

Tannehill (1938) has mentioned three storms for 1866 whereas Dunn and Miller (1960) and Ludlum (1963) have mentioned a fourth one which was not listed by Tannehill (1938). The author of this study has recently documented five additional storms for 1866, allowing the number of known storms to have increased from 4 to 9. This, of course, represents an increase by 125 percent.

Storm 1, 1866 (Jul. 15).

This is a newly documented storm case by the author of this study. Documentation of this storm was based on the following information which appeared in newspapers: 1) Taken from The New Orleans Picayune, Jul. 20. Matagorda was visited by several squalls last week, ending with a terrific hurricane. On Sunday Jul. 15, all the vessels lying in wharf parted their moorings. A three-masted schooner was driven against the wharf at Indianola. All freight on the wharf was lost overboard by breaking of the wharf. The steamship "Potamska" went ashore during the gale and will be a total loss. The schooner "Liberty" and two other vessels were also lost. The schooner "Cato" was driven ashore and lays now high and dry. Steamships "I. C. Harris" and "Harlan" were detained for three days and one day, respectively, on account of the bad weather (The New York Times, Jul. 29, 1866, p.1, col.6). 2) Schr. "Veto", which has been fast around in Indianola since the storm of July last, was lifted bodily from the bed in which she was lain by floats on Aug. 23 and at last accounts was at anchor in the bay (The New York Times, Sept. 8, 1866, p.8, col.7).

No track for Storm 1, 1866 could be determined. Therefore, the storm is displayed at Matagorda Bay in Fig. 2.

Storm 2, 1866 (Aug. 13-17).

This is the second storm which had not been listed before and which the author of this study has documented for 1866. A track for Storm 2, 1866 is shown in Fig. 2.

The following information allowed one to document this storm: 1) Brig "A. E. Patterson" (from Puerto Cabello, Venezuela, in 18 days). Aug. 13 and 14, encountered a severe hurricane from S.E. to S.W. at lat. 15 N., long. 67 30 W. (The New York Times, Aug. 30, 1866, p.5, col.4). 2) Message from Fortress Monroe, Oct. 19. On the 17th of August there was a hurricane on the coast of Mexico, lasting about 12 hours. Seven vessels went ashore, one of them being the bark "Caleb Haley" of New York (The New York Times, Oct. 20, 1866, p.8, col.5). 3) Brig "Francis Leevey" (from Frontera, Mexico, in 28 days) brought to New York the survivors from the bark "Caleb Haley" which wrecked together with six other vessels in a terrific hurricane on Aug. 17 (The New York Times, Sept. 27, 1866, p.8, col.6).

In compliance with information in item 1), the track for Storm 2, 1866 (Fig. 2) was started near 15 degrees North, 66 degrees West on Aug. 13. It is estimated from the track that the storm, which apparently attained hurricane force, reached the Yucatan peninsula

on Aug. 16 and entered Mexico for a second time a short distance to the north of Veracruz on Aug. 17. The location of the shipwrecks indicated in items 2) and 3) was not specified. However, the author believes that, at least the one involving the "Cabeb Haley", occurred not far from Frontera, which is located on the southern coast of the Bay of Campeche.

Storm 3, 1866 (Sept. 4-6).

The existence of this storm was also established for the first time by the author of this study. Documentation of the storm was based once more on marine information published in newspapers. The following information was useful in studying this storm: 1) Brig "Messina" (from Boston to Jacmel, Haiti) put into St. George's, Bermuda on Sept. 12. Experienced a hurricane about 200 miles north of Bermuda on Sept. 4. The hurricane lasted 7 hours. Lost foretopmast, flying jibboom, jib, etc. (The New York Times, Sept. 30, 1866, p.8, col.7). 2) Brig "Conrade" (from Rio Grande in 73 days). Had a heavy gale from S.E. to S.S.E. on Sept. 4; carried away two masts and received other damages (The New York Times, Sept. 20, 1866, p.8, col.6). 3) Bark "Robert Wing", from Boston to Goree (?), returned to Boston after having encountered a hurricane on Sept. 6, which threw her on beam ends (The New York Times, Oct. 1, 1866, p.8, col.6). Author's note: Goree is a town in central Texas and it is obvious that the bark was not going there. Gorey is a place in Ireland but it is not a port. However, there is a port called Gorey in the Channel Islands, which are located between France and England. The bark was probably going to that port and probably met the storm off eastern Nova Scotia or south of Newfoundland.

Based on items 1), 2) and 3), the author of this study produced rough estimates for the storm positions on Sept. 4, 5 and 6 which lead him to achieve the track shown in Fig. 2.

There are indications that Storm 3, 1866 attained hurricane status.

Storm 4, 1866 (Sept. 18-20).

This storm, whose existence was not known before, was documented by the author of this study by making use of the following information: Bark "Iddo Kimball", Sept. 18, at lat. 15 N., long. 29 30 W., encountered a hurricane from N.E. that lasted 3 days, during which the vessel sprung a leak. The "Iddo Kimball" had left New York for Shanghai (China) on Aug. 16 and returned to New York for repairs (The New York Times, Oct. 23, 1866, p.8, col.5).

No track could be determined for Storm 4, 1866 but the storm was arbitrarily denoted near 15 degrees North, 29.5 degrees West over the period Sept. 18-20 (Fig. 2).

Storm 5, 1866 (Sept. 22-24).

This is also a newly documented storm by the author of this study. A track for Storm 5, 1866 is shown in Fig. 2.

The storm was documented on the basis of the following information: 1) Bark "Honduras" experienced a hurricane at lat. 42 30 N., long. 61 W. on Sept. 22, commencing from S.E. and veering all around the compass. The strength of the hurricane lasted 4 hours (The New York Times, Oct. 1, 1866, p.8, col.6). 2) Ship "Eugene" encountered a hurricane 20 miles S.S.E. of Cape Sable, having begun from S.E. and gone all around the compass (The New York Times, Sept. 30, 1866, p.8, col.7). 3) Steamship "Atlantic", coming to New York from England. Sept. 22, experienced a severe hurricane. The ship reported a position at lat. 42 N., 61 W. on Sept. 23 (The New York Times, Sept. 26, 1866, p.8, col.6). 4) Steamship "Hansa" spoke bark "Honduras" at lat. 41 43 N., long. 63 03 W. on Sept. 24 and her captain informed that the vessel had lost masts, sails and boat in a hurricane on Sept.22 (The New York Times, Sept. 27, 1866, p.8, col.6). 5) Bark "Nattie Marryman" (from Le Havre in 54 days). Experienced a heavy S.E. gale on Sept. 22 (The New York Times, Oct. 5, 1866, p.8, col.7). 6) Message from St. John, N.B., Sept. 29. Telegrams from Cape Breton and Newfoundland received here stated that the Sept. 23-24 gale was of unusual severity, sweeping over the whole island of Newfoundland and prostrating the telegraph wires for miles (The New York Times, Sept. 30, 1866, p.1, col.2).

There are very strong indications that Storm 5, 1866 was a fully developed hurricane.

Storm 6, 1866 (Sept. 24-Oct. 5).

This is a well-known intense hurricane cited by Tannehill (1938) as having occurred in the Bahamas; he mentioned its life-span to have been Oct. 1-4. Ludlum (1963) also cited the storm as having occurred off the Carolina coast on Oct. 4. The author of this study has extended the documentation of the storm over the period Sept. 24- Oct. 5, and has produced the track for Storm 6, 1866 which is displayed in Fig. 2.

The New York Times, Oct. 25, 1866, p.8, col.6, published that the brig "Jarien" (from Rio de Janeiro in 54 days) encountered a severe hurricane from W. veering to S. at lat. 13 N., long. 37 45 W. on Sept. 24. This is the earliest and easternmost report that the author of this study has found about the storm. Such a report has allowed him to start the track for Storm 6, 1866 (Fig. 2) near 13.5 degrees North, 37 degrees West on Sept. 24.

No other information on the storm has been found until the storm passed close to the Leeward Islands and the Virgin Islands on Sept. 29. The following information was available in relation to the storm events in that vicinity: 1) Ship "Squado" arrived at New Orleans on Oct. 25 and reported that on Sept. 29, when about 20 miles off Anegada, encountered a severe hurricane which carried away every sail, mizzenmast head and all the yards (The New York Times, Nov. 1, 1866, p.8, col.6). 2) The West Indies were visited by a hurricane on Sept. 29. Several ships were ashore and a pier was demolished at St. Thomas (The Times, London, Oct. 16, 1866, p.8, col.6). 3) Havana correspondence indicates that 9 vessels have arrived in distress at St. Thomas from Sept. 30 to Oct. 16 (The New York Times, Nov. 2, 1866, p.1, col.3). Author's note: Presumably,

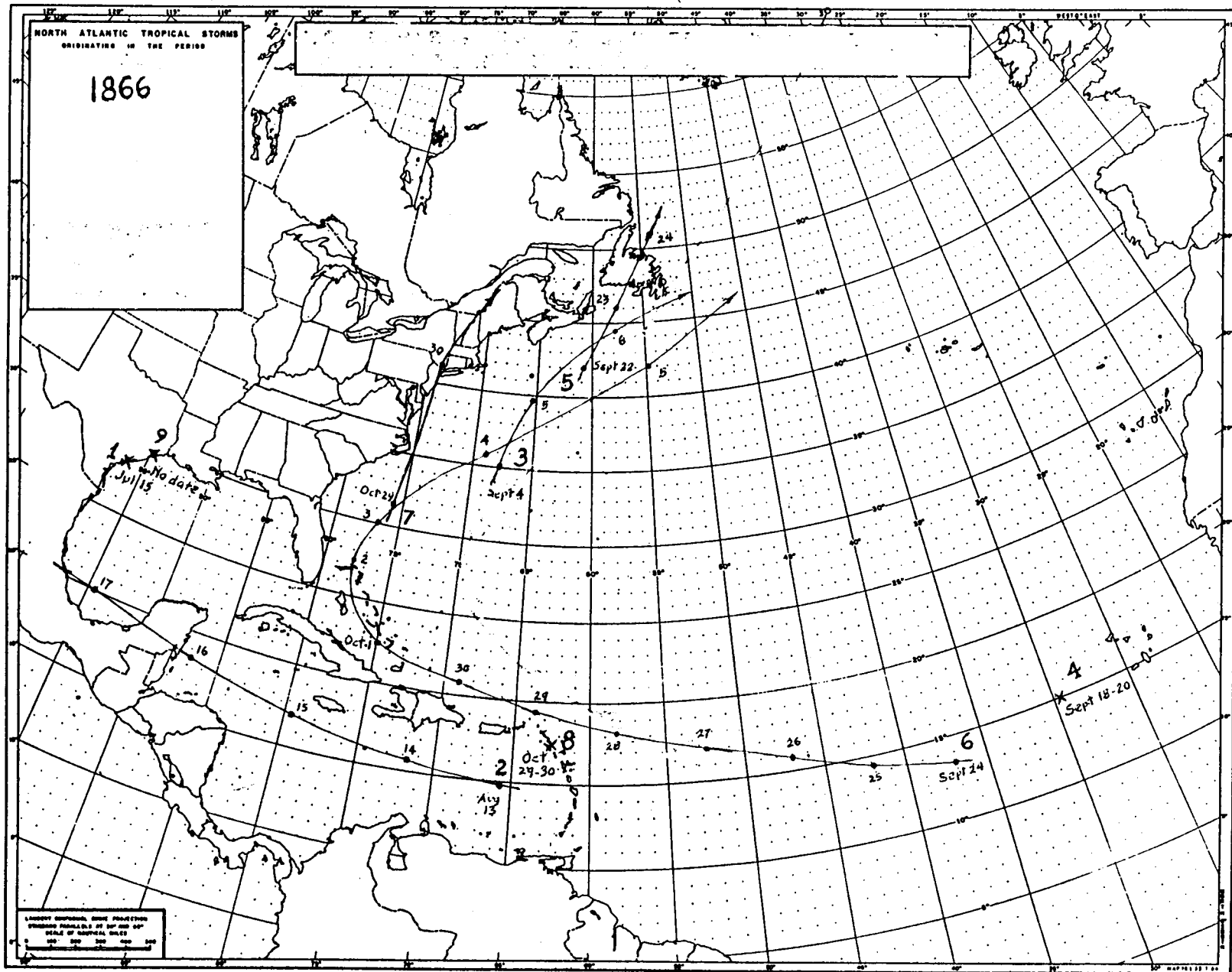


Fig. 2

these arrivals were related to damages to vessels which were caused by the hurricane.

The hurricane moved over Turks Is. on Oct. 30 and the following information was found in connection with that event: 1) Correspondence of the Philadelphia Inquirer. Grand Turk, Oct. 6. On Saturday (Oct. 29) at night or on Sunday morning (Oct. 30), said about 1 or 2 A.M., the wind gradually increased so that at sunrise there was no doubt that the hurricane was at hand. It blew with terrific force until after midday from E.N.E. , when it abated for half an hour. The abatement was followed by an increased blast from S.E. which lasted until about 5 or 6 o'clock, when it gradually abated (The New York Times, Nov. 12, 1866, p.3, col.1). 2) The Royal Standard, a newspaper published in Turks Is., referred to how a man and his family tried to walk about 2 miles during the lull in the gale (the hurricane of Sept. 30) after his house collapsed (The Times, London, Dec. 6, 1866, p.7, col.6). 3) Extract from the minutes of the proceedings of a meeting of merchants of Turks and Caicos Islands, held at Grand Turk, Oct. 6, 1866: It has pleased the Divine Providence to visit these islands with one of the most terrific hurricanes ever known the effects of which have been ruinous to the inhabitants and trade of this colony. Three fourths of the entire and principally the laboring populations are left homeless and destitute...(The Times, London, Nov. 17, 1866, p.12, col.4).

From Turks Is., the hurricane continued towards the W.N.W. and then turned towards the N. over the western portion of the Bahamas. The following information allowed one to document Storm, 6, 1866 over Nassau and other islands of the Bahamas: 1) Extract from a letter from A. J. Chatfield, Commander of H.M.S. "Nimble" at Nassau, N. Prov., Oct. 9, 1866: Regret I have to report that in a terrible hurricane the 1st and 2nd of October, H.M.S. "Nimble" was wrecked abreast the Navy-yard, on a sandy bottom, in 6.5 feet (high water) neap tides (The Times, London, Nov. 7, 1866, p.9, col.5). 2) Remarks on the hurricane by Commander Chatfield: The hurricane commenced (at Nassau) on Oct. 1 about 10 A.M., although the great fury was from 1 to 7 P.M. (Oct. 1) from N.E. and N. and from 9 P.M. until 2 A.M. (Oct. 2) from S., after which it gradually went down. From 7:30 to 8:50 P.M. there was a dead calm when the vortex passed over the harbor (Nassau), the barometer falling to 27.70 inches. There was no indication of the approaching storm until late on Sunday night (Sept. 30) when the barometer began to fall. Sunday (Sept. 30) was a fine clear day with a fresh N.E. breeze, no banking up of the horizon until sunset or lightening at midnight... The lights at Abaco are damaged. The storm commenced there and at Great Turtle Cay on Oct. 2 and ended on Oct. 3. Stirrup Cay is most damaged. Great Isaac's and Gun Cay Lights have not suffered. On the 3rd and 4th, the hurricane passed an American man-of-war, the "Tacoma", about 40 miles west, she being at lat. 33 N., long. 72 W. I calculate the storm passed at a rate of 15 to 20 miles an hour over the Bahamas, and Captain Gibson of the "Tacoma", at a rate of 13 miles an hour. By him the vortex was no more than 10 to 18 miles wide and the greatest extent of the storm was 100 to 180 miles over the Bahamas. A schooner, in the bottom of the Tongue of the Ocean, had a gale, nothing more (The Times, London, Nov. 7, 1866, p.9,

col.5). 3) From a letter from Governor Ramson to Lord Carnarvon, Nassau, Oct. 17: In the harbor, every vessel and boat, except one, was driven ashore or had foundered. The streets were choked with the debris of fallen and uprooted houses and with prostrated trees (The Times, London, Nov. 16, 1866, p.8, col.2 and 3). 4) Extract from a report filed by the U.S. Consul at Nassau: Bark "Elite" was wrecked at Andros and bark "Sickle" was wrecked at Eleuthera. Several vessels reached Nassau harbor in distress. A French bark was wrecked at Great Stirrup Key and brig "Rival" at Moor's Island. Bark "S. Willis Rich" was totally wrecked at Gordo Aburo (?) on Oct. 2; part of the officers and crew were brought to Nassau. Many other vessels were also wrecked (The New York Times, Nov. 13, 1866, p.1, col.6). Author's note: Gordo Aburo should probably read Great Abaco.

Abundant marine information about Storm 6, 1866 was available starting on Oct. 1: 1) Brig "Ellen Steward" was dismasted near lat. 24 53 N., long. 78 37 W. in the night of Oct. 1 and arrived in Key West on Oct. 5 (The New York Times, Oct. 13, 1866, p.8, col.6). 2) Steamship "Tybee" experienced a heavy N.E. gale for 48 hours off Jupiter on Oct. 1 (The New York Times, Oct. 9, 1866, p.8, col.6). Author's note: The alleged 48-hr gale should have occurred on Oct. 2 as well. 3) Ship "Sevastopol", lat. 26 39 N., long. 79 18 W., encountered a heavy gale which increased to a hurricane on Oct. 1 (The New York Times, Oct. 9, 1866, p.8, col.6). 4) Steamship "George Cornwall" had a heavy N.E. to W. gale off Carysfort Reef, Florida, lasting for 30 hours (The New York Times, Oct. 8, 1866, p.8, col.6). 5) From The Savannah Republican, Oct. 22. Ship "Lord Elgin" sailed from Pensacola on Sept. 13. The weather was fine until Oct. 1 when the wind, which was from N.N.W., increased to a perfect gale. On the 2nd, it changed to a perfect hurricane which blew until 4 A.M. the next day when it abated somewhat but a very heavy sea was running. In the morning of the 3rd, the ship was off Little Bahama and it was abandoned. All hands took a long boat and reached the Florida coast (The New York Times, Oct. 28, 1866, p.1, col.7). 6) Bark "George E. Kingman" encountered a hurricane in the Florida Straits on Oct. 2 (The New York Times, Oct. 20, 1866, p.8, col.5). 7) Bark "Rosina" experienced a severe gale from N.E. and heavy seas at lat. 31 N., long. 70 W. on Oct. 2 and 3 (The New York Times, Oct. 31, 1866, p.8, col.6). Author's note: The longitude most likely be west of San Fernando and not west of Greenwich, because the "Rosina" was a Spanish bark. 8) Correspondence from Havana, Oct. 26. The "Rhode Island" encountered a storm at lat. 29 N. in the morning of Oct. 2 (The New York Times, Nov. 2, 1866, p.1, col.3). 9) Brig "Henry and Louise Porter" (coming to New York from Port-au-Prince) had a hurricane from E.N.E. to N. on Oct. 3, lasting for 3 hours (The New York Times, Oct. 23, 1866, p.8, col.5). 10) Message from New Orleans, Oct. 19. Ship "Sandusky" from New York arrived here, indicating that at lat. 32 50 N., long. 74 30 W. encountered a hurricane during which she lost main and mizzentop masts (The New York Times, Oct. 20, 1866, p.8, col.5). 11) Schr. "Roselle". Oct. 3, lat. 35 12 N., long. 74 47 W., encountered a heavy gale from E.N.E. (The New York Times, Oct. 20, 1866, p.8, col.5). 12) Ship "Ne Pius Ultra". Oct. 3, lat. 34 35 N., long. 74 W., encountered a hurricane commencing from E.N.E. and

veering to N.; a heavy sea was running from S.S.E. and breaking over the ship in all directions (The New York Times, Oct. 26, 1866, p.8, col.6). 13) Taken from a telegram sent by the Purser of the "Evening Star" to the Treasurer of the New York Mail Steamship Company, dated in Savannah, Georgia, Oct. 9. The "Evening Star" went down in the morning of Oct. 3 in a hurricane. Sixteen persons only are known to be save. No women are among them. Ten in one party arrived here on board a schooner yesterday (The New York Times, Oct. 10, 1866, p.1, col.6). 14) The captain of the "Daniel Webster", abandoned in a hurricane, states as his opinion that the hurricane was of the cyclone kind, and from observations made before and since, he concludes its diameter was not more than 100 miles (The New York Times, Oct. 11, 1866, p.1, col.5). 15) Message from Boston, Oct. 24. Ship "Fortuna" encountered a hurricane at lat. 31 54 N., long. 64 03 W. on Oct. 3 and 4, coming from Liverpool to New York and was abandoned in a sinking condition. All hands were rescued by the "Winged Hunter" which arrived here today (The New York Times, Oct. 25, 1866, p.1, col.3). Author's note: The latitude is too low for a Liverpool- New York passage; about 41 degrees North would more logical. 16) Ship "Pacific" encountered a hurricane at lat. 37 N., long. 67 W. on Oct. 4, lasting for 2 days (The New York Times, Oct. 23, 1866, p.8, col.5). 17) Steamship "Bremen" had a hurricane at lat. 44 N., long. 53 W. on Oct. 5; wind changed from E. to N.W. (The New York Times, Oct. 11, 1866, p.8, col.6).

Bermuda was the last land area known to have been affected by the hurricane: Tucker (1982) has stated that the southern edge of a passing hurricane was felt at Bermuda on Oct. 4, 1866 with winds force 11 (64 to 73 miles por hour). Tucker (1982) has also stated that, in Hamilton Harbor, the packet "Gleaner" was driven stern on the rocks and sank and that, in George's Harbor, the sailboat "Adelaide" sank.

The track for Storm 6, 1866 shown in Fig. 2 is not the first one which has been produced for this hurricane. Tannehill (1938) shows a track which was published by Alexander Buchan in his "Handy Book of Meteorology", Edingurgh and London, 1868. Buchan's is a parabolic track extending from about 20 degrees North, 61 degrees West to about 36 degrees North, 67 degrees West with its vertex about 27 degrees North, 78 degrees West; however, no times are displayed along the track. It should be indicated that Buchan's track and the track in Fig. 2, which were independently achieved, are in a good qualitative agreement over the entire portion they have in common.

Storm 7, 1866 (Oct. 29-30).

This storm has not been listed by Tannehill (1938) but it has been mentioned by Dunn and Miller (1960) and Ludlum (1963) as having occurred in the northeastern U.S. area on Oct. 30. The author has prepared a track for Storm 7, 1866 (Fig. 2) which was started one day earlier, i.e., on Oct. 29.

The following information was available for Oct. 29: 1) Brig "G. W. Barter" (from Nuevitas, Cuba, in 18 days). Oct. 29, lat. 32 20 N., long 79 15 W., in a gale from N.E., lost deck-load of

molasses and split sails (The New York Times, Nov. 9, 1866, p.8, col.7). 2) Brig "D. R. De Wolf" (from Cartagena, Colombia, in 30 days). Oct. 29, in the Gulf Stream, encountered a heavy gale from S.E. during which shipped a heavy sea (The New York Times, Nov. 10, 1866, p.8, col.5). 3) Brig "Eveline". Oct. 29, lat. 33 30 N., long. 76 40 W., encountered a heavy gale from N.E. to N.W.; lost jibboom. head gear, etc. (The New York Times, Nov. 10, 1866, p.8, col.5). 4) Brig "Emma Dean" arrived off Sandy Hook on Oct. 29 but had to haul off in consequence of the heavy S.E. blow and thick weather (The New York Times, Nov. 1, 1866, p.8, col.7).

Based on the above information, the author of this study estimated that the storm should have been near 31.5 degrees North, 76 degrees West in the morning of Oct. 29 and started the northward track towards the New York area which is shown in Fig. 2. However, it is possible that the storm might have commenced even farther south, in accordance to the following statement: Message from Baltimore, Nov. 17. Brig "Walter Witch", that arrived from Santiago de Cuba, reported having been boarded while passing Fortune Island (Bahamas) on Oct. 30 by parties from the shore who reported that everything on the island was destroyed by a hurricane on the previous day (The New York Times, Nov. 18, 1866, p.5, col.1 and 2). Fortune Island is located about 550 miles due south of the position given for Storm 7, 1866 at 7 A.M. Oct. 29. Therefore, the storm could not have affected the island on Oct. 29, but the possibility remains that it could have occurred there on Oct. 27 or 28.

Ludlum (1963) only cited the storm as having produced "violent winds, high tides" in S.E. New England on Oct. 30 and mentioned S.I. as his source. The following additional information was found about the storm over and near land: 1) Brig "Amanda Jane". Oct. 30, off Montauk, encountered a heavy S.E. gale (The New York Times, Nov. 1, 1866, p.8, col.7). 2) Brig "Elizabeth White". In a gale on Oct. 30, lost a part of deck-load, foreboom, etc. (The New York Times, Nov. 1, 1866, p. 8, col.7). 3) The storm of Monday night (Oct. 29) and Tuesday morning (Oct. 30), which appears to have commenced far down south, was quite severe and the immense quantity of rain which fell caused considerable flooding to cellars and basements. The wind blew in sharp gusts, causing considerable commotion among the shipping in the (New York) harbor but doing no serious damages so far as reported. The propeller "Clayton" sank near Venango yard, Jersey City. The flat lands back of Jersey City and Hoboken were flooded. In Brooklyn, the city car tracks were in many places so carved by mud and sand that cars ran off the rails and trips were performed with difficulty (The New York Times, Oct. 31, 1866, p.2, col.7). 4) Message from Providence, R.I., Oct. 30. The heavy S.W. (?) wind which had prevailed here for 12 hours increased to a furious gale between 12 and 1 o'clock today. The tide was unprecedentedly high and wharves were covered and cellars filled of water. Six or eight vessels broke adrift in the harbor and sustained damages. Two buildings were uprooted and three unfinished buildings were blown down. No loss of life is reported (The New York Times, Oct. 31, 1866, p.1, col.4). Author's note: The S.W. direction attributed to the wind is doubtful; the wind should have blown rather from the S.E. 5) Message from Boston, Oct. 30. A

heavy S.E. storm with a high wind is prevailing here. The steamer "Ashland" remains in the Roads. The steamer "Montreal", which had left Boston last night, returned. The "Eastern City" is anchored at Gloucester harbor and the steamer "Lewiston", from Portland, arrived here at 10:30 this morning. No marine disasters are reported (The New York Times, Oct. 31, 1866, p.1, col.5). 6) Message from Portland, Me., Oct. 30. A heavy S.W. (?) gale has prevailed here all day. The steamer "Katahdin" has put here for a harbor and the steamer "City of Richmond" returned to Rockland. The shipping in the harbor are riding out the gale well and no disasters are yet reported (The New York Times, Oct. 31, 1866, p.1, col.4). Author's note: It is likely that the gale had also blown from directions different from the S.W. 7) Message from Belfast, Me, Oct. 31. A violent storm has prevailed for two days along the coast of Maine, interrupting telegraph communications, steamboats and mails (The New York Times, Nov. 1, 1866, p.1, col.6 and 7).

Storm 7, 1866 might have acquired some extratropical characteristics over northeastern U.S. on Oct. 30.

Storm 8, 1866 (Oct. 29-30).

Tannehill (1938) has referred to this case as an unusually severe hurricane in the Leeward Islands on Oct. 29-30. However, nothing is said about this alleged hurricane in the West Indies mails published in The Times (London), Nov. 13, 1866, p.7, col.2 and in The Times (London), Nov. 23, 1866, p.10, col.1. It is surprising that, had this hurricane really existed, it would not have been reported in the above mails. Therefore, this case looks highly suspicious. Nevertheless, the author of this study decided to retain the storm due to the lack of a proof against it. Consequently, the storm is shown as Storm 8, 1866 in Fig. 2.

Storm 9, 1866 (No date).

Tannehill (1938) and Dunn and Miller (1960) have referred to this case as having occurred at Galveston. Tannehill (1938) just listed the case and Dunn and Miller (1960) stated that it was a minimal hurricane and that the same storm or another one occurred at Port Isabel. No date has been given for the storm but, as Matagorda Bay has not been referred to by the above mentioned co-authors, there is no reason to believe that Storm 1, 1866 and this case might have been identical. No additional information about this case has been found by the author of this study, who decided to keep it on record and to display it near Galveston in Fig. 2.