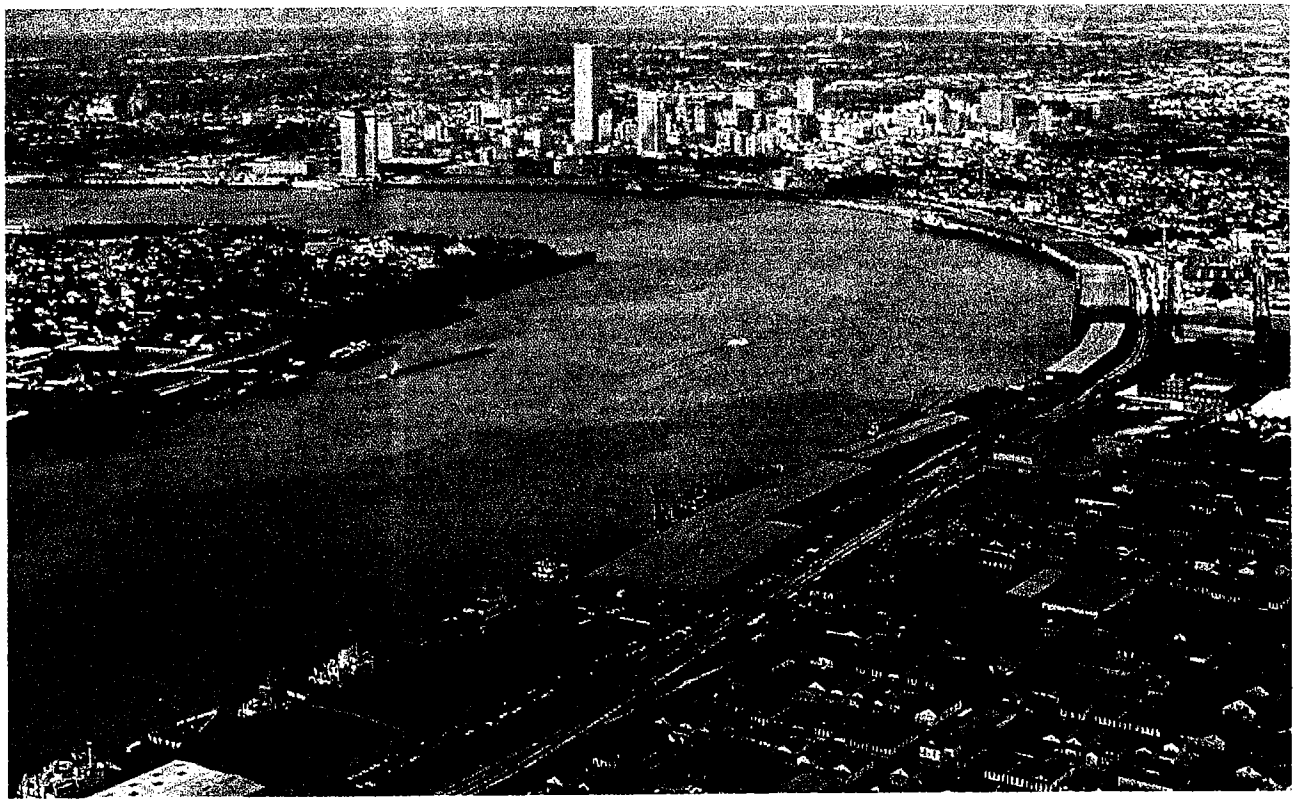
Excluding the commission members, all employees of the Levee Board were placed under the Civil Service System by an act of the Legislature in June, 1953. Its present staff of 270 includes a 55-man police force.

The capital funds available to the Levee Board are derived from the ad valorem taxation on all assessed real property located in Orleans Parish.

Since the establishment of the Board the tax millage rates have fluctuated. Highest rate was 5½ mills between the years 1939 and 1954; lowest is the present rate of 2½ mills which was established in 1963 through legislative action. The Board is currently requesting an increase in millage rate to implement the raising of levees for better hurricane protection.



Earthen, concrete and stone-covered levees shepherd the Mississippi past New Orleans.



Levee system exists beneath docks of the nation's second largest port.

Without question, the Mississippi River has enriched the city of New Orleans and the state of Louisiana, both physically and economically. It is a navigation artery of great importance, carrying an ever-growing commerce. The river supplies water for the cities and industries in Louisiana which have located along its banks. More and more the Mississippi's importance is emphasized as the state grows.

The Mississippi, America's greatest river, begins at Lake Itasca in Minnesota and flows 2,340 miles before it finally pours its torrent of water into the Gulf of Mexico, about 120 miles south of New Orleans.

Exceeded only in size by the Amazon and Congo Rivers, the Mississippi has the world's third largest drainage basin. It drains 41 percent of the 48 contiguous states of the United States, with a basin covering almost 1¼ million square miles. This includes all or parts of 31 states and two Canadian provinces, and roughly resembles a huge funnel which has its spout in Louisiana at the Gulf. Waters from as far east as New York State and as far west as Montana contribute to flows in the lower portion of the river.

In its lower valley, the river flows through one of the most fertile regions on earth. This area, which includes Louisiana, is long noted for its highly productive agricultural economy. In recent years, it has also become highly industrialized. This industrial growth is still going on.

Although it is one of the nation's outstanding assets, the Mississippi may well be considered the prime asset of the state and, especially, New Orleans. In addition to permitting agricultural and industrial growth, the river has helped to give Louisiana the second largest port in the nation.

All of these factors make the protected area of Orleans Parish, the heart of metropolitan New Orleans, more valuable to the state's general economy and point up the importance of the river.

Uncontrolled, however, the river would be just as great a liability. A river is beneficial to the area through which it flows as long as it is made to work for the region and not permitted to destroy it.

TAMING THE RIVER

Since Louisiana is the final junction of the Mississippi, the onrush of the giant waterway is felt more in this state than any other. Over 7500 miles of navigable waterways and countless additional miles of bayous and lakes course through the state's fertile lands. As a result, Louisiana flood control work reaches greater magnitude than in any other portion of the nation.

Levees had to be built to control the waters.

It began with privately financed and constructed levees to protect towns and plantations along the river, then progressed through gradually increasing interest and assistance of the national government, including the creation of the Mississippi River Commission; and finally culminated in the Flood Control Act of 1928, when the problem was recognized and assumed as a national responsibility, but with the help of local groups, such as the state-authorized Orleans Levee Board.

EARLY LEVEES

French settlers were the first recorded builders of flood control works in the Lower Mississippi Valley. In 1717, Jean Baptiste LeMoyne, Sieur de Bienville, founder of New Orleans, had his engineer, De La Tour, construct a series of protective levees to hold back the floodwater from the town.

When completed in 1727, this levee system was the first to be built on the Mississippi. Although it was only 5,400 feet long, and two or three feet high, it made the construction of New Orleans possible.

By 1735, the levee lines on both sides of the river extended from about 35 miles above New Orleans to about 12 miles below.

In spite of levee protection, the 1849 flood was the most disastrous to that time. The levees crevassed in the Carrollton area of New Orleans and the water flowed south. As the flood struck each of five or six districts of the city, the citizenry of each district would punch holes in their levees to shift the water from them into the next area. Eventually the entire city went under and remained that way for six weeks.

The following year another great flood prompted Congress to pass the so-called "swampland acts," which granted river basin lowlands to Louisiana and other areas with the provision that the proceeds of their sale be used for building levees and drainage works to reclaim lands.

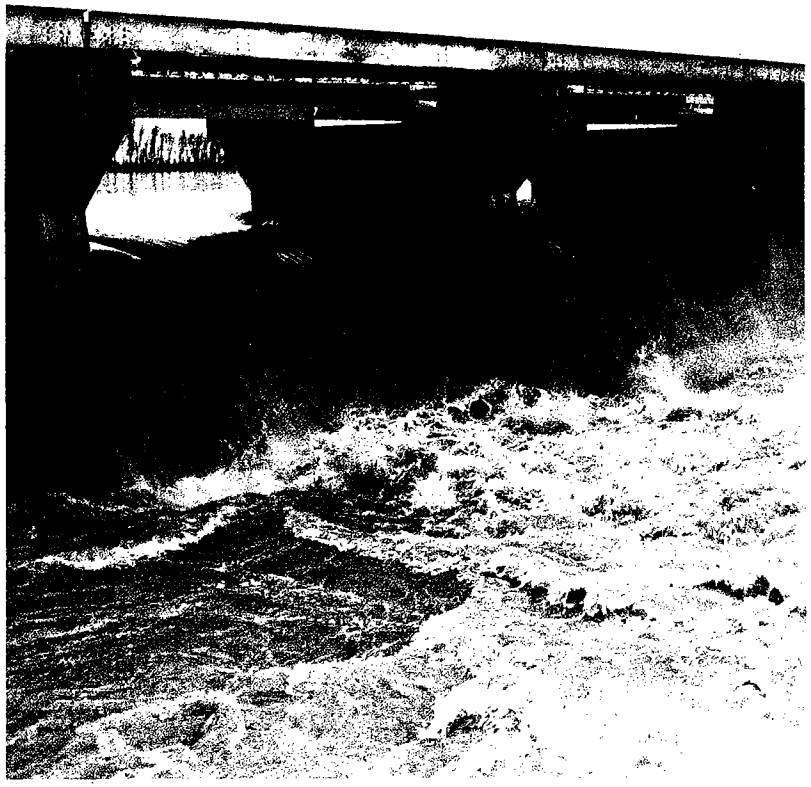
Flooded streets were no unusual sight in 1920's.

Although the Congressional acts were not the answer to the flood protection problem, they were a step toward a solution.

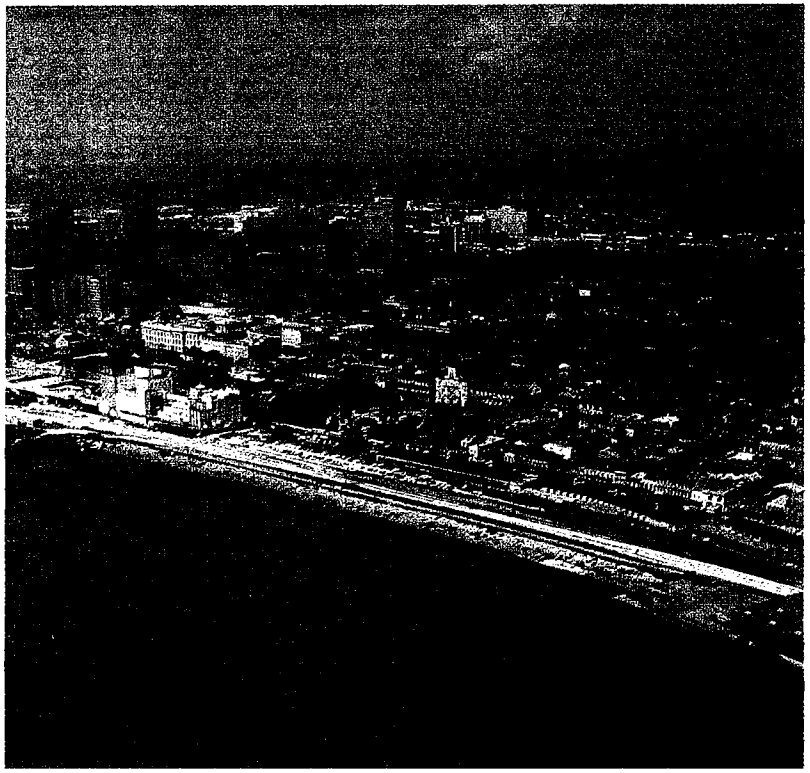
In 1879—one year before the creation of Levee Boards by the Louisiana Legislature—a new period of levee development began when Congress created the Mississippi River Commission. One of its primary tasks was to coordinate the building of levees in the lower river valley with the work to be accomplished through the U.S. Army Corps of Engineers Districts. One of these Districts was later established at New Orleans.

Local involvement in flood control work took on new meaning in 1917 when a federal act required local interests to pay at least one-third the cost of the levees. This made the whole system of levees only as strong as its weakest link, and there were frequent levee breaks.

In the spring of 1927, the worst flood ever to hit the Mississippi River Valley struck New Orleans with incomparable fury. To protect the city's population, property and industry from extensive harm, lower St. Bernard and Plaquemines Parishes were evcauated and the levee was dynamited below New Orleans at Caernarvon. This relieved pressure on the city's levees over the protests of armed trappers and farmers who wished to protect their lands from being inundated.



Bonnet Carre Spillway, built in 1932, protects lower Mississippi River delta.



Stone covered levees fronting Jackson Square afford river view to French Quarter.

This dramatic episode ended the era of private involvement in the construction and maintenance of river levees. Protection became a matter of public import.

Today construction of these levees is the duty of the U.S. Army Corps of Engineers, operating under the 1928 Federal Flood Control Act. The Orleans Levee Board, however, has the responsibility of maintaining the river levees after construction. This includes at the present almost 27 miles of levees fronting on the Mississippi.

New Orleans sits like a saucer, rising to heights above sea level at its edges and gradually descending to sea level or below at its mid-section. The highest natural ground lies adjacent to the Mississippi River, 14 feet above sea level at Canal Street and the river. Elevations sink to plus 10 feet at Jackson Square, plus four feet in the Tulane University section, and two feet below sea level at the intersection of Broad Street and Washington Avenue.

Low elevations have made it necessary to encircle the city with levees averaging 9.5 to 10 feet in height. In the Carrollton section levees reach 25 feet above sea level.

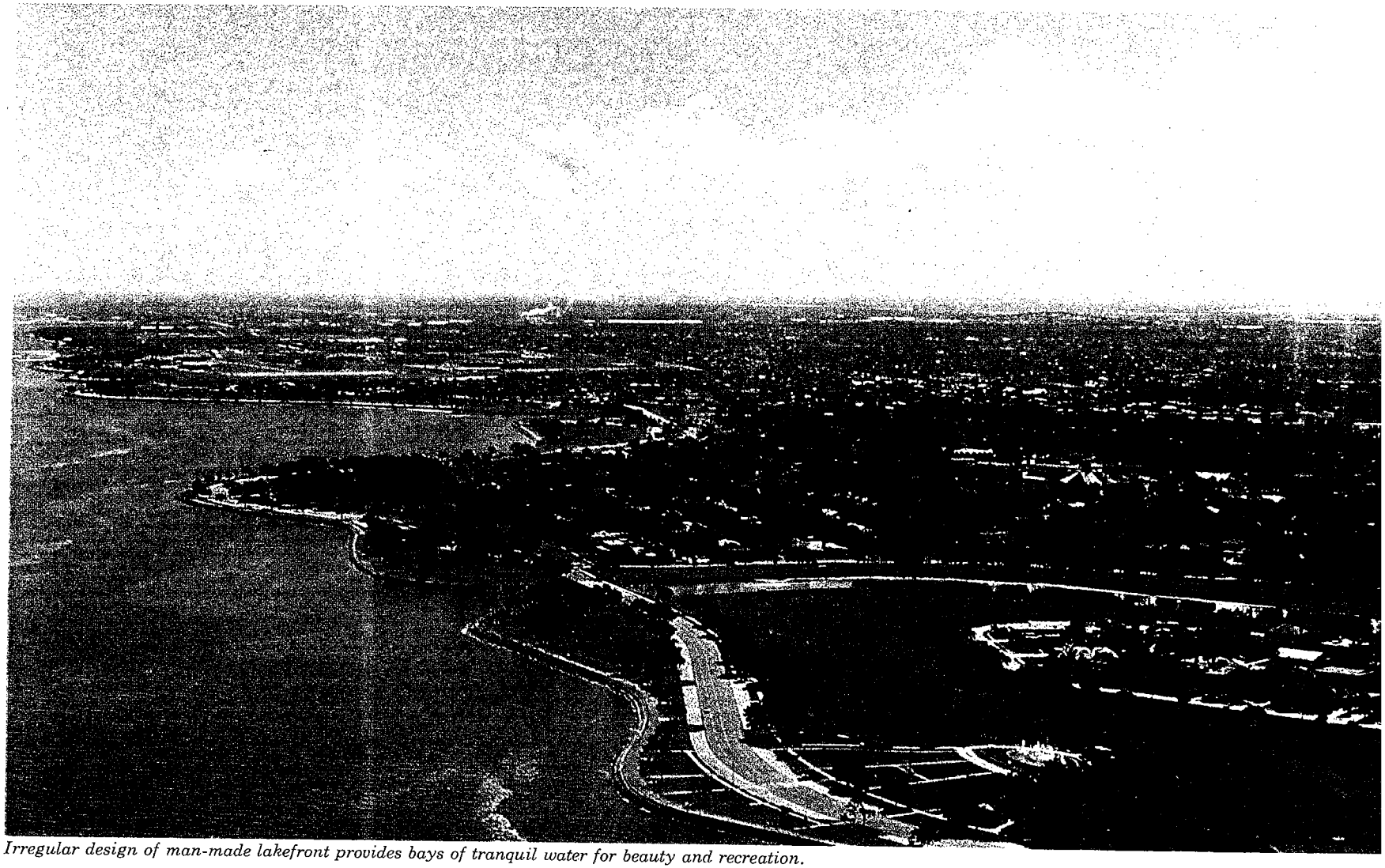
Since New Orleans lies so close to the water and its land is expensive, concrete floodwalls have been substituted for earth levees in many instances, where practical.

Almost all of today's river levees have been completed to a full height and width of the base established by the 1928 Federal Flood Control Act.

In the last decade the levees have been supplemented with spillways for additional safety. Latest addition of these structures by the Orleans Levee Board is an overbank spillway about 45 miles south of New Orleans. Called the Pointe a la Hache Relief Outlet, this 13-mile-long structure was acquired and is being maintained by the Board for discharge of a part of the river flood waters.

Upstream spillways and New Orleans levees together can handle a projected flood of three million cubic feet per second, far more than the highest previously recorded flood. Spillways would divert 1.75 million feet above the city, leaving the levees to channel 1.25 million feet safely past the city.

It has taken well over two centuries to build a levee system to protect life and property with any degree of certainty. Although modern engineering feats have rendered the river comparatively tame, the Orleans Levee Board still respects the giant waterway.



Irregular design of man-made lakefront provides bays of tranquil water for beauty and recreation.

THE LAKEFRONT RISES

The lakefront in 1927. Camps on pilings stretched over marsh and mud flats to the edge of the lake.

It is almost inconceivable to many people visiting the southern shores of Lake Pontchartrain, bordering on the north side of New Orleans, that this entire development was once the bottom of the lake.

Known as the New Orleans Lakefront Project, this area of 2,000 acres of land was reclaimed from the lake and made available for residential, commercial and recreational use in the period, 1926-1934.

It now includes: five residential neighborhoods; the Orleans Marina; Pontchartrain Beach and Amusement Park; the Louisiana State University in New Orleans (LSUNO); Lakeshore Drive Park, the New Orleans Lakefront Airport and several industrial sites carefully incorporated within the area to complement the overall image of the lakefront.

This reclaimed land area extends for a distance of 5.5 miles, from the western boundary of the city to the New Orleans Lakefront Airport. Its width projecting into the lake varies to give attractiveness to the shoreline and the park.

Originally, no industrial and no university land uses were planned; all land uses primarily were to be residential, a little commercial and about 30 percent recreational.

The New Orleans Lakefront is a flood control project.

Prior to its development this formerly marshy swamp land area sustained a collection of fishing camps, affording little protection from the waters of Lake Pontchartrain. When the wind blew, the water just came in.

Development of the Lakefront began as a protective measure along the shore. Its purpose was to replace the substandard levees and unhealthy conditions occasioned by the marshes with sufficient high land and protective structures to secure the city from another area of flood disasters. The occurrence of high tide and hurricane winds made it imperative that adequate measures be taken to protect the shoreline and the city.

A concrete, stepped seawall was adopted as the best means of providing the greatest flood protection while deterring the increasing erosion of the shoreline. To provide sufficient high land

the area behind the seawall was filled hydraulically, making available 2,000 acres of land for use and occupancy.

The idea of a lakefront development project originated in 1873 when W. H. Bell, city surveyor, formulated a plan that presented the possibilities of combining flood protection with land development.

Almost 55 years later the Legislature authorized the Orleans Levee Board to implement the idea.

Prior to that, in 1924, Board engineers had drawn up a plan to reclaim and improve the shoreline of the lake. The proposal covered the physical phases of such a massive project and a financial plan which would enable the development of the 2,000 acres of reclaimed land to be nearly self-liquidating.

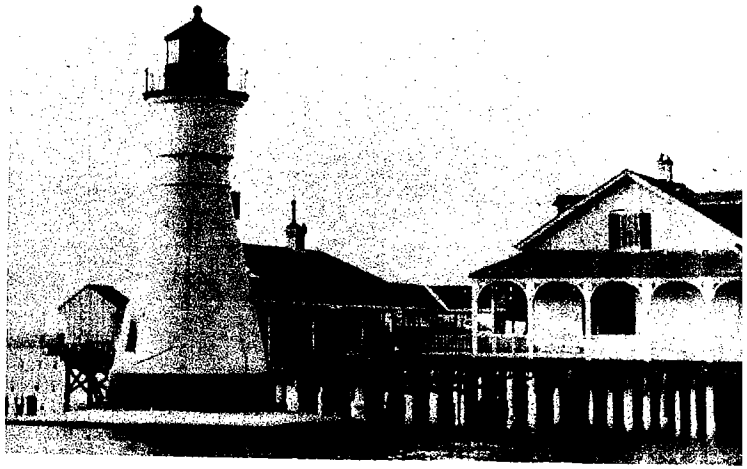
Physical elements incorporated in the plan were aimed at creating a waterfront resort, with an irregular-shaped shoreline forming the beachfront which would extend virtually all along the entire 5.5 miles of improvement.

The proposal laid the groundwork for the ultimate adoption and completion of plans which were implemented into the present lakefront development. As a result of confronting the Levee Board with the size and scope of this undertaking, the plan was the catalyst that started the machinery moving in the direction of constitutional revision necessary to bring it to reality.

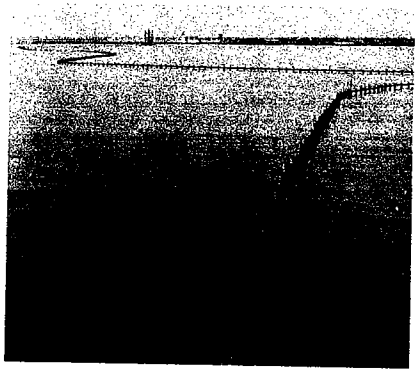
It made the Levee Board aware of the various elements of land development with which it would of necessity become involved. The success and feasibility of the plan hinged on the ability of the Board to sell the reclaimed land, opening up the lakefront to commercial and residential development.

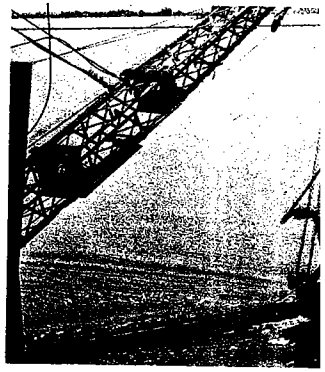
The plan was well balanced and generous in its provisions of recreational space. It realized that there must be a balance in space between sufficient lots on the one hand to defray the expenses of the project and too many lots on the other for convenient absorption of the New Orleans community. The key to the accomplishment of the project depended upon a balancing of saleable lands against the probable cost of the project.

In 1926 the Orleans Levee Board issued four million dollars in bonds which made possible the pumping of the first 36 million cubic yards of hydraulic fill, creating new land from marshes and swamps. Completed in 1930, the land fill encompassed the present area between Robert E. Lee Boulevard and the lake from the New Basin Canal to the Industrial Canal.



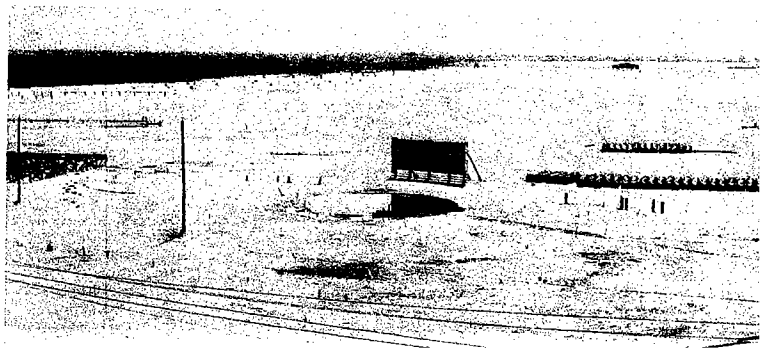
Historic Milneburg lighthouse now rests on dry land.





Bulkhead of pilings in lake and dredging were first steps in reclaiming lake bottom.

Concrete steps are set in place at edge of pumped-in hydraulic fill.



Results, a new 2,000 acre tract of land behind 5½ miles of seawall.

N. O. Lakefront Airport seen on approach. City skyline in background.

Almost 70 years of aeronautical progress has brought the countries of the world in close proximity to one another. However, in spite of the rapidity in which man flies from point to point aviation faces a distinct handicap. The larger and faster airplanes become, the more land is required for them to take off and to land. Consequently, airports are situated in extreme outlying areas of cities to avoid densely populated sections. This results in air passengers losing more time going to and from airports than is gained by flying from one city to another because terminals are so far away from central business districts.

New Orleans is blessed in that only six miles from the heart of the city is an airport with unlimited room to expand.

The New Orleans Lakefront Airport, located on Lake Pontchartrain just east of the Industrial Canal, was built on a man-made peninsula by the Orleans Levee Board almost 40 years ago. It was no accident. It was the result of careful study and considerations in the late 1920's by the Levee Board planners who advocated a lakeside air facility.

Site of the airport was selected with a view to future growth and development, and because of the many avenues of accessibility it afforded. It did not involve the purchase of real estate because it was part of the lake bottom, already state property. Also, it did not thrust a large tract of land squarely in the path of future municipal developments.

To make land available for this elaborate project, the Levee Board had driven a 1,000-foot retaining wall into the lake and pumped in six million cubic yards of hydraulic fill to raise the field above the water.

Built at a cost of $4.5 million, the airport had a field measuring 3,000 feet x 3,000 feet, thus qualifying for the U.S. Department of Commerce AA-1 rating.

When completed in 1933 as part of the Lakefront Project, the airport was acclaimed throughout the aviation world as the finest combined land and water facility found this side of the Atlantic Ocean. It was considered the nation's most modern airport. In a short time, it began to service the highest types of transoceanic flights. New Orleans became known as "Air Hub of the Americas."

Within a few decades after its opening, rapid technological advances in aviation rendered the airport obsolete for larger, faster aircraft. They required runways longer than the airport's original 3,000-foot airstrip. The commercial airlines moved their operations to Moisant Airport far out in Jefferson Parish, more than 10 miles from downtown New Orleans.

Short as runways were, New Orleans Lakefront Airport continued to handle a surprising number of private, executive, commercial freight and military flights. Each month it recorded 12,000 flights on runways which allowed medium-sized planes little margin for error in calculated landings.

In recent years, however, construction of the new north-south runway extension has been completed as the first phase of a planned $16-million expansion and improvement program of the airport by the Levee Board.

The north-south runway is now 5,600 feet plus 1,200 feet of overrun, for a total usable paved runway of 6,800 feet. It will eventually be lengthened an additional 600 feet to tie in with a planned 6,000-foot east-west instrument runway extending more than 3,000 feet into Lake Pontchartrain.

Seadrome facilities, now available adjacent to the east wall of the airport, will be improved to handle increasing numbers of seaplanes and amphibians using the airport.

Since its opening, the airport has featured an ultra-modern administration building. Key feature of the central structure is a 60-foot tower with an unobstructed view of the landing field and approaches.

The airport also contains ten hangars which house various services and aircraft storage facilities. One of the hangars, on the east side of the airport is maintained by the Louisiana Air National Guard. It also houses the seaplanes of the Louisiana Wildlife and Fisheries Commission.

Today, New Orleans Lakefront Airport, Louisiana's busiest —and 37th busiest in the nation—annually handles more than 277,000 flight operations.

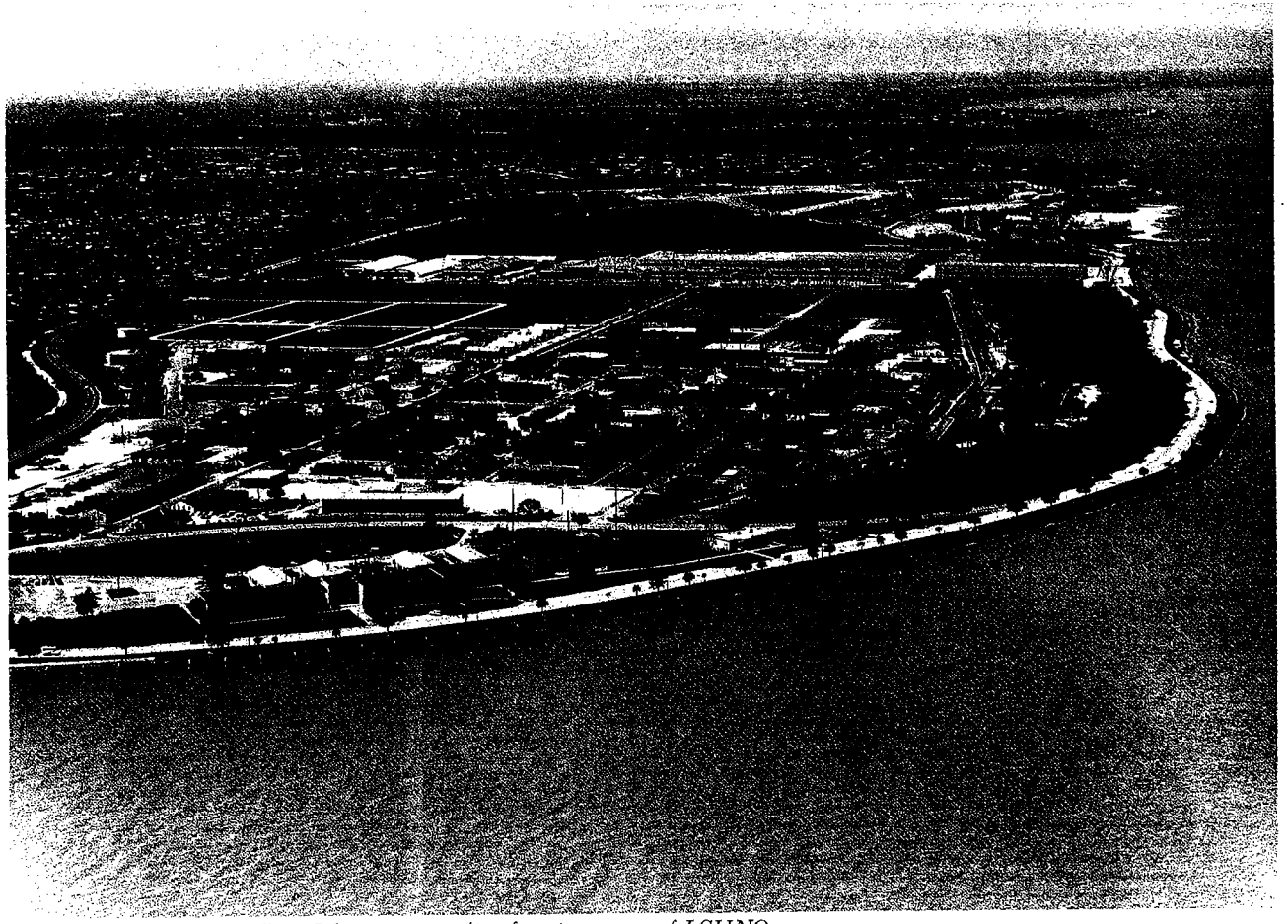
But with longer runways—and a peninsula east-west runway in the lake—New Orleans Lakefront Airport would be ready to handle the most advanced commercial jet planes, including the upcoming supersonic . . . and accomplish this with a minimum of noise and traffic pattern irritation to residential areas.

Tower atop Administration Building affords clear view in all directions.

Airport location reduces flights over populated areas—affords room for expansion.

Members of airport fire unit shown during drill.

THE MILITARIZED LAKEFRONT



Aerial view of Camp LeRoy Johnson, now site of east campus of LSUNO.

When the Lakefront Project began, no one envisioned the outstanding role it would play in the nation's defense.

During World War II, this new land was used for military purposes. The subdivision development was brought to a halt. The 2,000 acres of New Orleans' shoreline were ready for armed forces installations.

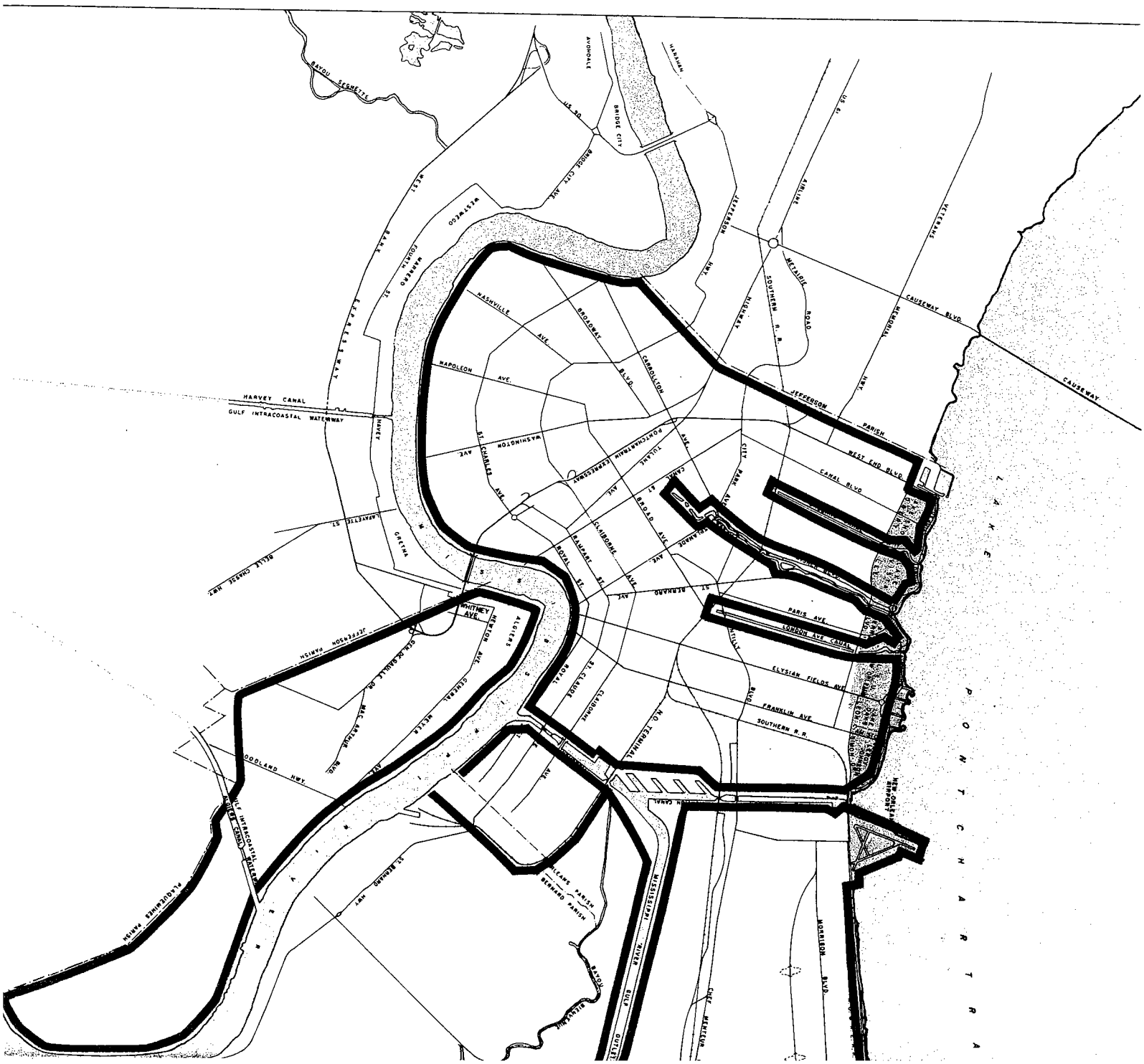
Almost overnight, in 1942, the lakefront bristled with activities that came to read like a roster of the nation's armed services: The U.S. Army's LaGarde General Hospital; the U.S. Coast Guard Barracks; the U.S. Navy Hospital; the Maritime Commission School; the U.S. Naval Air Station; the U.S. Army Recreation Center and the U.S. Army Bomber Base.

Industry, too, located along the lake to turn out defense materials.

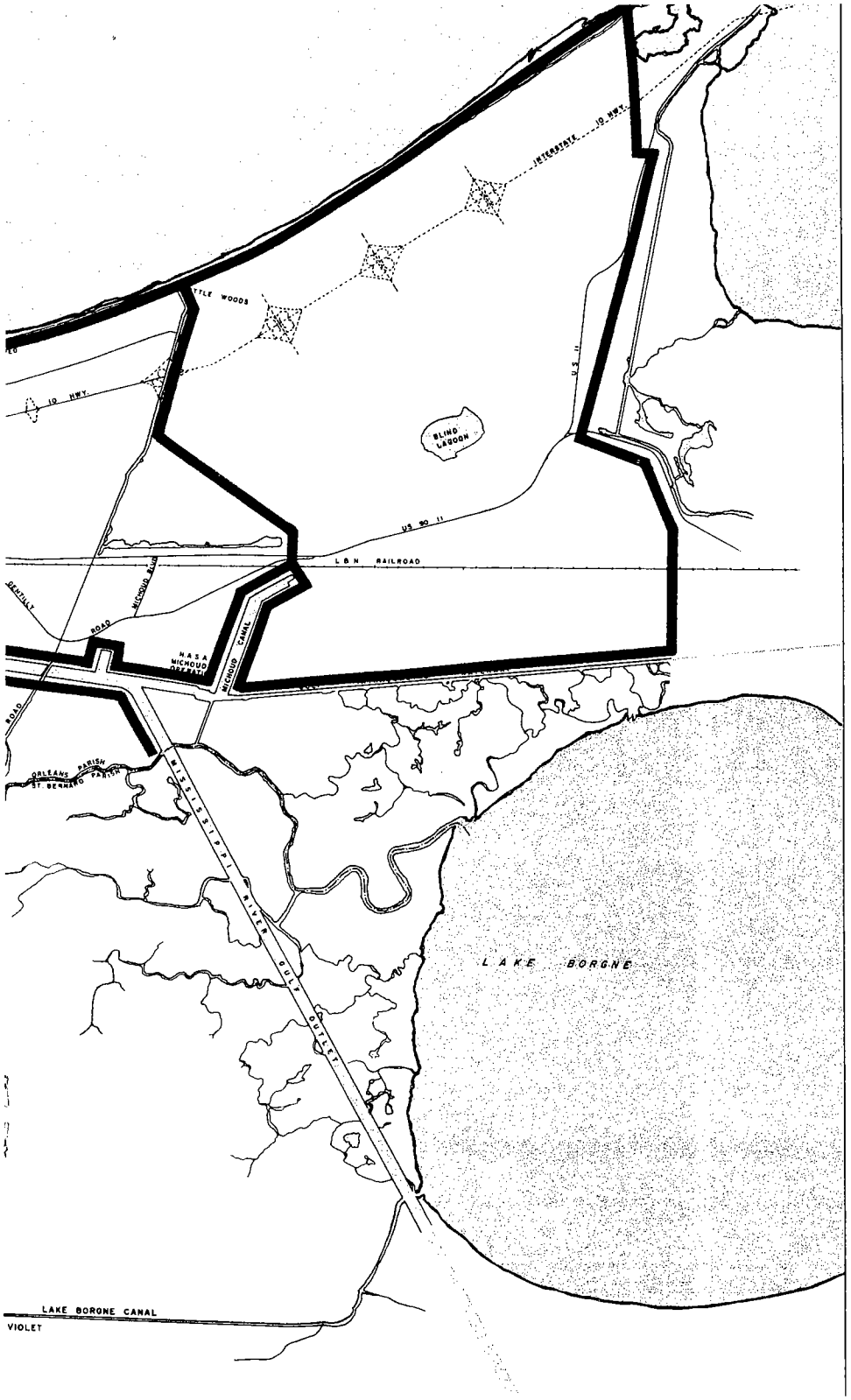
There was an aircraft plant that manufactured flying boats. The lake itself became a testing area for the famed PT boats that were being built in New Orleans. Higgins boats and a variety of other assault and landing craft—also of local origin—used the lake's stepped seawall as a laboratory to simulate actual invasion stress which the crafts were built to take.

Even after the war the lakefront continued to serve an important role in the nation's military complex. The Naval Air Station, Camp LeRoy Johnson (Port of Embarkation) and a Coast Guard base remained active during the next two decades.

A Naval Reserve Training Center, an Army Reserve Center and the Louisiana Air National Guard base at New Orleans Lakefront Airport are the only remaining armed forces installations today on the lakefront.



BAYOU SEGNETTE
AVONDALE
HARAHAN
US 90
BRIDGE CITY
BRIDGE CITY AVE.
WEST BANK EXPRESSWAY
WESTWEGO
MARRERO
FOURTH ST.
JEFFERSON HWY.
US 61
AIRLINE
VETERANS
METAIRIE ROAD
SOUTHERN R.R.
HIGHWAY
MEMORIAL HWY.
CAUSEWAY BLVD.
CAUSEWAY
NASHVILLE AVE.
BROADWAY BLVD.
CARROLLTON AVE.
NAPOLEON AVE.
HARVEY CANAL
GULF INTRACOASTAL WATERWAY
HAVEY
JEFFERSON PARISH
WEST END BLVD.
CANAL BLVD.
WASHINGTON AVE.
ST. CHARLES AVE.
PONTCHARTRAIN EXPRESSWAY
TULANE AVE.
CANAL ST.
CITY PARK AVE.
LAFAYETTE ST.
GRETNA
BELLE CHASSE HWY.
CLAIBORNE AVE.
RAMPART ST.
ROYAL ST.
BROAD AVE.
ST. BERNARD AVE.
WHITNEY AVE.
ALGIERS
NEWTON AVE.
GEN. DE GAULLE DR.
GENERAL MEYER AVE.
MAC ARTHUR BLVD.
JEFFERSON PARISH
PARIS AVE.
LONDON AVE. CANAL
ELYSIAN FIELDS AVE.
FRANKLIN AVE.
SOUTHERN R.R.
ST. CLAUDE
CLAIBORNE
N.O. TERMINAL
BLVD.
DODDLAND HWY.
GULF INTRACOASTAL WATERWAY
ALGIERS CANAL
PLAQUEMINES PARISH
ST. BERNARD HWY.
ORLEANS PARISH
BERNARD PARISH
MISSISSIPPI RIVER GULF OUTLET
BAYOU BIENVENUE
CHEF MENTEUR
MORRISON BLVD.
NEW ORLEANS AIRPORT
LAKE PONTCHARTRA



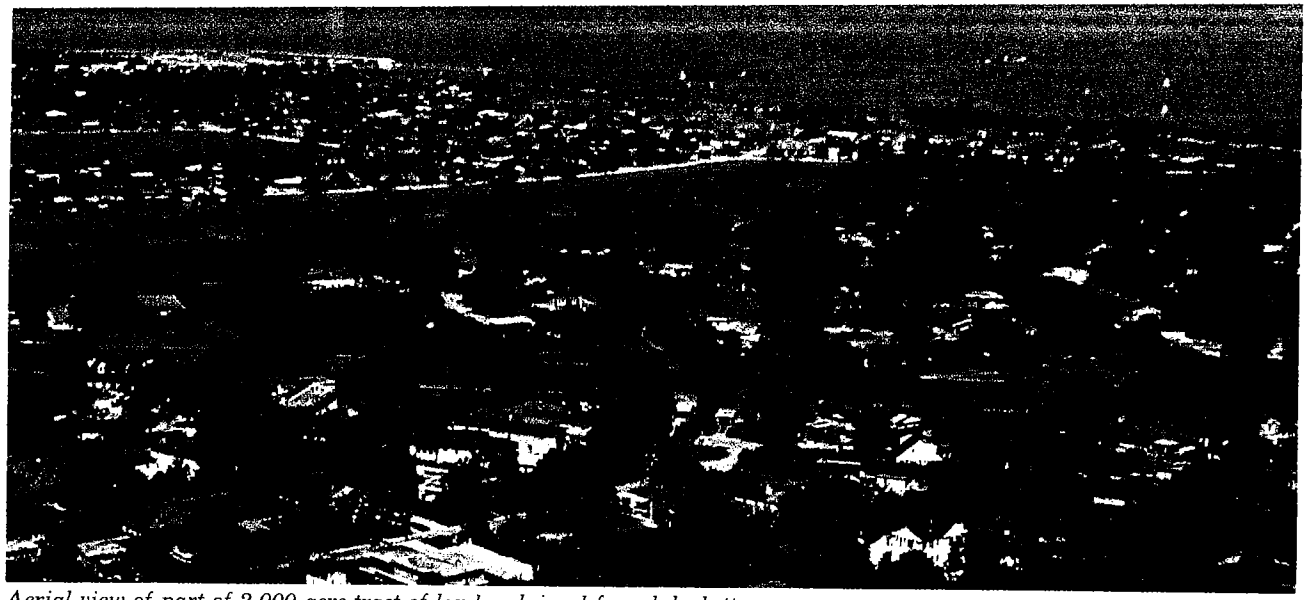
NEW ORLEANS LEVEE SYSTEM AND LAKEFRONT RECLAIMED AREAS UNDER JURISDICTION OF THE ORLEANS LEVEE BOARD

Frontier and Inner Protection Levees

Residential/Park Areas and New Orleans Lakefront Airport

Nearly 129 miles of levees under jurisdiction of Orleans Levee Board protect the city. Levee along southern bank of Mississippi River-Gulf Outlet is currently being completed.

LAKE BOTTOM URBANIZATION



Aerial view of part of 2,000 acre tract of land reclaimed from lake bottom.

It took almost 45 years (1925-1971) of continuous planning and development by the Orleans Levee Board to assure an urban area of high social and physical quality for the lakefront of New Orleans.

By 1972 the area contained five residential neighborhoods with a variety of residential types. Two shopping centers were planned: one still functions as a shopping center, and is growing; the other is now primarily used for professional office space. Through the years the original plans were modified to provide for some industrial sites; the Gulf South Research Institute and for the campuses of Louisiana State University in New Orleans.

The Lakeshore Drive Park, Pontchartrain Beach and Amusement Center and the Orleans Marina have become recreation facilities used by all New Orleans and the metropolitan area.

New Orleans Lakefront Airport, once one of the nation's major air terminals, may again be moving toward greatness if expansion plans become a reality.

The Lakefront's safe, high land, created primarily by hydraulic fill, is a high value asset economically and socially for all New Orleans and the state. It strongly exemplifies the quality return of systematic urban planning.

Many problems such as planning, the Depression, World War II, hurricanes and politics have plagued the long-range Lakefront development. The final quality product illustrates that through all of these deterrents the basic planning has weathered well.

Landfill for the ultimate subdivisions was allowed to settle for a number of years before lots were sold for home construction. The Levee Board planted thousands of trees, installed utilities and sub-surface drainage and planned streets in each subdivision. It was a tremendous construction project.

LAKE VISTA

Lake Vista was the first section of the new land to be subdivided and sold as residential lots. Formally opened in 1936, the project's land improvements were completed in 1938. The west half, consisting of 547 parcels of land, was placed on the market shortly before the nation's entrance into World War II. During the war much of the remaining lakefront was used by the military. Due to the restrictions and scarcities imposed as a result of the war, building and purchase of homesites in Lake Vista came to a standstill.

When peace returned, the military installations along the lakefront disappeared gradually. The Levee Board returned to its program of developing and beautifying the area.

Covering 410 acres, the Lake Vista subdivision is bounded by Orleans Canal, Lake Pontchartrain, Bayou St. John and Robert E. Lee Boulevard. By April of 1946 all of the lots available in the west half of the project were sold. The east half was then opened for the construction of homes. Now fully developed, Lake Vista holds 847 homesites, a community center, churches, a school and parks.

LAKESHORE

In 1951, under the Levee Board's supervision, the zone known as Lakeshore subdivision was opened to residential development. This area is bounded by the New Basin Canal, Lake Pontchartrain, Orleans Canal and the Robert E. Lee Boulevard.

It was divided into two parts by Canal Boulevard—West and East Lakeshore neighborhoods.

West Lakeshore was built on the former site of the U.S. Army's LaGarde Hospital. The area has 256 residential sites. It also contains a shopping center and a small apartment area.

East Lakeshore, which was planned to match its twin, was developed into a neighborhood following the deactivation of the Navy's Hospital. This included the area from Canal Boulevard to the Orleans Canal.

In 1955, the Levee Board opened East Lakeshore with the sale of 352 lots. Utilities, paving and drainage, water and sewerage systems were installed.

LAKE TERRACE

In 1953, the Levee Board offered for sale 440 home sites in Lake Terrace, the third neighborhood to be opened. The area, bounded by the lake, London Avenue Canal, Robert E. Lee Boulevard and Bayou St. John, contains 255 acres, of which 93 are dedicated to parks.

This neighborhood is restricted to single family residences. It has no commercial area.

Winding bayou and canals slice through lakefront residential area.

LAKE OAKS

In 1964, the fifth new subdivision on the Lakefront to be opened by the Levee Board was the Lake Oaks neighborhood.

The area, once a lakeside recreation spot called Milneburg, was a favorite retreat for New Orleanians fleeing the city's summer heat. Today, the only remaining evidence of those by-gone days is the Milneburg Lighthouse. Built in 1838, this historical landmark is maintained by the Levee Board in keeping with its policy of retaining as much as possible of New Orleans' heritage.

The Lake Oaks neighborhood now accommodates 290 homesites and a 52-acre picnic area and playground between Lakeshore Drive and the first row of lots.

There have been, and are, other land uses for the area in which Lake Oaks is located. Adjacent to the residential neighborhood, in a section between London Avenue and Elysian Fields Avenue, was a U.S. Naval Reserve Air Station.

The area now houses a campus of Louisiana State University in New Orleans (LSUNO). In 1956, the Levee Board leased this 192-acre site to the university for 99 years, at one dollar per year. This became the educational facilities' west campus.

The east campus of LSUNO—almost 101 acres—was leased to the university in a portion of the site once occupied by Camp LeRoy Johnson. After the U.S. Army deactivated the military base in 1964, the site reverted back to Levee Board supervision and, in addition to the university, other facilities moved in. Gulf South Research Institute leased almost 44 acres for its laboratory; approximately 22 acres were leased by military reserve units and four acres were retained by the Levee Board as a vehicle-deployment area.

Seven hundred feet of the area to the west of Franklin Avenue was purchased by the American Radiator and Standard Sanitary Corporation for manufacturing and warehousing facilities.

The area also contains Pontchartrain Beach, which gives final emphasis to the variety of land uses of the Lake Oaks area.

ORLEANS MARINA

In 1962, the Orleans Marina was completed at the west end of the lakefront. Formerly a graveyard of oyster luggers, this shoreline area now contains 800 boat slips and boat houses.

The Marina is also base for the Levee Board vessel, *The Rescuer*. It is the only rescue vessel on the Lakefront that is manned and ready seven days a week. In addition to its lifesaving duties,

Open in all seasons—and free of charge—this world's longest "grandstand" paralleling Lakeshore Drive is the refuge for all who want to relax, with activities as diversified as fishing, crabbing, casting for shrimp, sunbathing or swimming. They may watch boat racing or yachts sailing on the lake . . . or just take it easy.

The Orleans Levee Board has dedicated the shoreline to public use. Probably no other lake or seashore in the United States has been made so free or is as widely used. Improved shorelines in other cities are usually set aside for private use.

It is a fact that most of the recreational facilities for a metropolitan population of nearly a million are grouped on the shores of Lake Pontchartrain. These facilities are maintained and policed by the Levee Board, and its crews work around the clock by land, sea and air to keep the area safe, clean and attractive.

THE "GRANDSTAND"

Unknown to most pleasure seekers who use the seawall as a grandstand to view lake activities, the seawall was designed primarily for flood control.

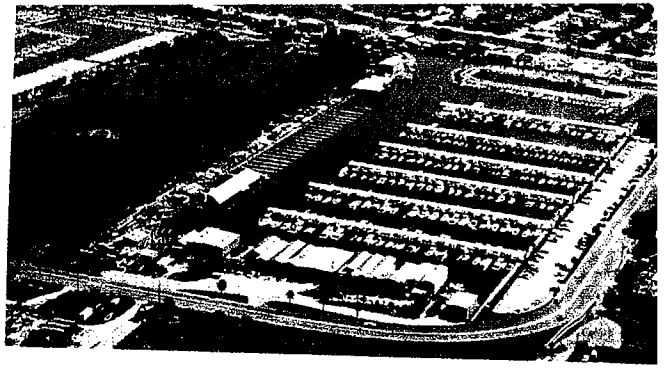
Levee Board members in the 1920's went to Florida after a disastrous hurricane there, to inspect several seawalls to determine what type would stand up best against the intermittent pounding of eight and 10-foot waves in Lake Pontchartrain.

The Florida inspection trip revealed that the step-type seawall offered maximum protection, as it permits waves to roll up its slopes and spend themselves at its top, except during severe storms.

A straight, vertical wall, it was learned, offered such a blunt obstruction to a wave that in pounding against the wall it would shoot 20 feet or more above the wall. Also, spillage of lake water over the wall is increased, and it creates such a backwash that the wave action is accentuated, causing larger waves.

Construction of the lakefront step-type seawall began in 1930 and was completed almost 2½ years later at a cost of $2,640,000. A similar protective measure would be much more costly today.

In the years since it became a reality the seawall has withstood several and frequent gales and hurricanes without a single break. Landfill behind the wall may wash out on occasion, but engineers say it is as sound as when it was built.

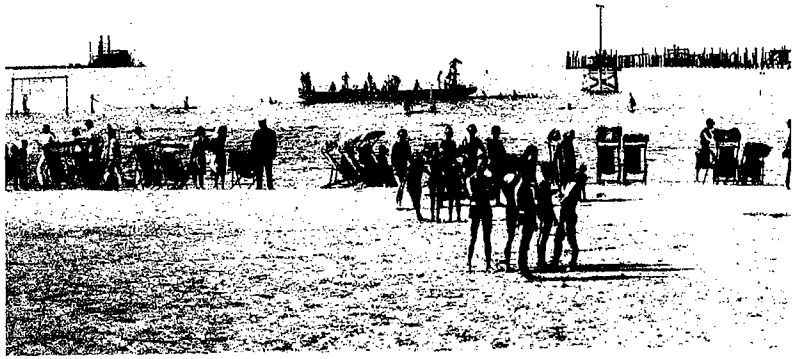


The Orleans Marina has already outgrown demand for slips.

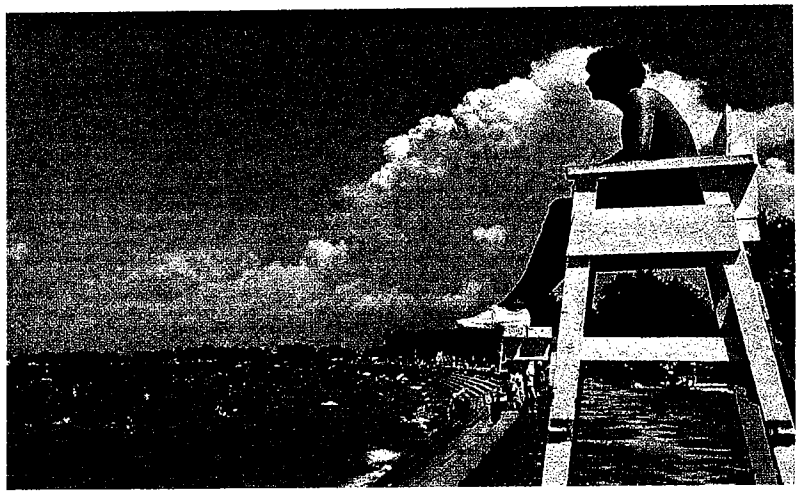
Levee Board police force supervises lakefront activities, protects area and Levee Board property.

Crabbing and fishing from seawall steps.

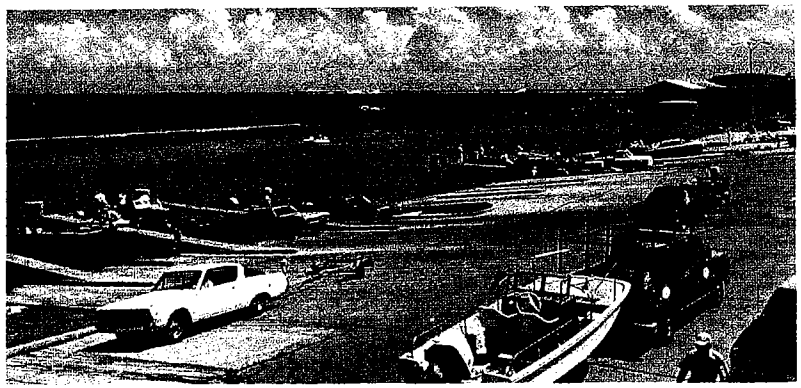
Picnickers abound in lakefront parks.



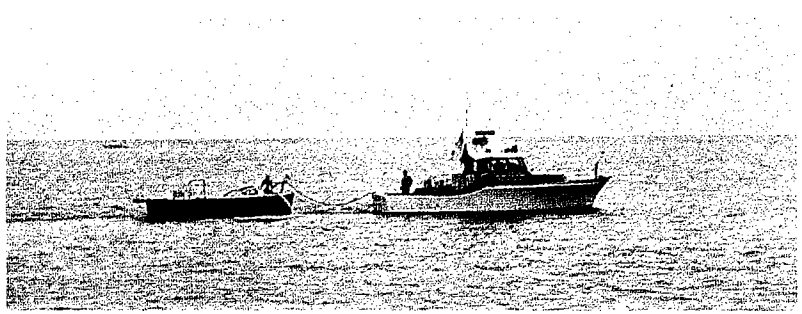
Bathers at Pontchartrain Beach, 1931.



Swimming today. Lifeguards serve at "Old Beach" and Seabrook Beach.



Boat ramps provide free access to lake.



"Rescuer" rendering service to stricken boat.

New Orleans had an unusual situation.

Although it is practically surrounded by water there was no broad, white sand beach in its immediate vicinity until the Orleans Levee Board built one of the country's finest along the shoreline of Lake Pontchartrain.

Since its dedication in 1934, Pontchartrain Beach has been a favorite playspot for visitors to the metropolitan area as well as for countless thousands of New Orleanians.

The Levee Board found creation of the beaches to be a complex engineering problem. Workers had to dredge down 40 feet below the lake bottom to find a hard clay base for the beach. Subsequently, tons of white sand barged in from Horn Island in the Mississippi Sound were systematically dumped on the base . . . and a beach was born.

True to its description as New Orleans' "backyard" beach, it is readily accessible to the area it serves. Its site, at the foot of Elysian Fields Avenue—on the perimeter of the Lake Oaks neighborhood—was selected because the artery, a major through-street between the lake and the river, could route heavy beach-bound traffic quickly.

During the summer season, thousands of bathers and sun-worshippers of all ages flock to the lifeguard-supervised beach, which is 2,300 feet long and 400 feet wide.

Behind the beach, shelters, arcades and other structures front on a wide midway. In 1955, it was landscaped handsomely with palm trees and a retaining wall to hold back drifting sand.

The Pontchartrain Beach Amusement Center is leased to a concessionaire who maintains numerous rides, fun houses, games and refreshment facilities, in accordance with Levee Board standards. An adjoining paved parking area of 23 acres is free to the patrons of the Beach.

Prior to its opening in the 1930's, Pontchartrain Beach's predecessor was called Spanish Fort Amusement Park. Not nearly as extensive or attractive as the present beach, the Spanish Fort recreation area was located at Bayou St. John and the lake. The historical site still stands today and is maintained by the city of New Orleans.

Although the amusement facilities are gone today, the "old" beach area is still being utilized by New Orleanians. The Levee Board continues to maintain the area and, during beach hours, its lifeguards supervise swimming activities and maintain order.

Industry behind levees along Tidewater Channel includes massive NASA Michoud Facility (background).

Since its opening in 1968 the Mississippi River - Gulf Outlet has provided a shorter ship route to the Port of New Orleans and allows for the orderly expansion and growth of the Port, now the nation's second largest.

This new 75-mile "tidewater channel" to the Gulf of Mexico cuts almost arrow-straight through the marshes east of New Orleans to terminate at the Industrial Canal. It cleaves 40 miles from the present 110-mile route to the passes of the Mississippi.

In addition to providing an alternate ship route to the Port of New Orleans, the Gulf Outlet allows for the orderly growth of the Port. New areas for wharves and industrial expansion have become available along its route through Orleans Parish.

To prepare for the eventual increased occupancy of land in the immediate vicinity of the Gulf Outlet, the Orleans Levee Board maintains almost 15 miles of levees and floodwalls along its Orleans Parish banks.

Construction of the nearly $100-million Mississippi River - Gulf Outlet was made possible by the Industrial Canal, which since its opening in 1923 has proved to be the workhorse of Orleans Parish's navigable waterways. Now it is working hand in hand with the new Gulf Outlet to continue the growth of commerce and industry in the state as well as in New Orleans.

RECENT HURRICANES

In the past 25 years alone, Orleans Parish residents recall vividly a few vicious hurricanes that left their marks indelibly branded on the land . . . and on the minds of those experiencing the deadly assaults.

In 1947, before such storms were given names, a hurricane swept over the New Orleans area causing extensive wind damage and the flooding of hundreds of acres of land. The flooded area, then sparsely inhabited, now comprises much of the residential and industrial section of East New Orleans.

But more recently—and more vividly stressing the need for higher levee protection—were Hurricanes "Betsy" and "Camille."

"BETSY"

During the night of September 9, 1965, Hurricane "Betsy" moved through Southeast Louisiana. It was one of the greatest and fastest moving Gulf of Mexico hurricanes of this century . . . and the most destructive of record on the Louisiana coast.

The center crossed the coast near Grand Isle about 10 p.m., CST, moving northwestward at a rapid 20 miles per hour pace. The eye was 40 miles in diameter as it reached the coast and remained about the same until it passed west of New Orleans, after which it gradually filled.

The coastal areas of Southeast Louisiana and Mississippi were hard hit by winds and tides which resulted in extensive flooding by sea water.

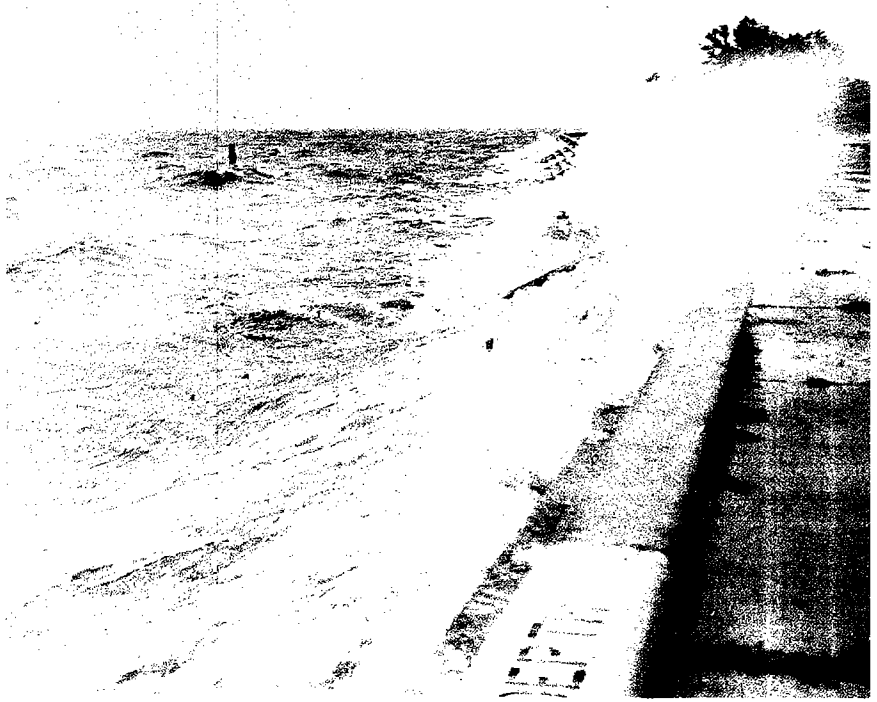
In downtown New Orleans, the extreme wind was estimated at 125 miles per hour. Below the city the winds reportedly reached a force of 150 miles per hour.

The Mississippi River at New Orleans rose from a low stage of 2.2 feet on the morning of September 9 to a crest of 12.4 at the peak of the storm. The main surge, an 8-foot rise, occurred during a four-hour period beginning at 7:50 p.m., CST.

Heavy rainfall, ranging from three to seven inches, occurred over much of the Lower Mississippi and Lower Ohio River Valleys. New Orleans reported 5.13 inches.

The known death toll reached 57, mostly from drowning in the flood area of Greater New Orleans, east of the Industrial Canal and south of the Intracoastal Waterway.

Great losses from wind and water occurred in New Orleans, and damages to all of the communities south and southeast of the city were extensive. Losses in the state were near one billion dollars.



Storm-swept Lake Pontchartrain spends itself against seawall steps.

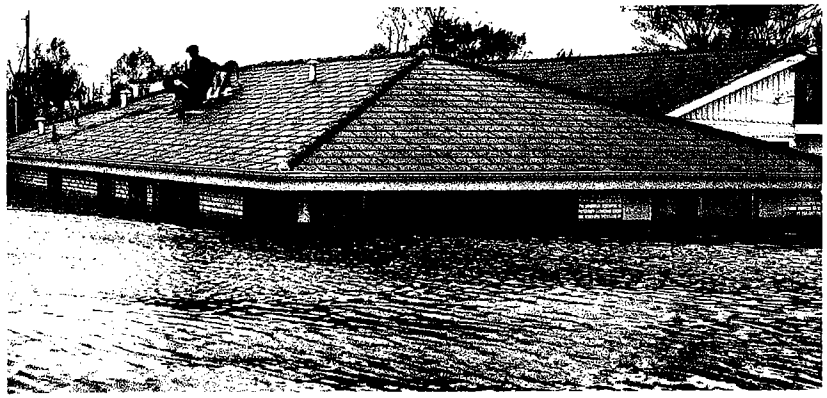
Industries in the southeastern portion of the state, especially the oil and utility companies and the shipping interests, had tremendous losses. Much crop loss was reported also in the state.

As a large part of New Orleans is below sea level—up to six feet in some sections—it would have been flooded if tidal or gravity drainage was employed. An extensive system, with a capacity of 28,000 cubic feet per second, pumps out all storm water. It is the most powerful in the world.

The strong east and southeast winds, associated with "Betsy" over the Gulf waters southeast of New Orleans, drove water into the marshes around Lake Borgne, between the Mississippi River delta and the Mississippi Gulf Coast. The high river levees in New Orleans contained the 10-foot rise in water from the morning's low stage.

However, the levees around the canals and waterways east of the river in New Orleans are not as high as the river levees and could not contain the water. Overtopping of levees in St. Bernard Parish added to the city's woes.

Canal Street during "Betsy."



Rooftops were haven for many victims of "Betsy."

Overtopping and breaking of levees at places along both sides of the Industrial Canal and the Intracoastal Waterway by the tidal surge, introduced enormous quantities of salt water into very large areas.

"CAMILLE"

On August 17, 1969, one of the most intense hurricanes ever recorded, sideswiped New Orleans and the deep delta country of Louisiana and slammed into the Mississippi Gulf Coast. It left a nightmare of death, personal hardship and destruction.

The hurricane's top winds were estimated at an astounding 201.5 miles per hour! . . . and the barometric pressure in her calm eye dropped as low as 26.61 inches of mercury, second lowest of all recorded hurricanes.

The hurricane surge at Pass Christian, Miss. was recorded at 22.6 feet above the normal level of the Gulf. Scattered evidence indicates that it may have risen higher.

Although not in the direct path of "Camille," Orleans Parish sustained damages of about $9.8 million.

Since all of the Parish's developed areas vary in elevation from a few feet above to almost six feet below sea level, systems of levees and related structures maintained by the Orleans Levee Board are needed for protection against flooding.

During "Camille," the existing levee system functioned to exclude overflow from nearly all of the urbanized area.

However, failure of a small section of the protective network along the west bank of the Industrial Canal, caused flooding and minor damage in a small, densely populated area near St. Claude Avenue.

Outside of the protected areas substantial damages occurred between the levees along the Industrial Canal, along the south shore of Lake Pontchartrain from New Orleans Lakefront Airport to beyond Paris Road at Little Woods, along U.S. Highway 90 between Highway 11 and the Rigolets.

Minor damages were experienced along the New Orleans Lakefront where the Orleans Levee Board maintains the stepped concrete seawall and a levee located 300 to 800 feet landward of the wall.

The Board's levees and/or floodwalls paralleling the numerous drainage outfall canals, Bayou St. John and the Industrial Canal prevent outflanking of the lakefront protective system.

During the hurricane, wind-driven waters of Lake Pontchartrain piled up on the north shores of Orleans Parish causing wave overtopping of the seawall.

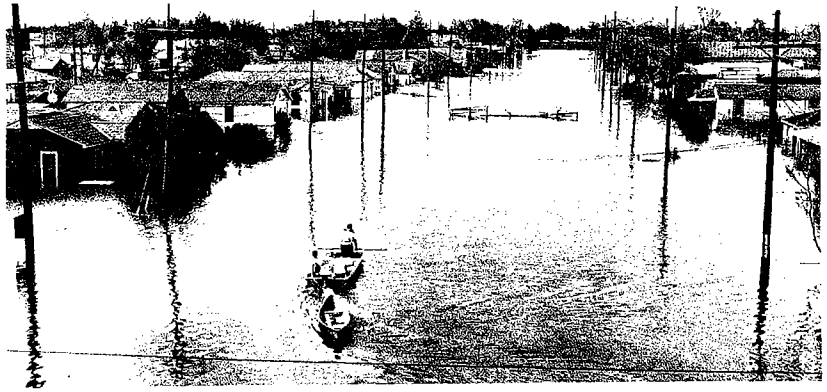
The secondary levee was not overtopped; however, for a short time floodwaters from the lake entered into the protected areas by way of the Canal Boulevard roadway at the levee crossing. This flow was removed simultaneously with its entry by means of the interior pumping system. An emergency sandbag closure was effected and no flooding occurred in this area.

On the day that "Camille" roughly sideswiped New Orleans, the 1:00 p.m. bulletin from the National Hurricane Center in Miami, Fla., began . . .

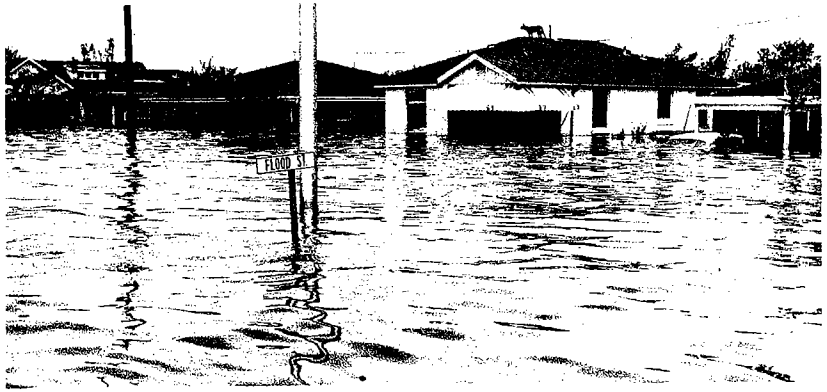
> " 'CAMILLE' . . . EXTREMELY DANGEROUS . . . CONTINUES TO MOVE TOWARD THE MOUTH OF THE MISSISSIPPI RIVER . . . THREATENS SOUTHEAST LOUISIANA COAST EASTWARD TO EXTREME NORTHWEST FLORIDA . . ."

At this juncture of the storm, it was heading toward New Orleans. The turning point—most fortunate for the city—came

More than 77,000 acres of residential neighborhoods of New Orleans suffered up to 9 feet of flood water following "Betsy." Lower Parishes suffered even more.



Private hulls evacuated trapped residents.



Dog is lone occupant of street with prophetic name.

Housing projects under water in lower N.O.

The aftermath of "Betsy."

sometime between the issuance of the 1:00 p.m. bulletin and the 3:00 p.m. one which opened . . .

> " 'CAMILLE' . . . EXTREMELY DANGEROUS . . . CENTER NEAR THE MOUTH OF THE MISSISSIPPI RIVER . . . BEARING DOWN ON THE MISSISSIPPI-ALABAMA COAST . . ."

If one can reflect for a moment the matter of the hurricane staying on its course as projected by the first bulletin and striking with its full fury the city of New Orleans, the potential devastation resulting from this demoniacal storm may not be fully accountable to this day.

This possibility was considered some years ago by the National Hurricane Center of the U.S. Department of Commerce—before "Camille." A computer was programmed with information noting that a storm with "Camille's" intensity had not altered its course eastward, but rather remained "on target" with New Orleans.

The computer's results were astounding. Heavy flooding would have occurred from the passes of the Mississippi to as far as Sorrento, 40 miles past New Orleans—a total distance of some 150 miles!

Depth of the water would vary in this vast hurricane-made "lake." In New Orleans, for instance, Canal Street, the city's downtown key artery, would be under 10 feet of water.

Finally, the extreme severity of such a disaster is indicated in the projected death toll. According to U.S. Army Corps of Engineers' officials, the computer estimated almost 100,000 people would lose their lives!

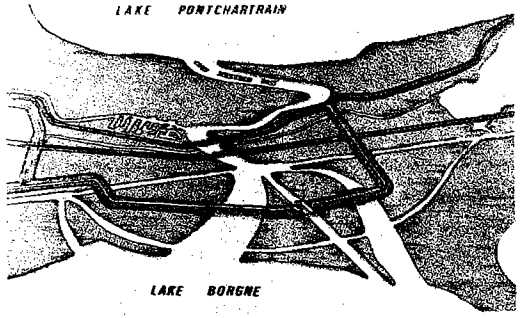
This cannot be allowed to happen.

Obviously, there is a great need for raising the levees in the New Orleans area along the lakefront and inland waterways to prevent the disaster predicted by the Corps of Engineers from happening in future storms of the magnitude of a "Betsy" or a "Camille."

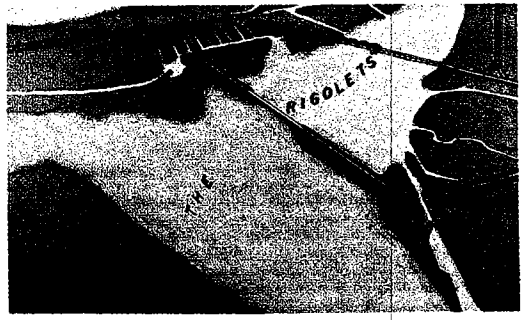
Studies to determine the construction costs, benefits, cost sharing and related matters involved in raising Orleans Parish levees have been under way. But the Orleans Levee Board needs the help of the Legislature *now* to authorize additional capital with which to fulfill its obligation to insure adequate protection from the ravages of flood.

The time to act is now . . . before it's too late.

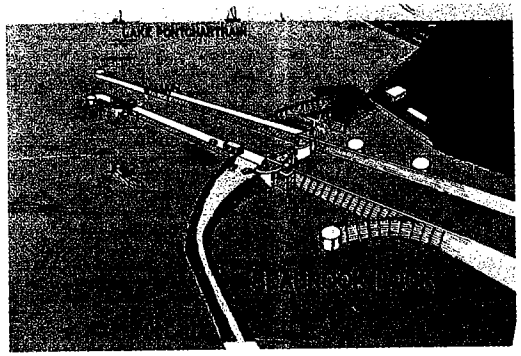
Retouched photo of Canal Street, main thoroughfare of New Orleans, to show it under flood waters predicted by National Hurricane Center if a hurricane with the force of "Camille" (satellite photo at upper left) should follow "disaster path" for New Orleans and delta region.



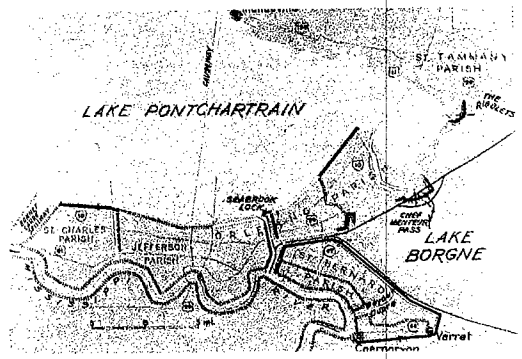
Navigation structure at Chef Menteur Pass.



Hurricane locks at The Rigolets.



Lock at Seabrook, Lake Pontchartrain entrance to the Industrial Canal.



Overall plan. Levee raising (white lines), new levees (red lines) and flood walls (green lines).

FEDERAL HURRICANE PROTECTION PLAN

Raising levees in Orleans Parish is not a whim of the Levee Board merely to spend money. It is for the safety and well-being of almost 700,000 people and for the protection of scores of industrial and commercial contributors to the city's and state's vital economy and source of revenue.

This project is strongly advocated by the U.S. Army Corps of Engineers in its much-needed, proposed hurricane protection project for the New Orleans area.

The basic plan, which is really a flood control project, consists of two independent protective plans, namely the "Lake Pontchartrain Barrier Plan" and the "Chalmette Area Plan."

The Lake Pontchartrain Barrier Plan consists generally of a barrier across the eastern end of the lake to limit hurricane-generated tidal surges from entering the lake from the Gulf. The barrier is comprised of a lock and a control structure at the Lake Pontchartrain end of the Industrial Canal, navigation and flood control structures at Chef Menteur Pass and The Rigolets, and adjoining barrier levees which, in conjunction with the U.S. Highway 90 embankment, will form a continuous line of protection from eastern Orleans Parish to St. Tammany Parish, southwest of Slidell.

By coordinated operation of the barrier structures, the hurricane tide levels in the lake can be restricted to low stages, assuring a high degree of protection against flooding to developed areas around the lake and reducing levee grade requirements for land areas around the lake. Studies have indicated that under some severe conditions, the structures and embankments may be overtopped by waves, but the overflow volume will not significantly alter lake levels.

Another feature of the barrier plan provides for construction and/or improvement of the levees and floodwalls along the Orleans Parish lakefront, the Industrial Canal and the north side of the Mississippi River - Gulf Outlet in Orleans Parish.

In addition to serving as part of the barrier, a proposed Seabrook Lock in the Industrial Canal will also serve to control high current velocities in the canal, provide flood stage relief to the canal's industries and limit saltwater intrusion from Lake Pontchartrain.

The Chalmette Area Plan, an independent feature of the overall protection project, advocates a ring-type protective system around that part of Orleans and St. Bernard Parishes between the Mississippi River and the Mississippi River - Gulf Outlet.

The system consists of construction and/or improvement of levees and floodwalls and extends from the river to the Gulf Outlet along the east side of the Industrial Canal, then along the south shore of the Outlet from the canal to Verret, then westward to the river levee at Caernarvon.

EMERGENCY OPERATIONS

Although hurricanes are expected usually between June and November in the Gulf, it is a year-round activity of the Orleans Levee Board to protect the city of New Orleans from the ravages of flood. Emergencies due to high tides can occur at any time of the year.

It is for this reason that the Levee Board has formulated and implemented an Emergency Operation Plan. It is divided into three parts:

Preparations and Surveillance
High Tide Emergencies
Hurricane Emergencies

PREPARATION AND SURVEILLANCE

With New Orleans located between Lake Pontchartrain and the Mississippi River and its eastern flank exposed to tidal fluctuations from the Gulf of Mexico, the Board maintains year-round constant inspection of the city's 129-mile flood protective system, as well as vigilant observation of conditions and circumstances that could foretell an emergency.

To coordinate this phase of the plan, the Levee Board maintains a continuing communications with all interested local, state and federal agencies and affected industrial and commercial ventures in the area. In addition, all Levee Board departments, including the managerial staffs of the Orleans Marina and the New Orleans Lakefront Airport, are assigned specific duties to perform.

HIGH TIDE EMERGENCIES

Anytime throughout the year prolonged southeasterly winds can raise tide elevations alarmingly in a very short time. The Levee Board realizes this, and maintains routine tide elevation checks. If rising tides threaten to enter the city through some low-elevation floodgates, specific departments of the Levee Board are alerted and dispatched to the possibly affected floodgates to assess and correct the situation.

HURRICANE EMERGENCIES

From the time a hurricane is spawned as a wave in the tropics, the Levee Board plots its path from reports and bulletins issued by the weather teletype.

The plotting board has three different colored semi-circles indicating distance from New Orleans, i.e., yellow for 750 miles, orange for 500 miles and red indicates 250 miles.

The colors designate the different alert conditions under which the entire staff of the Levee Board will function during the emergency.

Yellow Alert—750 Miles . . . When a hurricane passes this line, its final destination is still impossible to predict. However, if plots indicate a possibility of the storm heading toward New Orleans, the Levee Board's engineering staff and operations and maintenance department swing into action performing previously assigned duties.

Orange Alert—500 Miles . . . At the moment a hurricane moves within this distance and has coordinates that indicate a probability of its striking somewhere along the northern Gulf Coast, set duties are performed by the same Levee Board departments which functioned during the previous alert, in addition to the staffs of Orleans Marina and the New Orleans Lakefront Airport.

All other departments maintain normal operations unless needed to perform duties relating to the impending storm.

Red Alert—250 Miles . . . Shortly after a hurricane passes this line and is predicted to come ashore in the New Orleans vicinity, gale force winds are expected. As these winds (45-75 miles per hour) may extend out 150 to 250 miles in advance and hurricane winds (75 miles per hour plus) have been known to extend up to 90 miles in advance of the eye, Levee Board personnel are directed to complete final storm preparations within 8 to 12 hours after the "red alert", depending on the distance that winds precede the hurricane and its forward speed.

During this crucial alert Levee Board personnel are advised to use their radio equipment only for emergency calls.

Every Board department and employee is designated to operate and perform duties in a manner previously described by the Board's commissioners.

Prior to the onset of the hurricane all Board activities and functions in preparation for the storm should be completed, including any emergency conditions reported or observed by Board personnel.

After the storm has passed a complete check of the entire Orleans Parish flood protective system is made to verify levee integrity and assess any damage. All flood gates would remain in a closed position until otherwise directed solely by the Board president.

In addition, the monitoring of tide elevations would be intensified because of possible tidal back-lash, and any erratic behavior of tides would be reported.

Finally, damage to the flood protective system would be repaired as quickly as possible.

WHAT ABOUT TOMORROW?

What happens if a monstrous hurricane such as "Camille" bears down on the streets of New Orleans?

. . . will almost 100,000 people lose their lives?

. . . will almost 20 percent of the population of Louisiana become homeless with many facing poverty?

. . . will the nation's second largest seaport, the state's key commercial-industrial center be threatened with near annihilation?

. . . will the source of almost 20 percent of the state's tax revenues drown in a hurricane-made sea?

. . . will the state and federal governments be forced to lend heavy financial assistance to reconstruct human lives and property?

These threats to life, property and financial security are more than possibilities resulting from a force more powerful than a man-made nuclear explosion. But they can be reduced to a minimum if adequate hurricane protection is afforded the city of New Orleans.

The price is high, but a project of this nature is vital—it is a matter of life or death. It cannot be measured in dollars.

The Orleans Levee Board is dedicated to create and maintain a barrier against the evil of hurricanes. But to fulfill this purpose in today's economy, the Board must have more revenue.

This great need for additional funds did not happen over night. Nor was it a result of the Levee Board spending imprudently on non-vital activities.

Since its inception 82 years ago, the Board has been operated in a sound, business-like manner. Its members, for the most part, have been leaders of commerce and industry who have attempted to keep the body free of political maneuverings. Efficiently supported by a professional staff of civil service aides, these men have been dedicated to making sure the area is a safer place in which to live, work and play.

And the Orleans Levee Board is different from others. Its Commissioners serve the public without pay; it has its own engineering department; it operates and maintains an airport, and it is one of the few boards directly concerned with hurricane protection . . . and it is the board which protects the most lives.

And, since its members and supporting staff live in the area they serve, the Board is thoroughly familiar with and personally affected by the unique problems continually arising from the many miles of water which surround and bisect New Orleans.

Its accomplishments accent the manner in which it has been operated as a business venture. The New Orleans Lakefront, basically a flood control project which protects the city from inundation, has practically paid for itself—without considering the additional miles of public lands utilized as parks, playgrounds, LSUNO campuses and other public uses.

And one of these is the New Orleans Lakefront Airport, a major contributor to the income of the city and state. In addition, it is the sole facility in the New Orleans area which serves only private and charter flights, whereas similar service is provided by 11 fields in the Houston area; 15 in the Dallas-Fort Worth vicinity.

When its excess funds warranted it, the Board voluntarily agreed to the reduction of its tax millage. From a high of 5.5 mills in 1954, the Board supported redirecting 3 mills to other vital state activities . . . and it did so while retaining a reserve against unforseen financial requirements, as any good business would do.

The existence of this reserve protected the state from possibly losing $33,911,608.00 in federal funds for initial phases of hurricane protection after defeat at the polls in 1970, and again in early 1972, of a constitutional amendment which provided for the local share of the cost. Without these funds the federal funds are not available.

The Levee Board utilized its reserve to provide the state's financial share of the initial costs of the program.

This "11th Hour" action, in conjunction with apparent continuing reduction in oil royalties from Levee Board lands—down 20 percent last year—and the all-time low of 2.5 mill tax, has placed the Board in an uncomfortable financial position.

As a result, the Board needs additional income to implement hurricane protection and to maintain even at minimum standards other activities it directs in the area it protects and serves.

Without sufficient additional revenue, the Levee Board cannot construct and maintain higher levees to insure adequate protection against the ravages of hurricane-generated waters.

This important mission must be accomplished . . . and soon. Without it, both the city and the state will sustain immeasurable losses if a hurricane with unusual intensity struck tomorrow.

Today, then, preparations must begin to protect against tomorrow's catastrophic possibility.

The Orleans Levee Board, always ready and willing to prevent a hurricane-generated disaster, will be able to do so only with additional adequate funds.

The time for action is now . . . tomorrow may be too late.