

### Miami Real-Estate Boom of the 1920s

- Image as a tropical paradise after Railway arrived at "Ft Dallas" in 1896.
- Incorporated as "Miami" that year
- City began to grow during post-WW I prosperity
- Heavily promoted during the 1920s
- Inflating a speculative realestate bubble
- Footnote: Prohibition lasted 1920-1933



# By the Middle 1920s...



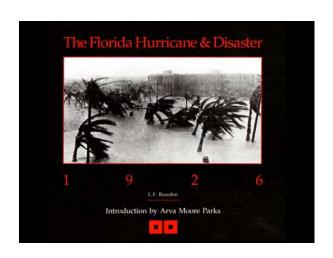
- Adverse press & nervous bankers has slowed the speculative frenzy
- Over-extended speculators were not finding eager buyers
- Shortage of building materials
- Prinz Valdemar capsized blocking the Port of Maimi turning basin

# Great Miami Hurricane of 1926

- Cape Verde storm
  Noticed on 11 September
  Passed by the Leeward Is. Puerto Rico &
  Hispaniola
  Entered the Bahamas on Sep 17th
  Few reports reached Miami ahead of the
  storm
  Squalls reached Florida 11:30 PM
  Eye went directly over downtown
  Maximum wind 138 kt
  Minimum pressure 935 mb
  Hurricane conditions lasted 12 h
  Surge -15 feet
  Citizens went outside during the eye

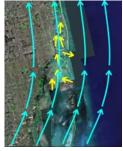
- Citizens went outside during the eye passage
- Damage extended to Moore Haven on the S. Side of Lake Okechobee BIG STORM
- Also hit Pensacola





# Surge in Biscayne Bay





Killed 373 (or so), damage \$100M (1926 \$\$)

### Aftermath...

- Curtain wall failures in the Meyer Kaiser Bank
  Burst the Real Estate Bubble
- Wiped out millions in bank

- reserves
  Brought the depression to
  Miami 3 years early
  Set the stage for the great
  depression (J. K. Galbraith).
  Official deaths (NOAA) 243
  or 373 (Red Cross)
  More than 800 missing...
- Damage \$159 M
- Similar storm today would cost > \$100B



# George E. Merrick (1886-1942)

- Son of a Congregationalist Minister Moved as a boy from Pennsylvania to Miami in 1898
- to Miami in 1898
  Appointed governor of Florida in 1915 (age 29)
  Promoted extensive road building Starting in 1922, began developing Coral Gables on 6000 acres of land inherited from his father Former Presidential Candidate William Jennings Bryan was a booster

- booster
  Founded UofM in 1926 with gift of
  \$\$M and \$600 acres
  1926 Hurricane brought it all down
  Opened Caribbe Club on
  Matecumbe Key
  Wiped out again by 1935 Hurricane
  Became Postmaster in Miami
  Died in 1942, age 55





# Lake Okeechobee Hurricane of 1928 (San Felipe Segundo)

- Cape Verde storm
- Ship report SS Commack 17N 48W
- Landfall in Guadaloup on 12 SEP, 500 dead
- Another 100 died in St Kitts & Mountserrat
  Landfall in Puerto Rico on the 14<sup>th</sup>
- - Maximum wind 160 mph 1500 dead
- First official CAT 5 Hurricane
- Passed through the Bahamas and intensified over the Gulf Stream Landfall near Palm Beach on the 16<sup>th</sup>
  - Max winds 140 mph

  - MSLP 929 11 ft (3.3 m) surge Storm mislocated: Forecast track to the north



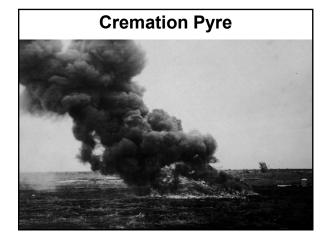
### Lake Okeechobee



- Project to "reclaim" Everglades,
- Began in 1910 Drainage canals Dikes 5-8 ft
- Migrant workers and sharecroppers S. of the Lake No major storms, except 1926
- Eye passed over the Lake in 28
- Dikes overtopped in 120 mph
- Another BIG storm
- Flooding and wind damage Loss of life Red Cross 1836
- - Modern count from mass graves ~2500
- Probably low
- News of the disaster got out slowly



- Eliot Kleinberg's account.
- Each killed more than 1000 US residents
- Failure of an engineered system designed to protect the population
- Dead were too often economically disadvantaged minorities, or physically infirm and poorly served by public institutions



### SUMMARY

- Miami land boom of the 1920s
- Bubble burst by several factors, including the 1926 Hurricane
- Cape Verde Storm
  - CAT 4 at landfall
  - Big Storm
- Passed over port, downtown, present site of FIU
  Merrick and the UofM brought low
- 1928 Hurricane
  - Also a Cape Verde Storm
     In PR, First official CAT 5

  - Killed > 4000 total, 2500 in US Struck Palm Beach Co,
- These hurricane led to adoption of first US municipal building code in Dade CO.
- South Florida was economically dead until mid-1940s

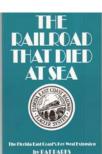
### **Organized Hurricane Forecasting**

- Grady Norton
  - Saw aftermath of 1928 hurricane
  - Devoted his life to preventing similar tragedies
  - Became chief hurricane forecaster at Jacksonville in 1935
- Assisted by Gordon Dunn
- The beginnings of NHC





# Florida East Coast Railway



- Henry Flagler

  Made a bundle in Standard Oil
  Began building railroads and hotels
  southward from St. Augustine in 1992
  Reached West Paim Beach in 1994
  Reached (present-day) Miami in 1996
  In 1995 began the FECR "Key West
  Extension"
  Meredith, reinforced concrete engineer,
  began construction

- Interrupted by hurricanes in 1906.1909 (when Merideth. died), and 1910 Krome (who had done the original survey) took over

- 1932
  Key West extension

  NY to Havana in 2 days

  Operated for 23 years

  Never was profitable
  Receivership during the Depression
  Parallel highway began in 1923

# Building the Key West Extension









# **Labor-Day Hurricane of 1935**

- First appeared E of the Bahamas
- 31 AUG Weather Service reported a "tropical disturbance" in the islands
- Raised storm warnings from Ft. Pierce to Miami, ordered precautions in the Keys
- Then decided it would go through the Straits
- Storm intensified rapidly Landfall at Long Key & Lower Matecumbe Key
- Passed up the FL west coast to a second landfall in the Panhandle



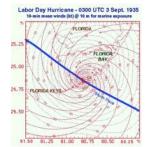
### The Disaster



- "Overseas Highway"

  - Parallel with the RR Work started in 1934
  - WW I Veterans
  - Camp on lower Matecumbe
- Labor Day 1935
- Many went to Miami for the long weekend
- Many remained
- Rescue train
- Supposed to be on standby
- Left Miami 4:25 PM, two hours after the CCC called
- Delayed enroute
- Reached Islamorada at 8:20 PM

# **Hurricane Reached Long Key at** 0300Z or 10:00 PM



- Most intense hurricane to make US landfall
  - MSLP 892 mb
  - Winds 190-200 mph
  - 15-20 ft surge
- Record W-Hemisphere SLP stood until Gilbert in
- Very small hurricane
- Devastation over (only) a 40 mi stretch of Keys

### **Aftermath**

- Killed more than 423
  - 259 veterans
  - 164 civilians
- Isolated lower keys
- · Hemingway's diatribe
- Ended the FECR Key-West Extension
  - Roadbed sold to the state for the highway
- Hurricane forecast office established in JAX in 1935 (before the storm)
  - Beginning of NHC
  - Grady Norton in charge, assisted by Gordon Dunn



# Memorial in Islamorada

# 1938 New England Hurricane

- First observed as an easterly
- wave (Bilma Oasis, Niger)
  Reported as a hurricane by SS
  Alegrete N. of Puerto Rico, 16
  SEP
- JAX WX office warned Florida
- Reported again by Cunard liner *Corinthia* off Hatteras on the 21st
- Forecast responsibility passed to DC
- Trough swept east from Great Lakes
- Had been raining ahead of the trough for days
- Weakness in the ridge pulled the "Long Island Express"



# **Long Island Express**

- Forecaster Charles Pierce recognized the situation, but was ignored Struck Long Is. (West Hampton Beach) With no warning

   Moving 60 mph

   Winds 80-100 mph widespread

   MSLP 945 mb

   50 mi eye

   Extensive flooding

  4 Blue Hill Observatory 120 mph

- Extensive incoming
   At Blue Hill Observatory, 120 mph sustained, 186 mph gust
   Storm rain on top of previous rainfall produced widespread flooding.
- Ilooding. Impact:

   682 (or more) dead

   \$300M in damage (1938)

   Inflation adjusted to \$4B





### **SUMMARY**

- Grady Norton and the beginnings of the National Hurricane Center

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   Built 1905-1912, Flagler, Merideth & Krome

   Menaced by 5 hurricanes during construction

   Engineering Marvel
  Operated at a loss for 23 years
  Wiped out by 1933 Labor-Day Storm

   First recorded US CAT 5, 892 mb pressure record stood until 1988

   Killed > 423, many Veterans working on the Overseas Highway
  1938 New England Hurricane

   Recurved, fast moving (60 kt) Cape Verde storm

- Recurved, fast moving (60 kt) Cape Verde storm
   Struck Long Island with little warning

- CAT 2-3 winds widespread
  Heavy rains after a wet summer caused widespread flooding
  Claimed nearly 700 lives; did \$300M in damage = \$4B today
  Prototypical New England Hurricane: Long Island Express

For NEXT TIME: Exam 1 Review Exam 1 Monday 16 OCT For the 18th: Read147-152, Waves in Emanuel