

YEAR 1904

Five storms were found to have occurred in 1904. Tracks for these storms are presented in Fig. 4,

Storm 1, 1904 (Jun. 10-14), T. S.

The following information was found in relation to this storm:

- 1) Data extracted from 8 A.M. (E.S.T) Historical Weather Maps: Jun. 10, ship near 12.7 N., 82.2 W., N. f. 2. 29.88; center placed 18.5 N., 82.5 W. (obviously too far N.). Jun. 11, center placed over Yucatan (wrong location); no data from area S.W. of Jamaica. Jun. 12, ship near 15 N., 76 W., S.S.E. f. 5; no other data available. Jun. 13, Port-au-Prince, E. f. 7, 29.82; Turk Is., S.E. f. 5, 29.85; ship near 22 N., 73.8 W., S.E. f. 3; no other data available. Jun. 14, a large envelope low centered near 22 N., 77 W. (probably too far W.); Turk Is., S.E. f. 5, 29.85; Port-au-Prince, E. f. 4, 29.85; no data from central and eastern Cuba (Historical Weather Maps, Jun. 1904). Author's note: Wind forces (f) are on Beaufort scale, pressures are in inches.
- 2) We have just received at the west end of Jamaica one of those barometric depressions which give us flood rains, but this time the force of the wind was far greater than usual, and as there had been a large rainfall prior to its appearance, the consequences were disastrous floods, which have done great damages to road and bridges. Some observations made at the Kempshot Observatory (near Montego Bay) were as follows: 7 A.M. Jun. 10, barometer 29.86 inches, wind E. 6 mph; 7 A.M. Jun. 11, barometer 29.83 inches, wind S.S.E. 7 mph.; 7 A.M. Jun. 12, barometer 29.79 inches, wind S.S.E. 15 mph; 7 P.M., barometer 29.78 inches, wind S. 25 mph; 5 A.M. Jun. 13, barometer 29.66 inches, wind S. 50 mph; 7 A.M., barometer 29.63 inches, wind S. 60 mph; 9 A.M., barometer 29.71 inches, wind S.S.W. 60 mph, gusts up to 70 mph, heavy rain; 11 A.M., barometer 29.72 inches, wind S.W. 20 mph; 1 P.M., barometer 29.76 inches, wind S.W. 20 mph; 3 P.M., barometer 29.78 inches, wind S.W. 15 mph; 7 P.M., barometer 29.76 inches, wind S.W. 10 mph; 7 A.M. Jun. 14, barometer 29.83 inches, wind S.S.W. 5 mph, 5.63 inches of rain fell over the past 48 hours (Monthly Weather Review, Jun. 1904). Author's note: The above information was reported by Maxwell Hall of Jamaica.
- 3) Extracted from an article by L. Gangoiti, S.J., director of the Belen College Observatory: At Havana we had cumulus from the N.E and altocumulus from the E.N.E. in the afternoon of Jun. 12, the center of the tempest being between Jamaica and the S. of Grand Cayman. At Cienfuegos, noon, Jun. 13, wind W.N.W.; at 3 P.M., low clouds from the N. and altocumulus from the N.N.E., with barometer somewhat lower than at Havana. At Santiago de Cuba, 7:40 A.M. Jun. 12, barometer 29.89, strong and gusty E.S.E. wind; at Jamaica, suspicious weather, with a tempest and rough seas from the S. At 5 P.M. Jun. 13, Santiago de Cuba, barometer 753.6 millimeters (29.67 inches). According to Mr. Roberto Mason (observer at Santiago de Cuba, the barometer fell until 6:30 P.M. and then started rising. At Santiago de Cuba, 7:40 A.M. Jun. 14, barometer 29.85 inches, low clouds from the S.W. After 10 P.M. Jun. 13 (Monday), wind from the S., heavy seas which the captains said were not in agreement with

the wind strength (Diario de la Marina, Havana, Jun. 20, 1904, evening edition, p.1. cols.3 and 4). 4) The following information, dated on Jun. 14, was received from the Weather Bureau: "A strong tempest which is over eastern Cuba could extend itself to the Bahamas and to the W. Captains of vessels heading to that area should be aware of this condition and take precautions" (Diario de la Marina, Havana, Jun. 15, 1904, morning edition, p.2, col.6). 5) New York, Jun. 16. According to a telegram from Santiago de Cuba, received via Bermuda, eastern Cuba was hit by a tempest of extraordinary violence, which has caused more than 100 deaths. The aqueduct suffered damage and there is no water supply to the city. A telegram received from Guantanamo said that the tempest was the most violent which is recalled in that city (Diario de la Marina, Havana, Jun. 17, 1904, morning edition, p.1, col.4). 6) According to a telegram sent from Santiago de Cuba to New York, via Bermuda, the tempest that began (to affect) eastern Cuba last Friday (Jun. 10) and ended in the night of Jun. 14, is one of the most horrible which are recalled in that part of the island. It rained so heavily for 5 consecutive hours that 14 inches of rain fell over that period. The force of the storm destroyed the lower part of the town of El Cobre; 45 corpses have been found and there are 45 missing persons (Diario de la Marina, Havana, Jun. 17, 1904, morning edition, p.2, col.3). 7) Jun. 13-14, 1904. A cyclone of moderate intensity passed over the provinces of Santiago de Cuba and Camaguey. There were considerable damage, great flooding and a large number of casualties (Sarasola, 1928). Author's note: Actually taken from the catalog of Cuban cyclones by M. Gutierrez-Lanza which is included in Sarasola (1928). 8) On Jun. 13, 1904 a cyclonic perturbation was felt between Jamaica and Santiago de Cuba with 60-70 mph winds. Mitchell did not say anything about it (Sarasola, 1928). Author's note: Sarasola (1928 is referring here to Mitchell (1924). Tannehill (1938) did not say anything about this storm either. However, the storm is included in Neumann et al. (1993).

On the basis of an analysis of the information contained in the above items, particularly in items 1) through 3), the author of this study introduced a number of modifications along the track shown in Neumann et. al. (1993). The author's track was started with his estimated 7 A.M. Jun. 10 position near 13.0 degrees N., 80.5 degrees W. which was based on information for that day in item 1); this starting time was 24 hours earlier than the one shown in the above publication. New 7 A.M. positions for the period Jun. 11-14 were as follows: Jun. 11, near 15.0 degrees N., 80.3 degrees W.; Jun. 12, near 17.3 degrees N., 79.7 degrees W.; Jun. 13, near 18.7 N., 78.5 W.; Jun. 14, near 22.0 degrees N., 75.3 degrees W. Differences of these positions with respect to the ones in Neumann et al. (1993) ranged from about 170 miles on Jun. 14 to just a few miles on Jun. 13. The author's track for Storm 1, 1904 is displayed in Fig. 4.

The tropical storm status which Neumann et al. (1993) gave to this storm was confirmed by the content of several items and, therefore, it was kept unmodified. The author's track showed that status starting on Jun. 10. However, as a result of the author's analysis, it was concluded that the weather system probably did not

reach tropical storm intensity until Jun. 12. The reason for extending that status backwards to the period Jun. 10-11 was to be consistent with the policy in Neumann et al. (1993) which did not allocate any provision for denoting a developing tropical depression stage along storm tracks for years prior to 1951.

Storm 2, 1904 (Sept. 8-15), H.

The following information was found about this storm: 1) Data extracted from 8 A.M. (E.S.T.) Historical Weather Maps: Sept. 8, ship near 17.7 N., 56.8 W., N.E. f. 4; ship near 17 N., 54 W., S. f. 4; Barbados, N.N.E. f. 2, 29.95; possible low near 17 N., 55.5 W. Sept. 9, ship near 23 N., 52 W, E. f. 5, 29.86; ship near 20 N., 60 W., S. f. 4, showers; St. Kitts, S.W. f. 3, rain, 29.95; ship near 16 N., 62 W., S. f. 4; low estimated near 21 N., 62 W. Sept. 10, ship near 26 N., 64 W., S.E. f. 6, 29.83; ship near 24 N., 62 W., S.E. f. 4, showers; possible low estimated near 24.3 N., 66.3 W. Sept. 11, practically no data available from the area of low pressure. Sept. 12, ship near 29 N., 78 W., N.N.E. f. 3,; ship near 30 N., 73 W., E.S.E. to E. f. 4, showers; ship near 26.3 N., 73.8 W., N.N.W. f. 2, 29.97; ship near 29 N., 69 W., S.S.E. f. 4; low estimated near 27 N., 73 W. Sept. 13, ship near 31 N., 75 W., E.S.E. f. 8, 29.97; ship near 30.5 N., 73 W., S.E. f. 6; ship near 28.3 N., 80 W., N. f. 6; ship near 27.3 N., 78 W., N.N.W. f. 4, 29.91; other ship in same position, N.N.W. f. 3, 30.03; ship near 28.5 N., 71.3 W., S.S.E. f. 4; center placed 28.7 N., 75.5 W. (it might be better near 29 N., 76.3 W.). Sept. 14, Charleston, W.S.W. f. 6, 29.78; Wilmington, S.E. wind force could not be read, 29.80 (not clearly read); Hatteras, S.E. f. 6, 30.03; center placed on the coast between Charleston and Wilmington. Sept. 15, center embedded in a front and apparently located near Nantucket which had S. wind f. 2 or f. 3 (pressure could not be read); main low was placed over E. Canada (Historical Weather Maps, Sept. 1904). Author's note: Wind forces (f) are on Beaufort scale, pressures are in inches. 2) During Sept. 14-15 a disturbance that first assumed marked intensity in the subtropical region N. of the West Indies moved with extraordinary speed from the S. Atlantic to the New England coast and passed thence over Newfoundland attended along the Atlantic seaboard by exceptionally heavy rain and strong gales, which reached hurricane force at points along the middle and south Atlantic coasts. The maximum wind velocity recorded in connection with this storm was 100 mph from the N.W. at Delaware Breakwater at 2:50 A.M. Sept. 15 and the rainfall exceeded 5 inches at points in the middle Atlantic coast. In the New England area heavy gales prevailed N. to Eastport and from Highland Light, Ma. to Block Island, R.I., the winds attended hurricane force, strewing Vineyard Sound, Nantucket, Cape Cod and the Maine coast with many wrecks. At Woods Hole during the early hours of the gale, the tide rose several feet above the mean high-water mark. This was followed by a drop which was as unusual as the rise, the tide dropping 7 feet in 50 minutes, and to a point 5 feet below the average (Monthly Weather Review, Sept. 1904). Author's note: Tannehill (1938) and The New York Times, Sept. 16, 1904, p.5, col.6, also published that the wind blew 100 mph at Delaware Breakwater. 3) The following

special bulletin was issued last night: "N.E. storm warnings are displayed from Savannah to Fort Monroe. Some evidence of disturbance approaching Carolina coast may cause high N.E. winds tonight and Wednesday Sept. 14" (The New York Times, Sept. 14, 1904, p.9, col.6). 4) Since last night the South Atlantic coast storm has moved to the Virginia coast with increased intensity. It has been accompanied by high winds on the Carolina and Virginia coast, and in conjunction with the high (pressure) area to the N.E. has caused general rains in the Atlantic States (The New York Times, Sept. 15, 1904, p.7, col.7). Author's note: It is obvious that the above statement was issued in the evening of Sept. 14. 5) What local forecaster Emery calls a West Indian cyclone which has joined forces with a full-grown lake storm heading eastward, arrived in town early yesterday morning and stayed for a couple of hours or so, smashing in plate glass windows, demolishing trees and playing all sort of havoc with telephone, telegraph and electric light wires. The lower harbor presented the appearance of a ship's graveyard yesterday morning. In New Jersey, the storm damage was widespread (The New York Times, Sept. 16, 1904, p.5, col.3). 6) Newport, R.I., Sept. 15. Newport was hit by a heavy rain and wind storm early yesterday. The wind at one time reached the velocity of 80 mph (The New York Times, Sept. 16, 1904, p.5, col.3). 7) The minimum pressure at Charleston was 29.73 inches and the maximum wind velocity was N. 50 mph. At Wilmington, N.C. the minimum pressure was 29.67 inches and the maximum wind velocity was S. 45 mph (Weather Bureau, 1905). 8) Additional maximum wind velocities were as follows: Columbia, S.C., N.W. 42 mph; Raleigh, N.W. 35 mph; Hatteras, S.W. 51 mph; Norfolk, S.W. 48 mph; Cape Henry, S. 50 mph; Washington, N.W. 35 mph; the above velocities were recorded on Sept. 14. Baltimore, N. 40 mph; Cape May, N.W. 53 mph; Atlantic City, S.E. 41 mph; Philadelphia, N.W. 58 mph; New York, N.W. 68 mph; Block Island, N.W. 84 mph; Nantucket, S. 58 mph; Boston, N. 40 mph; the velocities just mentioned occurred on Sept. 15 (Monthly Weather Review, Sept. 1904). 9) Storm of Sept. 14-15. Carolinas, inside the coast of the Middle Atlantic States, all sections of New England. Minimal. Minor damage in the Carolinas but \$ 1 million in the Middle Atlantic States and \$ 1 million in New England (Dunn and Miller, 1960). 10) Map showing a track for this storm. Positions along the track were as follows: Sept. 14, morning, on the N.E. portion of the South Carolina coast; Sept. 14, evening, just W. of Norfolk; Sept. 25, morning, over southeastern Massachusetts. The track was ended near the S.W. coast of Newfoundland (Monthly Weather Review, Sept. 1904). 11) A storm was first observed near 19 N., 57 W. on Sept. 8, 1904 and lasted 13 days; it recurved near 34 N., 79 W. and it was last observed near 68 N., 27 W. (Mitchell, 1924). Author's note: Portions of the corresponding track in the above publication were found to be similar to the tracks for this storm shown in Tannehill (1938) and Neumann et al. (1993).

On the basis of information in the above items, particularly in item 1), the author of this study introduced a number of modifications along the track in Neumann et al. (1993) over the period Sept. 8-13, resulting in a small to moderate southward displacement of that portion of the track. Author's 7 A.M. positions were estimated as follows: Sept. 8, near 17.3 degrees N.,

55.7 degrees W.; Sept. 9, near 21.0 degrees N., 62.0 degrees W.; Sept. 10, near 24.3 degrees N., 66.5 degrees W.; Sept. 11, near 26.0 degrees N., 70.0 degrees W.; Sept. 12, near 27.0 degrees N., 73.0 degrees W.; Sept. 13, near 29.0 degrees N., 76.7 degrees W. The new 7 A.M. Sept. 8 position was about 180 miles to the S. of the one in Neumann et al. (1993) and the new Sept. 9 position was about 90 miles to the S.W. of the corresponding position in the above publication. For the period Sept. 10-13, the author's positions were to the W. of the corresponding ones in Neumann et al. (1993), the distance ranging from about 150 miles on Sept. 10-11 to about 60 miles on Sept. 13. 7 A.M. positions for Sept. 14-15 in Neumann et al. (1993) were kept unmodified. The author's track for Storm 2, 1904 is displayed in Fig. 4.

As hurricane force winds were reported only at fairly high latitudes (items 2, 6 and 8) and when the storm was loosing its tropical characteristics, the hurricane status that Neumann et al. (1993) gave to this storm could not be rigorously verified by the information in the above items. However, the existence of hurricane winds to the east and northeast of the storm center could be inferred with reasonable confidence from the wind velocity of 50 mph from the N. reported at Charleston (item 7) on the weak side of the storm which was moving on a general N. course at a rate of over 15 mph, such movement implying winds of over 80 mph in the stronger east side of the storm when making landfall on the Carolina coast in the morning of Sept. 14. Therefore, the hurricane status in Neumann et al. (1993) was accepted. That status was denoted along the author's track for Sept. 13 and the early portion on Sept. 14 and then changed to tropical storm status late on Sept. 14 and to the extratropical stage in the early morning of Sept. 15. Although the exact days in which this weather system became a tropical storm and a hurricane could not be determined in the light of information in item 1), tropical storm intensity was denoted along the author's track prior to Sept. 13.

Storm 3, 1904 (Oct. 12-20), H.

The following information was found in relation to this storm:
1) Data extracted from 8 A.M. (E.S.T.) Historical Weather Maps: Oct. 10, Turk Is., E. f. 3, 29.85; Santo Domingo, N.E. f. 4, 29.85; Port-au-Prince, W.S.W. f. 1, 29.77; Kingston, N.W. f. 1, 29.79; Curacao, S.S.E. f. 2, rain, 29.84. Oct. 11, Kingston, N. f. 2, 29.73; ship or station near 18 N., 78 W., calm, 29.77; Port-au-Prince, W. f. 3, 29.73; Turk Is., E. f. 3; rain, 29.78; ship near 11 N., 80 W., W. f. 4, 29.74; Curacao, S.E. f. 3, 29.84. Oct. 12, ship near 15 N., 78 W., N. f. 3, 29.65; Kingston, N. f. 1, 29.71; ship or station near 18 N., 78 W., calm, 29.71; Port-au-Prince, E.N.E. f. 4, 29.73. Oct. 13, Kingston, E. f. 3, 29.68; ship near 17 N., 76 W., S. f. 6, 29.71. Oct. 14, Cienfuegos, N.N.E. to N. f. 2, 29.73; Camaguey, E. f. 2, 29.76; Santiago de Cuba, S. f. 4, heavy rain, 29.76; ship near 20 N., 74 W., S. f. 5, 29.77. Oct. 15, Havana, N.E. f. 5, 29.70; Cienfuegos, N.E. f. 3, 29.64; Camaguey, E. f. 3, pressure could not be read; Santiago de Cuba, S.E. f. 5, 29.71; Kingston, S. f. 3, 29.73. Oct. 16, Jupiter, E. f. 7, rain, 29.80; Key West, N.E. f. 4, 29.65; Havana, N.N.E. no speed shown,

rain, 29.62; Cienfuegos, W.S.W. f. 3, 29.56; Camaguey, S. f. 5, 29.67 (not clearly read); Santiago de Cuba, S. f. 4, 29.79. Oct. 17, Jupiter, E. f. 10, rain, 29.63; Key West, N.W. f. 5, rain, 29.66; Havana, N., f. 2, 29.72; Cienfuegos, S.W. f. 3, 29.71; Camaguey S. f. 3, 29.76; ship near 28.7 N., 76 W., E.N.E. f. 5, 29.94; ship near 28.7 N., 80 W., E.N.E. f. 7, 29.91; Tampa, N.E. f. 6, 29.81. Oct. 18, Tampa, N.E. f. 5, 29.72; Jupiter, S.E. no speed shown, 29.72; Key West, S.W. f. 4, 29.65; ship near 25 N., 80 W., S.S.E. f. 7; ship near 25 N., 84.7 W., N. f. 7; low 995 millibars (29.38) placed just N.W. of Key West. Oct. 19, Tampa, N.E. f. 4, rain, 29.61; Jupiter, S. f. 3, 29.64; Key West, S.W. f. 5, 29.61; ship near 26.7 N., 83.3 W., W. f. 3. Oct. 20, Key West, W. f. 4, 29.56; Jupiter, S.E. f. 3, 29.58; ship near 24 N., 80 W., S. f. 4, showers. Oct. 21, center probably embedded in a trough E. of Florida, remnants appear to be in the vicinity of 27 N., 77 W.; a more important low was located just S.W. of Atlantic City with 995 millibars (29.38). Oct. 22, the center of tropical origin could not be identified any longer (Historical Weather Maps. Oct. 1904). Author's note: Wind forces (f) are on Beaufort scale, pressures are in inches. 2) A shallow disturbance was noted over the Caribbean Sea as early as Oct. 10. It moved slowly W.N.W. during Oct. 11-12 and by the morning of Oct. 13 its northward advance was made apparent by moderate easterly winds attended by rain on the S.E. Florida coast. High winds set in over Southern Florida on Oct. 14, continuing during Oct. 15 and attaining hurricane force in the evening of Oct. 16, at which time telegraphic communication with the S.E. Florida coast was interrupted. On the morning of Oct. 17 the wind at Jupiter was blowing from the E. with a velocity of 60 mph. It increased during the day and diminished rapidly during the evening. The center of the storm apparently remained stationary over Southern Florida from the morning of Oct. 17 until the morning of Oct. 19. It diminished greatly in energy, and during Oct. 19 only moderate winds were experienced, except at Jacksonville where a N.E. wind of 32 mph was recorded. During the night of Oct. 20 a new center appears to have developed off the South Carolina coast. This center moved rapidly N.N.E., passing Wilmington. N.C. at 3 A.M. Oct. 21 and Philadelphia about 9 A.M., and disappearing over the Canadian Maritime Provinces on the evening of Oct. 21 (Monthly Weather Review, Oct. 1904). 3) From the Agronomical Station we have received the following information: "The barometer drop at Santo Domingo and Jamaica indicates the probable formation of a tempest S. of the Island of Hispaniola (Diario de la Marina, Havana, Oct. 12, 1904, morning edition, p.3, col.5). 4) Belen College Observatory, Oct. 15, 8 A.M. It can be said that the cyclonic perturbation in the vicinity of Grand Cayman will probably begin crossing Cuba between today and tomorrow by moving on the southern coast of the provinces of Puerto Principe (Camaguey) and Santa Clara. L. Gangoiti, S.J. (Diario de la Marina, Havana, Oct. 15, 1904, evening edition, p.2, col.1). 5) The Weather Bureau local office has sent to us the following telegram: Washington, Oct. 15. At 8 A.M. today the cyclonic perturbation was still near the southern coast of Cuba to the S. of Cienfuegos and increasing in intensity. During the next 2 or 3 days there will be danger to ships sailing near Cuba and Florida, the eastern portion of the

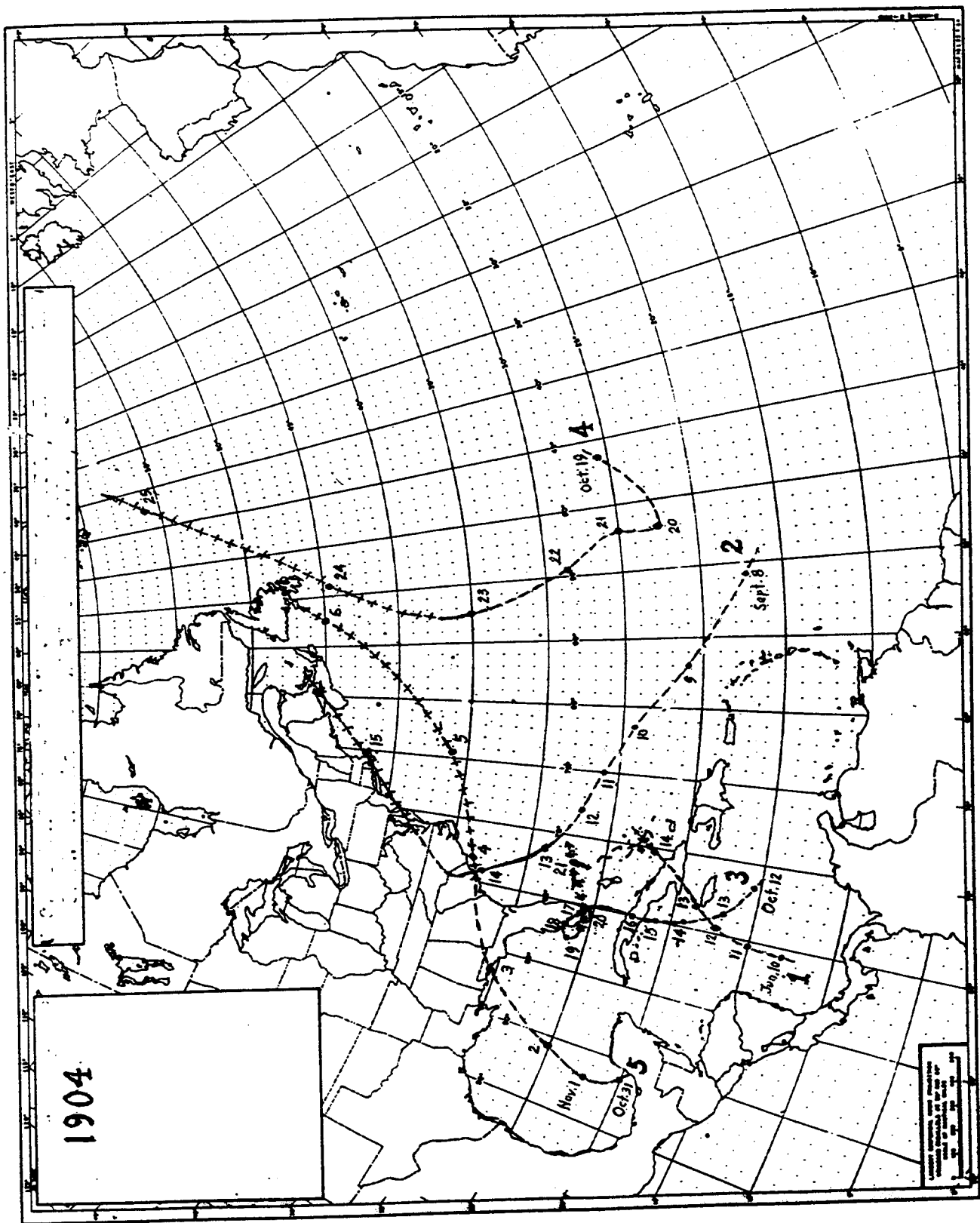


Fig. 4

Gulf (of Mexico) and the Bahamas. C. De Graw, in charge (Diario de la Marina, Havana, Oct. 15, 1904, evening edition, p.2, col.1). 6) Belen College Observatory, Oct. 17, 8 A.M. The cyclonic perturbation from the Caribbean Sea has been crossing our island since Saturday afternoon (Oct. 15) to midday Sunday (Oct. 16). The center passed to the E. of Cienfuegos but we cannot tell how far. The vortex of the tempest is probably at this time over eastern Florida and Nassau with good intensity. L. Gangoiti, S.J. (Diario de la Marina, Havana, Oct. 17, 1904, evening edition, p.2, col.1). 7) From the Weather Bureau: Havana, Oct. 17, 10 A.M. The perturbation has recurved towards the N., being now near the S. coast of Florida. It will continue moving slowly northward with increased intensity. It can be a serious danger to shipping along the South Atlantic coast of the United States. C. De Graw, in charge (Diario de la Marina, Havana, Oct. 17, 1904, evening edition, p.2, col.1). 8) According to El Liberal (a newspaper published at Camaguey), the effects of the perturbation started there about 10 A.M. Saturday (Oct. 15) with heavy rains and strong wind gusts which continued day and night on Sunday (Oct. 16), only with a few brief intermissions (Diario de la Marina, Oct. 20, 1904, evening edition, p.2, col.1). 9) Oct. 15-16, 1904. A moderate cyclone crossed over central Cuba, causing significant damage. It left abundant rain which produced flooding (Sarasola, 1928). Author's note: Actually taken from the catalog of Cuban cyclones by M. Gutierrez-Lanza which is included in Sarasola (1928). 10) Capt. Dillon of the steamship "Martinique", in a special account of the storm said: We left Havana at 4 P.M. Friday and arrived at Key West at 1:10 A.M. Oct. 16. Before leaving Cuba I got a cable report: "Storm central in Western Caribbean Sea and moving W." At that time the glass marked 29.60 inches. On arriving at Key West I read reports which showed no apparent change in weather conditions. Yet, the glass had dropped to 29.58 inches. I left Key West at 4 A.M. Oct. 16 and for a few hours the weather had some appearance of clearing. At 11:30 A.M. the weather grew thick, the wind raised in fitful gusts and the glass was 29.55 inches. So I came around the reef at Alligator Light and steamed up the channel (Hawk's Channel) and I came to anchor at 1:45 P.M., glass 29.50. At 6 P.M. glass 29.48 inches, wind N.E. and increasing, estimated at 50 mph. At midnight glass 29.47 inches. At noon, glass 29.45 inches; at 4:30 P.M. glass is 29.35 inches and at 8 P.M. glass is 29.30 inches and the wind is fierce. At 3 A.M. the wind had backed to N. by W. and finally to N.W. At daylight, the big clouds were coming from S.W. as if they were to attack us. The wind had dropped now from what I estimated 75 mph steady and 90 in gusts. We heave home one anchor and left for Miami. We arrived at the outer bar at 3:15 P.M. and searched for the marks to the entrance and we arrived at the port at 3:30 P.M. Oct. 18 save, without damage to ship or accident (The Daily Miami Metropolis, Oct. 19, 1904, p.1, cols.3-4). Author's note: Some of the times in the narrative by Capt. Dillon seem to be in error. However, the fierce wind reported at 8 P.M. with barometer 29.30 inches should correspond to Oct. 16, and the wind change to N.W. at 3 A.M. should correspond to Oct. 17. 11) Tug "Wm. F. Mc Cauley" of Savannah, towing a big chisel dredge, arrived inside the Fowley Rocks Lighthouse on Friday (Oct. 14). The captain

figures that the wind blew Sunday night (Oct. 16 at 75 mph or more (The Daily Miami Metropolis, Oct. 19. 1904, p.1, col.1). 12) The most serious accident to shipping was the foundering of the schooner "Melrose" off the Florida coast Saturday morning, Oct. 15. Seven lives were lost and the survivors were without food and water nearly 4 days. The Daily Metropolis, Jacksonville, Fl., Nov. 5, 1904 published the following: "The first notice from the Weather Bureau that a tropical disturbance was developing S. of Jamaica was given out by the Central Office at Washington on the 11th of October, and nearly a week followed before the storm reached the coast near Miami. With this timely warning, it is sad, indeed, that loss of life should have resulted from the failure of a master of a vessel to heed the notice of the Weather Bureau that caution was advised. We refer to the master of the schooner "Melrose", bound from Jacksonville to the Bahamas, whose attention was called to the predicted storm. The master replied that he though he could make the trip, and proceeded southward, into or near the storm center" (Monthly Weather Review, Oct. 1904). Author's note: According to an account given by The Daily Miami Metropolis, Oct. 20, 1904, p.1, cols.3-4, the "Melrose" came ashore on the Florida coast in the vicinity of Hobe Sound (near Jupiter) soon after 11 A.M. Oct. 17 (Monday). However, she had capsized and then righted near Abaco Island about sunset Oct. 15, with a loss of two women. Five additional lives were taken when the crew was thrown overboard by a huge wave before the vessel was driven ashore and went to pieces on the beach. Only Capt. Kelly, the mate and three crew survived. 13) The wind reached its height (at Miami) about 10 P.M. (Oct. 16) coming out of the N.E. and blowing from that quarter until 3 A.M. (Oct.17) when it began to shift, moving by the E. and S. (?) to the S.E. where it was hold with a variation to the S. all day. It is conservatively estimated that the wind at times reached 75 mph and that the general velocity during the night was 60 mph. The barometer at midnight (Oct. 16-17) was 29.20 inches but it gained 29.40 inches at 6 A.M. There it remained during the morning and, while still exceedingly low, it is believed that the severest part of the storm has passed and that the conditions will continue to improve (The Daily Miami Metropolis, Oct. 17, 1904, p.1, cols. 3-4). Author's note: A dispatch published in the Monthly Weather Review, Oct. 1904, stated that the chief damage on land at Miami was done by the rain. A few roofs were damaged and window panes blown down, so that the buildings were damaged by rain. The statement added that the schooner "James Judge" came aground 5 miles S. of West Palm Beach and that the bark "Zion" stranded 5 miles N. of the House of Refuge, near Ft. Lauderdale. 14) The minimum pressure at Jupiter was 29.53 inches and the maximum wind velocity was E. 68 mph. At Key West, the minimum pressure was also 29.53 inches and the maximum wind velocity was W. 31 mph (Weather Bureau, 1905). Author's note: The above publication added that the minimum pressure at Cienfuegos (Cuba) was 29.51 inches and that the maximum wind velocity there was S.W. 36 mph. 15) Some observations taken at Key West were: Oct. 15, 8 P.M., 29.69, N.E. 30; Oct. 16. 8 A.M. 29.63, N.E. 20; 8 P.M., 29.65, N. 20; Oct. 17, 8 A.M., 29.64, N.W. 24; 8 P.M., 29.62, S.W. 19; Oct. 18, 8 A.M., 29.65, S.W. 20; 8 P.M., 29.62, S.W. 22; Oct. 19, 8 A.M., 29.61, S.W. 24;

8 P.M., 29.55, S.W. 10; Oct. 20, 8 A.M., 29.54, W. 17; 8 P.M., 29.61, N.W. 16; Oct 21, 8 A.M., 29.72, N. 18; Oct. 22, 8 A.M., 29.80, N. 16 (Weather Bureau, 1905). Author's note: Pressures are expressed in inches and wind speed is in mph. 16) Storm of Oct. 16-19, 1904. Minimal in Florida, 5 or more killed (Dunn and Miller, 1960). 17) Map showing a track for this storm. The storm was placed just S.W. of Cienfuegos at 8 A.M. Oct. 16, in the Florida Straits between Key West and Cuba during Oct. 17-18, near Lake Okeechobee during Oct. 19-20, to the S.E. of Savannah at 8 P.M. Oct. 20, near Wilmington at 3 A.M. Oct. 21, near Atlantic City at 8 A.M. Oct. 21 and near Father Point (Canada) at 8 P.M. Oct. 21 (Monthly Weather Review, Oct. 1904). Author's note: Positions along this track were found to be in error. 18) A storm was first observed near 11 N., 79 W. on Oct. 10, 1904 and lasted 13 days; it recurved near 25 N., 83 W. and it was last observed near 33 N., 67 W. (Mitchell, 1924). Author's note: The corresponding track shown in the above publication contains a fairly large loop centered over South Florida and also covering the adjacent waters of the Florida Straits and the Gulf of Mexico. This track was found to be very similar to the one in Tannehill (1938) and to be somewhat different from the one in Neumann et al. (1993) which was started on Oct. 12.

On the basis of a careful analysis of the information contained in the items above, the author of this study introduced a number of modifications along the track for this storm shown in Neumann et al. (1993). After keeping unmodified the 7 A.M. Oct. 12 position in the above publication, the author's 7 A.M. Oct. 13 position was based on information for that day in item 1) and estimated near 17.0 degrees N., 78.7 degrees W., representing a slight northward adjustment of the position in the above publication. The 7 A.M. Oct. 14 position in Neumann et al. (1993) was found to be reasonable and, therefore, was kept unchanged. However, their 7 A.M. Oct. 15 position was slightly adjusted to the S. in order to fit a better space-time continuity along the track, resulting in the author's position near 21.0 degrees N., 80.0 degrees W. The author's 7 A.M. Oct. 16 position was near 22.5 degrees N., 80.0 degrees W. and was estimated on the basis of information for that day in items 1) and 6); this position was found to be about 100 miles to the S.S.W. of the corresponding one in Neumann et al. (1993). The author's 7 A.M. Oct. 17 position was estimated near 25.7 degrees N., 80.7 degrees W., primarily on the basis of information in items 1) and 13); this position was found to be about 60 miles to the W.S.W. of the one in Neumann et al. (1993). Author's 7 A.M. positions for the period Oct. 18-20 were based on information in items 1) and 15) and were as follows: Oct. 18, near 26.7 degrees N., 81. 7 degrees W.; Oct. 19, near 26.3 degrees N., 82.7 degrees W. Oct. 20, near 25.5 degrees N., 81.0 degrees W.; these positions were found to be about 100 miles to the N., 110 miles to the W.S.W. and 120 miles to the S.S.W. of the respective ones in Neumann et al. (1993). The track in the above publication was extended to Oct 21, resulting in the author's 7 A.M. position near 27.0 degrees N., 77.0 degrees W. which was estimated by using information for that day in item 1). The author's track for Storm 3, 1904 is displayed in Fig. 4.

The hurricane status that Neumann et al. (1993) gave to this

storm was found to be fully supported by the pressure of 29.20 inches and the estimated winds of at least 75 mph reported at Miami (item 13) and also by wind information contained in items 10) and 11). Based on information in item 10), the author decided to start denoting hurricane intensity along his track as the storm crossed the 24 degrees N. parallel in the afternoon of Oct. 16; such intensity was maintained until late on Oct. 17 when it was changed to tropical storm intensity. This latter intensity was maintained during Oct. 18-19 and changed to a dissipating tropical depression on Oct. 20. Tropical storm intensity was also kept prior to the afternoon of Oct. 16 as the author decided to accept the tropical storm status (equivalent to cyclonic perturbation) used in item 6) when the storm crossed Cuba and to discard the wording "moderate cyclone" in item 9) which would have suggested hurricane intensity in accordance with Cuban nomenclature regarding tropical weather systems.

Storm 4, 1904 (Oct. 19-25), T. S.

The following information was found about this storm: 1) Data extracted from 8 A.M. (E.S.T.) Historical Weather Maps: Oct. 19, ship near 21 N., 47 W., S.W. f. 5, 29.80; ship near 23 N., 46 W., W.S.W. f. 4, 29.71; ship near 20 N., 42 W., S. f. 2, 29.91; ship near 32 N., 48 W., E. f. 2,, 29.83; ship near 18 N., 57 W., W.N.W. f. 2; center placed 24 N., 50 W. (near 25.5 N., 46.3 W. would fit better). Oct. 20, ship near 24 N, 49 W., S.E. f. 4, 29.62 (probably too low); ship near 19 N, 49 W., S. f. 5, 29.77; ship near 24 N., 46 W., S.S.W. f. 4; ship near 26 N., 52 W., E.S.E. f. 3, 29.80; ship near 28 N., 52 W., E. f. 6, 29.83; ship near 21 N., 59 W., N. f.5; ship near 25 N., 55 W., E. f. 3; (direction probably inaccurate); center placed 22.5 N., 52 W. Oct. 21, ship near 26 N., 52 W., N.E. f. 3, 29.68; ship near 21 N., 52 W., S. f. 3; ship near 20 N., 47 W., S. f. 4, 29.91; ship near 30 N., 50 W., N.E. f. 6; ship near 32 N., 55 W., N.E. f. 3, 30.15 (too high); ship near 17 N., 53 W., S.W. f. 4, 29.86; ship near 27 N., 57 W., N.E. f. 6; ship near 26 N., 57 W., N.E. f. 3, 29.86; ship near 24 W., 59 W., N.E. f. 5, showers, 29.88; center placed 26 N., 53 W. (too far N. and W., near 25 N., 52 W. would be a better position). Oct. 22, ship near 29 N., 57 W., N. f. 6; ship near 33 N., 60 W., N.E. f. 7; ship near 31 N., 60 W., N.E. f. 4, 29.97; ship near 26 N., 60 W., N.N.E. f. 3, 29.88; ship near 25 N, 54 W., N.E. f. 2 (direction probably in error); ship near 21 N., 50 W., W.S.W. f. 7 (probably too high speed), 29.88; ship near 31 N., 47 W., S.S.E. f. 7, 29.94; ship near 33 N., 47 W., S.E. f. 5, 30.03; ship near 35 N., 46 W., E. f. 8, showers; ship near 32 N., 44 W., E. f. 7, 30.24; ship near 35 N., 52 W., E.S.E. f. 5, 30.21; ship near 33 N., 54 W., E. f. 3; ship near 34 N., 55 W., N.E. f. 7, 29.91 (too low); center placed 28 N., 55 W. (maybe a little too far S. and W.). Oct. 23, ship near 36.5 N, 60 W., E. f. 3; ship near 34 N., 58 W., W. f. 3, drizzle; ship near 32.5 N., 56 W., S.W. f. 5; ship near 33 N., 52 W., S.S.W. f. 4; ship near 37.7 N., 52 W., S.S.E. f. 6, rain, 30.08; ship near 38 N., 58 W., S.E. f. 5, 30.03 (probably too high); center estimated near 35 N., 57.5 W. but not drawn on map, a cold front was placed about 300 miles to the W. Oct. 24, center of

extratropical low placed 50 N., 55 W.; however, a second center could be placed S. of Newfoundland at 44.5 N., 54 W. based on a ship near 45 N., 53.5 W., S.E. f. 3, 29.77 and another ship near 44 N., 54 W., S.W. f. 4, 29.80; this second center was likely to be the remnants of Storm 4, 1904. Oct. 25, center of extratropical low placed 56 N, 42.5 W. (Historical Weather Maps, Oct. 1904). Author's note: Wind forces (f) are on Beaufort scale, pressures are in inches. 2) A storm was first observed near 25 N., 47 W. on Oct. 19, 1904 and lasted for 4 days; it was last observed at recurving point near 30 N., 58 W. (Mitchell, 1924). Author's note: The corresponding track in the above publication was found to be very similar to the storm tracks in Tannehill (1938) and Neumann et al. (1993).

On the basis of information in item 1), the author of this study introduced a number of modifications along the storm track displayed in Neumann et al. (1993). The new 7 A.M. positions as estimated by the author were as follows: Oct. 19, near 25.0 degrees N., 46.3 degrees W.; Oct. 20, near 22.5 degrees N., 52.0 degrees W.; Oct. 21, near 25.0 degrees N., 52.0 degrees W.; Oct. 22, near 28.5 degrees N., 54.5 degrees W.; Oct. 23, near 35.0 degrees N., 57.5 degrees W.; Oct. 24, near 44.5 degrees N., 54.0 degrees W.; Oct. 25, near 56.0 degrees N., 42.5 degrees W. It should be noted that, as the track in Neumann et al. (1993) was terminated on Oct. 23, the author's track was extended for two additional days by introducing an extratropical stage in accordance with information for Oct. 24-25 in item 1). For the period Oct. 19-23, differences between author's positions and corresponding ones in Neumann et al. (1993) were found to range from about 300 miles on Oct. 23 to about 60 miles on Oct. 19. The author's track for Storm 4, 1904 is shown in Fig. 4.

The tropical storm status which Neumann et al. (1993) gave to this storm could not be rigorously verified in the light of information in item 1) because, although one ship observation reported a force 8 wind on the day (Oct. 22) the storm seemed to have reached its peak intensity, that observation was taken in an area of high pressure to the east of the storm. Nevertheless, a N. wind force 6 report to the west of the storm center on that day allowed one to infer the existence of full tropical storm intensity winds in the area of unavailable data to the east of the center once the fact that the storm was moving towards the N.N.W. at a rate of some 15 mph was taken into account. Using the policy in Neumann et al. (1993) of not introducing the tropical depression in developing stages for tracks prior to 1951, the author's track denoted tropical storm intensity for the entire period Oct. 19-23 and then showed the extratropical stage after the storm began moving along a cold front late on the last day mentioned.

Storm 5, 1904 (Oct. 31- Nov. 6), T. S.

The following information was found about this storm: 1) Data extracted from 8 A.M. (E.S.T.) Historical Weather Maps: Oct. 29-30, E.-W. isobars drawn over Yucatan and N.W. Caribbean Sea. Oct. 31, Merida, E. f. 2, 29.69. Nov. 1, no data; center placed 23 N., 92 W. (maybe a bit far N.). Nov. 2, ship near 27 N., 91 W., N.E. f.

5, 30.06 (too high); ship near 26.5 N., 91 W., E. f. 3, 29.77; ship near 24 N., 88 W., S.E. f. 4, 29.86; ship near 22 N., 88 W., S. f. 4, 29.91. New Orleans, N.E. wind force could not be read; Merida, S.W. f. 2, 29.84; center placed 23.5 N., 90.5 W. Nov. 3, center located in the Pensacola area; ships in the Gulf reported winds from the S.W. to the S. of the Florida panhandle and from the N.W. to the S. of Louisiana. Nov. 4; center placed S.E. of Wilmington, N.C.; system becoming extratropical with temperatures in the 60's F along the coast from N. Carolina to N. Florida. Nov. 5, center placed 36 N., 69.5 W.; central pressure below 995 millibars (29.38). Nov. 6, center placed 45 N., 57.5 W.; central pressure below 985 millibars or 29.09 (Historical Weather Maps. Oct.- Nov. 1904). Author's note: Wind forces (f) are on Beaufort scale; pressures are in inches. 2) Washington, Nov. 2. The Gulf storm will continue to move E.N.E. and there will be rain tomorrow in the Southern States extending during the night and Friday (Nov. 4) to the Middle States and New England (The New York Times, Nov. 3, 1904, p.9, col.5). 3) The Gulf storm has reached N.E. Florida without further increase in intensity. Its future course is uncertain, but it is likely to move N.E. near the coast (The New York Times, Nov. 4, 1904, p.9, col.6). 4) Washington, Nov. 4. Since Tuesday night (Nov. 3) the Gulf Storm has moved from N.E. Florida to near the North Carolina coast with no rain N. of southern Virginia and no high winds along the immediate coast (The New York Times, Nov. 5, 1904, p.9, col.5). 5) Washington, Nov. 6. The Atlantic storm has moved more rapidly N.E. with increased intensity and is apparently central tonight S.E. of the Canadian Provinces (The New York Times, Nov. 7, 1904, p.9, col.6). 6) Maximum wind velocities were N.E. 36 mph at New Orleans and Pensacola on Nov. 2 (Monthly Weather Review, Nov. 1904). 7) Storm of Nov. 2, 1904. Mississippi Delta. Minor (Dunn and Miller, 1960). 8) Map showing a track for this storm extending from the Mississippi Delta in the morning of Nov. 2 to S. of Newfoundland in the evening of Nov. 6 (Monthly Weather Review, Nov. 1904). 9) A storm was first observed near 20 N., 87 W. on Oct. 29, 1904 and lasted 13 days; it recurved near 25 N., 92 W. and it was last observed near 65 N., 10 W. (Mitchell, 1924). Author's note: Portions of the corresponding track in the above publication were found to be similar to the storm tracks in Tannehill (1938) and Neumann et al. (1993).

On the basis of information in the above items, item 1) in particular, the author of this study introduced a number of modifications along the track for Storm 5, 1904 in Neumann et al. (1993). The author's track was started on Oct. 31 instead of on Oct. 29 as in the above publication. The reason for the two-day delay was that E.-W. isobars were drawn over the Yucatan peninsula and the N.W. Caribbean Sea on Oct. 29-30 (item 1), exactly in the area where, according to Neumann et al. (1993), the storm was supposed to have been. Author's 7 A.M. positions were as follows: Oct. 31, near 20.0 degrees N, 91.3 W.; Nov. 1, near 22.3 degrees N., 92.0 degrees W.; Nov. 2, near 25.0 degrees N., 90.7 degrees W.; Nov. 3, near 30.3 degrees N., 86.7 degrees W.; Nov. 4, near 33.5 degrees N., 78.0 degrees W.; Nov. 5, near 36.0 degrees N., 69.5 degrees W; Nov. 6, near 45.0 degrees N., 57.5 degrees W. For the period Oct. 31 to Nov. 5, differences between the author's

positions above and the corresponding ones in Neumann et al. (1993) were found to range from about 220 miles on Oct. 31 and Nov. 1 to about 50 miles on Nov. 4; no comparison was made for Nov. 6 because the track in the above publication was ended on Nov. 5. The author decided to terminate his track on Nov. 6 because data on the Historical Weather Map for Nov. 7 (not shown here) suggested that some restructure of the extratropical low had occurred near and over Newfoundland from the previous day. The author's track for Storm 5, 1904 is shown in Fig. 4.

Information in item 6) might be questionable as to necessarily imply the occurrence of sustained (one-minute) winds of tropical storm intensity (39 mph or higher). Nevertheless, the author decided to keep the tropical storm status which Neumann et al. (1993) gave to this storm; he did so on the basis of the argument that tropical storm winds were very likely to have occurred because the 5 minute averaged winds in item 6) were only 3 mph shorter than the 39 mph one-minute averages prescribed for tropical storm intensity. The author's track denoted tropical storm intensity over the period Oct. 31- Nov. 3 and changed it to the extratropical stage on Nov. 4 on the basis of information in item 1).

Special statement.

In addition to the storms which were fully discussed above, five other possible cases were identified as having occurred in 1904. A brief description of these possible cases follows:

A) Case of Sept. 3-5, 1904.

This case was shown as Storm 1, 1904 in Tannehill (1938), who obviously took it from Mitchell (1924). Based on data contained on Historical Weather Maps (Sept. 1904). a weak low pressure center passed from the Atlantic to the eastern Caribbean Sea between Martinique and Dominica with a central pressure about 29.80 inches in the morning of Sept. 3. The center was tracked to a position near 16.5 N., 71.5 W. on Sept. 5. Maximum winds reported in connection with this system were force 6 on the Beaufort scale, well to the N. of the center on Sept. 3. The author believes that this case had only a very slim chance of having become a tropical storm but, at any rate, he decided to keep it as a possible case.

B) Case of Sept. 24-30, 1904.

Tannehill (1938) showed this case as his Storm 3, 1904. It is obvious that he took the case from Mitchell (1924) who indicated that a storm was first observed near 21 N., 64 W. on Sept. 24, 1904, recurved near 27 N., 66 W. and was last observed near 34 N., 52 W. A weak low pressure area can be identified on Historical Weather Maps (Sept. 1904) and, in general, that area was found to follow the track just described. However, at all times winds were weak around the pressure area, with no evidence of tropical storm intensity. In spite of this, the system was considered to have had a very slim probability of having acquired tropical storm intensity and this is why it was kept as a possible case.

C) Case of Oct. 10-16, 1904.

Tannehill (1938) showed this case as his Storm 4, 1904 and it is obvious that he took it from Mitchell (1924) who stated that a storm was first observed near 17 N., 67 W. on Oct. 10, 1904, recurved near 24 N., 77 W. and was last observed near 32 N., 55 W. Historical Weather Maps (Oct. 1904) show a weak low pressure area attained by maximum winds of force 4-5 on the Beaufort scale and minimum pressure of 29.74 inches reported at Turk Is. in the morning of Oct. 12. The system became extratropical in the Bahamas and then moved along a front. The probability of this system to have attained tropical storm intensity seems to have been quite small but, nevertheless, it was kept as a possible case.

D) Case of Oct. 28- Nov. 2, 1904.

Tannehill (1938) showed this cases as his Storm 7, 1904. Mitchell (1924) mentioned that a storm was first observed near 24 N., 74 W., recurved near 26 N., 74 W. and was last observed near 65 N., 21 E. (over northeastern Sweden). This case was always drawn as an extratropical system on Historical Weather Maps (Oct.- Nov. 1904). Therefore, the probability that this system had attained tropical storm status is extremely small but, in spite of that, it was kept as a possible case.

E) Case of Nov. 9-14, 1904.

Tannehill (1938) showed this case as his Storm 9, 1904 and Mitchell (1924) indicated that a storm was first observed near 17 N., 81 W. on Nov. 11, 1904, recurved near 26 N., 83 W. and was last observed near 51 N., 48 W. The track displayed in Tannehill (1938) was started about midway between Jamaica and Panama on Nov. 9, or 2 days earlier than in the corresponding track shown in Mitchell (1924). The Monthly Weather Review (Nov. 1904) elaborated about the formation and evolution of the storm as follows: During the first decade of the month (Nov. 1904) the pressure was rather low over the Caribbean Sea and on Nov. 9 a shallow depression, apparently central S. of the Isle of Pines, caused rain in southern Florida. This disturbance moved slowly northward, gradually increasing in intensity and causing rain over the Florida peninsula. During the night of Nov. 12-13 its center had moved from Jacksonville to Hatteras, and fallen in pressure from 29.60 inches to 29.08 inches. Rain occurred generally over the Southern and Middle Atlantic States, and high winds were reported along the coast. At noon Nov. 13 the center was east of Norfolk, with pressure below 29.00 inches. At 8 P.M. Nov. 13 the center was near New York, N.Y., with a barometer reading of 28.94 inches at that point. Heavy precipitation occurred in the Middle Atlantic States and in many places this precipitation was in the form of snow, even as S. as North Carolina. High winds and gales were reported from Jacksonville to Eastport, a wind of 78 mph being registered at Block Island. At 8 A.M. Nov. 14 the center of disturbance was over Nova Scotia with a pressure of 29.60 inches and heavy rain and snow

had continued over New England. By the evening of Nov. 14 the storm had passed off to sea, pursuing an E.N.E. course, and apparently reaching the coast of Scotland on Nov. 19, somewhat diminished in intensity. Historical Weather Maps (Nov. 1904) showed a ship near 10 N., 80 W. with a N.N.W wind force 8 on the Beaufort scale and a pressure of 30.00 inches, but this observation is highly suspected to be in error because Colon (Panama), a short distance to the S., was simultaneously reporting a S.W. wind f. 2 and a pressure of 29.81 inches. The 8 A.M. Nov. 10 map showed a second ship near 15 N., 78 W. reporting an E.N.E. wind force 7, and the 8 A.M. Nov. 11 map showed winds of force 7 from the E.N.E. over the eastern Gulf of Mexico and winds of force 8-10 from the N. over the southwestern Gulf, with a frontal wave over the northern coast of Yucatan. It is obvious that any continuity of a possible low pressure center far to the S. of Jamaica on Nov. 10 to the frontal wave in the Yucatan area on Nov. 11 would be very questionable. The frontal wave was shown on maps to have moved to central Florida by Nov. 12 and then to have intensified very rapidly, reaching Hatteras by the morning of Nov. 13. At all times this system was denoted as an extratropical one on the weather maps. On the basis of the above findings and also on the fact that neither Sarasola (1928) nor Martinez-Fortun (1942) mentioned any storm in Cuba in Nov. 4 it seems very likely that this system never had tropical characteristics. Nevertheless, as the author of this study found some clues of a low pressure area in the S.W. Caribbean Sea on Nov. 9-10 and could not produce enough evidence as to entirely disprove Tannehill (1938) and Mitchell (1924), he decided to keep this one as a possible case.

Finally, Sarasola (1929) mentioned a cyclone to have occurred in the Lesser Antilles and the Atlantic during Aug. 2-11, 1904 which, according to him, Mitchell (1924) did not list it. This one could have been a sixth possible case, but the author of this study did not find any of this alleged weather system on Historical Weather Maps (Aug. 1904): the strong winds that were found were rather related to high pressure in the area than to a cyclone. Therefore, the author of this study decided to discard this case as a possible one.