

Prior to the present study, only one storm has been mentioned for 1858. Ludlum (1963) mentioned this storm as having occurred in New England on Sept. 16, 1858; Tannehill (1938) did not list that storm. Six additional storms have been documented by the author of this study, making an increase by 600 percent in the number of known storms for 1858.

Storm 1, 1858 (Jun. 12).

This is one of the cases newly documented by the author of this study. The following information was used to document this storm: Brig "L. H. Sampson", from San Juan de Nicaragua in 25 days. June 12, lat. 19 20 N., long. 84 57 W., in a hurricane from E.S.E., the vessel sustained damages (The New York Times, Jun. 24, 1958, p.8, col.6). This information allowed one to place a storm in the northwestern Caribbean Sea and, therefore, Storm 1, 1858 was placed near 19 degrees North, 85.5 degrees West on June 12 (Fig. 1). As no additional information was found about Storm 1, 1858, no track for it was attempted.

Storm 2, 1858 (Aug. 5).

This is the second storm documented by the author of this study for 1858. Information published in The New York Times allowed one to infer the existence of Storm 2, 1858: The ship "A. Z. Greenland", lat. 44 58 N., long. 40 08 W., experienced a severe gale on Aug. 5 (The New York Times, Sept. 8, 1858, p.8, col.6), and the ship "Shelter" experienced a hurricane from S.S.W. to S.W. at lat. 44 13 N., long. 41 W. on Aug. 5 (The New York Times, Sept. 10, 1858, p.8, col.6). Based on the information above, this storm was placed near 45 degrees North, 40 degrees West on Aug. 5 (Fig. 1). Due to insufficient information, a track could not be determined for Storm 2, 1858.

The loss of the bark "Magistrate", from New Orleans for Liverpool, which was waterlogged and then abandoned at lat. 42 N., long. 43 W. on Aug. 6 (The New York Times, Sept. 13, 1858, p.8, col.6) might have been related to this storm and, if this were the case, a storm motion towards the N.E. would be inferred in spite of that a track for the storm was not produced.

Because of its high latitude, it is likely that Storm 2, 1858 was in the process of gradually becoming extratropical. Nevertheless, the storm was still accepted because it apparently attained hurricane strength and might have come undetected from lower latitudes.

Storm 3, 1858 (Sept. 14-16).

This is the case mentioned by Ludlum (1963) as "The New England Tropical Storm of 1858". The date mentioned by him is Sept. 16. However, the author of this study has established the existence of Storm 3, 1858 as early as Sept. 14. A track for Storm 3, 1858 is shown in Fig. 1.

The following information was useful in determining the evolution of the storm over the period Sept. 14-16: 1) From Sept. 13 to Sept. 15, the bark "Cavallo" experienced heavy weather from N.E. between latitudes 26 and 28 N. and about longitude 86 W. (The New York Times, Oct. 8, 1858, p.8, col.6). 2) Message from Savannah, Ga., Sept. 23. Damages to crops in Florida in the late severe storm (The New York Times, Sept. 25, 1858, p.1, col.5). 3) Brig "Means" (coming to New York from Jacksonville). Lat. 32 31 N., long. 77 15 W., gale from S.E. on Sept. 15 (The New York Times, Sept. 27, 1858, p.8, col.6). 4) Schr. "B. S. Johnson" encountered a severe hurricane off Cape Romain on Sept. 15. Wind E. to W., shifting to S., lasting for 15 hours (The New York Times, Sept. 27, 1858, p.8, col.6). 5) Schr. "Christiana Keen", lat. 33 30 N., long. 74 40 W., gale from N.W. on Sept. 15 (The New York Times, Sept. 24, 1858, p.8, col.6). 6) Brig "Jachin" experienced a severe hurricane at lat. 34 46 N., long. 73 37 W. The "Jachin" was at lat. 36 01 N., long. 72 35 W. on Sept. 17 (The New York Times, Sept. 22, 1858, p.8, col.6). 7) Report from Beaufort, Sept. 16. The steamer "Pamlico" dragged and went on a shoal during a S.E. (?) gale (The New York Times, Sept. 21, 1858, p.8, col.6). 8) Brig "Borneo" experienced a heavy S.E. gale 60 miles E. of Hatteras on Sept. 16 (The New York Times, Sept. 22, 1858, p.8, col.6). 9) Brig "John S. Cotten" experienced a severe gale from E. at lat. 36 55 N., long. 74 01 W. on Sept. 16 (The New York Times, Sept. 22, 1858, p.8, col.6). 10) Bark "Escoriza". Gale from N.E. to S.E. at lat. 37 50 N., long. 74 40 W. on Sept. 16 (The New York Times, Sept. 20, 1858, p.8, col.6). 11) Brig "George Albert", for 7 days (?) N. of Hatteras, easterly gales and heavy weather (The New York Times, Sept. 20, 1858, p.8, col.6). 12) Steamship "Constantine" (coming from Liverpool, Aug. 13). On Sept. 15, gale from E., the wind shifting to N.W. at 3 P.M. Sept. 16 (The New York Times, Sept. 20, 1858, p.8, col.6).

The storm in the northeastern part of U.S. has been described by Ludlum (1963) as follows: From the Smithsonian observer at Sag Harbor (eastern tip of Long Island). Sept. 15, wind N.E., commencing to veer to E. in the evening, and it was S.E. at daybreak Sept. 16, blowing strong. At 3 P.M. Sept. 16, lowest barometer: 28.87 inches. A 22-hr rainfall ended soon after that time. At 9 P.M., wind W. and sky clearing. At Providence, R. I. (notes from Alexis Caswell). Sunrise Sept. 16: E.S.E. wind very heavy hauling later to S.E. At 5 P.M., barometer 28.90 inches. Before 6 P.M., wind N.W. with heavy gusts and barometer rising very rapidly. At Nantucket, the greatest force was from 3:30 to 4:30 P.M. and the wind changed from S. by E. to S.W. Lowest barometer was 29.42 inches at 3 P.M. (observation time). At Bangor, Me., the storm continued until midnight Sept. 16-17 and was one of the heaviest in years. Belfast, on the sea-coast, reported the gale as "heavy".

The barometer readings of 28.87 and 28.90 inches at Sag Harbor and Providence, respectively, as well as the "severe hurricane" description given by the "B. S. Johnson" and the "Jachin" allowed one to infer that Storm 3, 1858 attained hurricane intensity.

#### Storm 4, 1858 (Sept. 17-18).

This is the third storm that the author of this study has newly documented for 1858. The following marine information published in The New York Times allowed him to know about this storm: Bark "Phantom", lat. 22 18 N., long. 45 38 W., Sept. 17 (sea time). 5 P.M., strong gale. 6 P.M., gale increasing. 9 P.M., gale from N. very heavy. 11 P.M., wind N.N.W. a perfect hurricane. Midnight (Sept. 17-18), tremendous sea running, it appears to be a lull. The hurricane had hardly capsized the bark when it shifted to S.W. and blew with equal if not more violence. The crew remained on the wreck until Sept. 21 when the brig "Iolo" picked them up and brought them to Havana. The "Phantom" had sailed from Richmond, Va., and passed the Virginia Capes on Aug. 27, going to Pernambuco, Brazil. The narrative above was given by Capt. Quig of the "Phantom", who arrived from Havana in the "Black Warrior" (The New York Times, Oct. 13, 1858, p.8, col.5).

The description above allowed the author to prepare the two-day track for Storm 4, 1858 which is shown in Fig. 1. According to this track, the storm was moving towards the northwest when it was met by the "Phantom". The description given by Capt. Quig clearly shows that the storm had already attained full hurricane intensity by late Sept. 17.

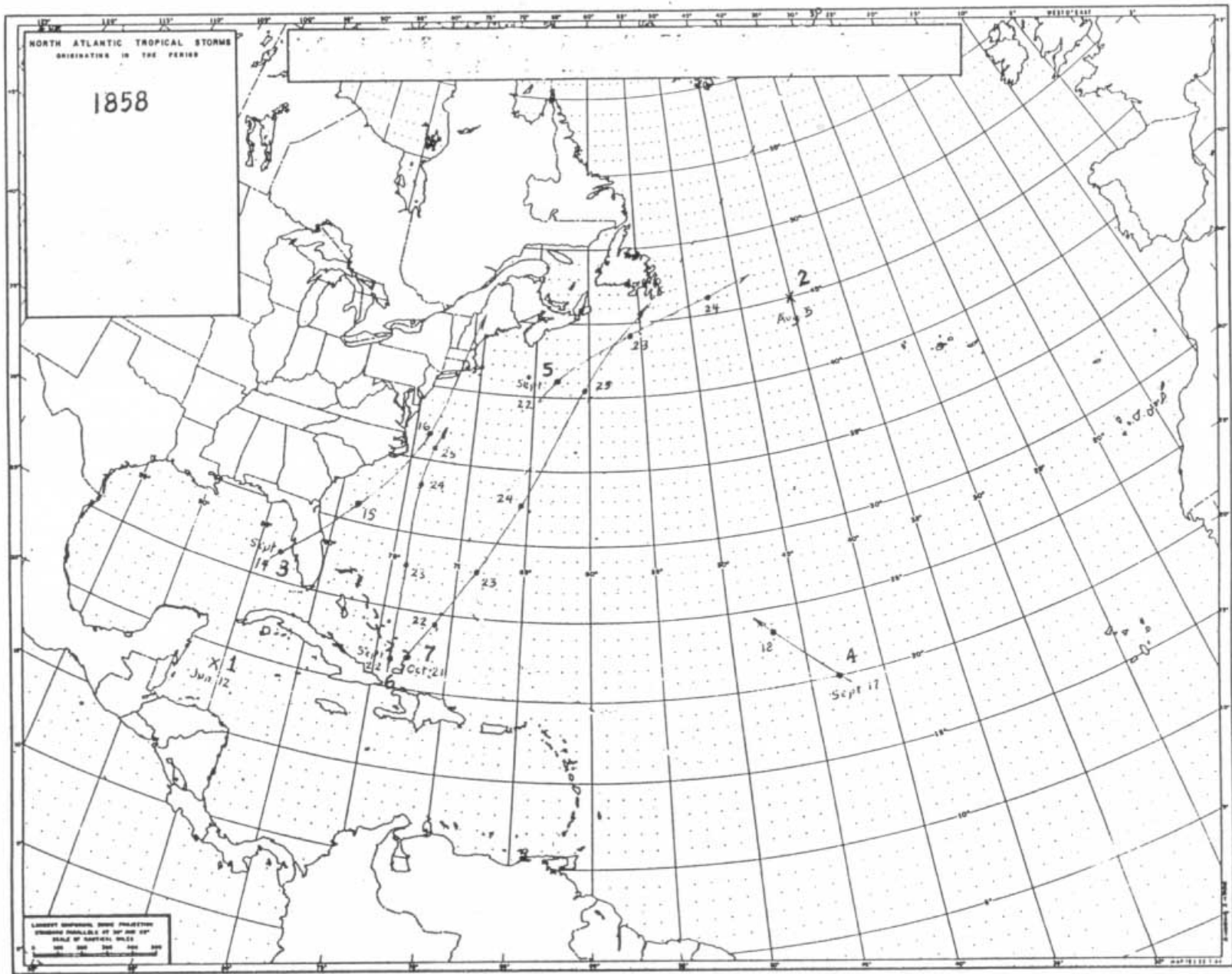
#### Storm 5, 1858 (Sept. 22-24).

This is the fourth storm which the author has documented for 1858. It is, however, possible that Storm 5, 1858 might have been the same previous storm (Storm 4, 1858). Although extrapolation of its Sept. 17-18 movement to the northwest would bring Storm 4, 1858 near the location where the track for Storm 5, 1858 was started on Sept. 22 (Fig. 1), the author decided to treat both storm cases separately because there is no proof that such a motion occurred in reality. In fact, Storm 4, 1858 could have turned towards the north and the northeast as Storm 5, 1858 was developing in the Atlantic much farther to the west.

Storm 5, 1858 was documented on the basis of the following information: 1) Ship "Hudson", in a hurricane near lat. 42 N., long. 63 W. on Sept. 22, stopped the engine for 8 hours (The New York Times, Sept. 27, 1858, p.8, col.6). 2) Ship "City of Washington" encountered a hurricane on Sept. 23. Heavy gales commenced at 3 A.M., hurricane at 4 A.M., height of the hurricane was at 5 A.M., wind S.S.E., then S.E. and W.N.W. The ship was at lat. 42 N, long. 61 W. on Sept. 25 (The New York Times, Sept. 28, 1858, p.8, col.6). Author's note: Position for the ship-hurricane encounter was not given but probably was near longitude 56 degrees West. 3) Bark "Lanerk" (Sept. 24, lat. 43 20 N., long. 56 08 W.). On the night of Sept. 23, had a gale from S.S.E. to S.W., lasting for 5 hours (The New York Times, Oct. 5, 1858, p.8, col.6).

#### Storm 6, 1858 (Sept. 22-25).

This is the fifth new storm case documented by the author for 1858. A track for Storm 6, 1858 is displayed in Fig. 1. The



following information was considered in determining the track: 1) Bark "Wm. H. Chandler" experienced a heavy N.E. gale near lat. 21 30 N., long. 75 40 W. on Sept. 22 (The New York Times, Oct. 8, 1858, p.8, col.6). 2) Brig "Addy Swift" (from Maracaibo, Sept. 10), lat. 29 30 N., long. 72 56 W., had a gale from S.S.W. and shipped a sea on Sept. 23 (The New York Times, Oct. 5, 1858, p.8, col.6). 3) Bark "Lamartine" (from Rio de Janeiro, Aug. 10). Sept 24, lat. 29 N., long. 67 W., experienced a violent S.S.W. to N.W, gale with a very high sea (The New York Times, Oct. 5, 1858, p.8, col.6). 4) Schr. "Harkaway" reported a severe hurricane at Bermuda on Sept. 23, but did not learn what amount of damage was done (The New York Times, Oct. 6, 1858, p.8, col.6). 5) Message from Baltimore, Oct. 4. Schr. "Priscilla" arrived today from Maracaibo after having experienced a hurricane off Hatteras on Sept. 24-25 (The New York Times, Oct. 6, 1858, p.8, col.6).

The author believes that the report of a "severe hurricane" at Bermuda on Sept. 23, which was given by the "Harkaway", is doubtful because Tucker (1982) does not mention this alleged hurricane in his book: "Beware the hurricane!, the story of the cyclonic tropical storms that have struck Bermuda 1609-1982." Furthermore, to accept that Storm 6, 1858 went by Bermuda on Sept. 23 would imply to also accept a 30 mph northeastward motion of the storm starting from its estimated position for Sept. 22 which is very unlikely to have occurred. The author also believes that the position and/or the date given by the "Lamartine" are in error because the alleged position near lat. 29 N., long. 67 W. appears to be too far south for a Rio de Janeiro-New York sailing and the day she met the storm (Sept. 24) does not coincide with the one (Sept. 23) given by the "Addy Swift" about 300 miles to the west. In addition, the alleged change of the violent gale from S.S.W. to N.W. reported by the "Lamartine" does not agree with the S.S.W. gale reported by the "Addie Swift" and, above all, would imply that Storm 6, 1858 was felt in Bermuda on Sept. 24 or 25, which is not indicated in Tucker (1982). Consequently, the report of a severe hurricane at Bermuda on Sept. 23 and the report given by the "Lamartine" were discarded in the process of determining a track for Storm 6, 1858. Then, the south to north track which is shown in Fig. 1 was adopted on the basis of the information furnished by the "Wm. H. Chandler", the "Addy Swift" and the "Priscilla".

Storm 7, 1858 (Oct. 21-25).

This is the sixth previously unknown storm that the author of this study has documented for 1858. The track for this storm is shown in Fig. 1.

Abundant information about Storm 7, 1858 is available. The following information was useful in determining the characteristics and track of the storm before reaching the vicinity of Bermuda on Oct. 24: 1) Brig "Sea Lark", Oct. 21, lat. 22 25 N., long. 73 40 W. Heavy gale from S. hauling around to W. and lasting until Oct. 24, accompanied with tremendous heavy sea from N.E. (The New York Times, Nov. 8, 1858, p.8, col.5 and 6). 2) Brig "Gem", in Mayaguana Passage, Oct. 21. Experienced a severe gale from S.E. to W. with a tremendous sea (The New York Times, Nov. 9, 1858, p.8, col. 6). 3)

Schr. "Amelia", Oct. 23, lat. 23 58 N., long. 68 04 W. Heavy gale from S.W. which shipped a heavy sea (The New York Times, Nov. 8, 1858, p.8, col.5 and 6). 4) Information taken from The Bahama Herald, Nassau, Oct. 23. A tremendous sea was thrown up outside and even in the harbor the fury of the successive blasts was severely felt. Several vessels were driven ashore. Information taken from The Nassau Guardian, Oct. 27. The late boisterous weather has created an unusual surge on the northern side of Hog Island. The tide rose yesterday to a considerable height overflowing the western suburbs of Nassau and causing much damage to the buildings along shore (The New York Times, Nov. 9, 1858, p.2, col.4). Author's note: Hog Island, also known as Paradise Island, is located off Nassau. 5) Extraordinary weather prevailed in the West Indies from Oct. 19 to 29. The wind at St. Thomas blew with a great violence from S.S.W. The packet from Nassau had a violent gale from N.E. and the reports from the islands and Jamaica are that the winds were heavy from all quarters from about Oct. 11 to 27. The mail ship going from Barbados to St. Thomas had considerable rain accompanied by mist which delayed the vessel to enter St. Kitts for about an hour. Then the sky cleared after Oct. 29. The ship arrived at St. Thomas on Oct. 30, where one or two vessels had arrived disabled because of the storm that had occurred in more northern latitude (The Times, London, Nov. 22, 1858, p.5, col.5). 6) Message from St. Thomas, Oct. 30. The "Agathe", from Puerto Plata (Dominican Republic) to Falmouth, put in here yesterday, leaking. The "Theresa", from Manzanillo (Cuba) to London, put in here on Oct. 28, leaking and dismasted (The Times, London, Nov. 22, 1858, p.10, col.6). The motion towards the northeast and the extremely large size of the storm can be inferred from the information above.

Information about the storm in Bermuda was published in The New York Times: Message from Halifax, Nov. 11. Bermuda was visited with a terrific hurricane on Oct. 23 to 26. The U.S. frigate "Sabine" put into Bermuda on Oct. 31, having been disabled in a hurricane on Oct. 24. Bark "W. H. Chandler (from New York to Vigo, Spain) was in the hurricane on Oct. 24 and also sustained damages (The New York Times, Nov. 12, 1858, p.4, col.6). A detailed account of the storm in Bermuda is included in Tucker (1982) and the following information has been extracted from that source: On Saturday (Oct. 23), it blew a very heavy gale from the E. The mercury in the barometers fell rapidly and stood very low. During Saturday evening (Oct. 23), the wind fell a little and blew from 2 or 3 points S. of E., but on Sunday morning (Oct. 24), it was blowing a severe gale from the S.W. and a very high sea was running into Hamilton Harbor. During the forenoon of Sunday (Oct. 24), the wind being W., the gale increased in violence and, from about noon to 2 P.M., it blew a hurricane.

The following information was useful in determining the track for Storm 7, 1858 after passing Bermuda on Oct. 24: 1) Ship "Buillon", Oct. 23, lat. 38 25 N., long. 67 W., took a very heavy gale from E., which lasted for 3 days. The wind afterwards changed to N.E. and N., blowing a perfect hurricane with a heavy cross sea (The New York Times, Nov. 9, 1858, p.8, col.6). 2) Bark "Native", Oct. 24, lat. 40 N., long. 68 W., had a heavy gale from E.N.E. (The New York Times, Nov. 2, 1858, p.8, col.6). 3) Ship "Alexander",

Oct. 24, lat. 42 N., long. 63 W., experienced an E. gale which lasted for 3 days (The New York Times, Nov. 2, 1858, p.8, col.6). 4) Ship "Bavaria", Oct. 25, lat. 43 N., long. 57 W. Furious gale from E.N.E., the gale continued without abating until the morning of Oct. 27 (The New York Times, Nov. 4, 1858, p.8, col.3). 5) Ship "Cultivator", off Sable Island, Oct. 25. Very severe gale from S.E. which eventually grew to a perfect hurricane, gradually backing to N. and N.W. (The New York Times, Nov. 6, 1858, p.8, col. 6). The extremely large size of the storm continues to be inferred from the information contained in the above items 1) through 5).