

Tannehil (1938) has listed one storm for 1864 and the author of the present study has documented four additional storms, bringing to five the number of currently known storms for this year. The author's contribution represents, of course, a 400 percent increase.

Storm 1, 1864 (Jul. 16-18).

This is the first new storm case documented by the author for 1864. A track for Storm 1, 1864 is displayed in Fig. 7.

Documentation of the storm was based on the following information: 1) Brig "Hattie Eaton", July 16, lat. 35 20 N., long. 71 30 W., 5 P.M., while running with the wind from S.E. it suddenly shifted to N.N.W. and blew a hurricane for 4 hours. The vessel was boarded by a heavy sea which swept the decks (The New York Times, Jul. 27, 1864, p.8, col.4). 2) Ship "Energy" (coming to New York from Liverpool). July 18, wind W.S.W. suddenly changing to N. and blew terrific for 3 hours; the ship sustained damage. July 20 position: lat. 44 15 N., long 47 43 W. (The New York Times, Aug. 12, 1864, p.8, col.4).

According to the track in Fig. 7, Storm 1, 1864 was moving rapidly towards the east-northeast over the period July 16-18. A gradual transition to an extratropical system is very likely to have occurred over that period.

Storm 2, 1864 (Jul. 25).

This is the second storm that the author of this study has documented for 1864. The following information has allowed him to document Storm 2, 1864: Bark "Daniel", coming to New York from Matamoros (Mexico), July 16. On July 25 at night, off Alacran, during a fearful tempest, the wind blew from all points of the compass and the vessel was hit by lightning; the tempest lasted several hours (The New York Times, Aug. 21, 1864, p.8, col.5). Author's note: Alacran is a reef located north of the Yucatan peninsula.

Due to the lack of additional information, a track for Storm 2, 1864 was not attempted. However, the storm was shown near 24 degrees North, 89 degrees West in Fig. 7.

Storm 3, 1864 (Aug. 26-31).

This storm has been listed by Tannehill (1938). He has cited the storm as having occurred at Belize on Aug. 31 and, in addition, has indicated that the calm center went over the town and that the sea rose 5 feet, inundating it. The author of this study has established that the storm also affected Martinique a few days earlier and then moved to Belize along the track which is shown in Fig. 7.

The following information published in The Times (London) allowed the author to know about the storm in Martinique: Account of the Martinique hurricane of Aug. 26-27, taken from the newspaper

Antilles, Aug. 31. On the evening of Friday (Aug. 26), the weather, which had been only rainy during the day, became suddenly overcast, the sky obscured by dense clouds, the wind blew with great violence. From 11 o'clock till morning (Aug. 27), the clouds, assailed by a tumult which at one time seemed to graze the earth with its dismal noise and then to burst forth at all points of the horizon in heavy showers, mingling the noise of their waters with that of the gale, carried terror into every house and beneath every roof. Fortunately, the wind, which at times blew a tempest, held constantly at S.E. (The Times, London, Sept. 29, 1864, p.8, col.1 and 2). Author's note: The wind permanently blowing from the S.E. looks awkward and it might have not occurred in reality, or it might have resulted from local effects.

Confirmation of the storm at Belize on Aug. 31 was obtained from the following information: Report given by bark "Pallas", arriving in New York from Belize. Brig. "Hannah" was lost at Glover's Reef on Aug. 30. Brig "Antonio Matne" was wrecked 30 miles from Belize on Aug. 29. On Aug. 31 a very heavy gale came from N. and veered to the N.E. and S.E. affecting very seriously all ships, large or small. Schr. "Clyde" was overtaken by the gale about 60 miles from Belize. Bark "Berkshire" was overtaken about 20 miles from Belize and was a total loss. Bark "Helen Mc Donald" was anchored at English Cay Reef, 12 miles from Belize, and went ashore at Spanish Cay Reef. The druggier "Alma" was ashore at Glover's Reef. The "Pallas" sustained damages not only from the gale but from bark "Modena" which drifted on top (?) and alongside the "Pallas" (The New York Times, Sept. 28, 1864, p.8, col.4).

The 5-ft tide reported by Tannehill (1938) as having occurred at Belize as well as the description above support hurricane intensity for Storm, 3, 1864.

Storm 4, 1864 (Sept. 5-8).

This is the third storm that the author of the present study has contributed to the tropical cyclone records for 1864.

Documentation of this storm was based on the following information: 1) Ship "Guy Mannering". Morning of Sept.5, buoys at the bar (New York) became in sight. Then it had a heavy easterly blow which caused the ship to drift S. to lat. 38 N. The ship was coming to New York from Liverpool (The New York Times, Sept. 9, 1864, p.8, col.5). 2) Ship "Glad Tiding" was off the lightship (near New York) on Sept. 4 but was blown off in the late E. gale (The New York Times, Sept. 9, 1864, p.8, col.5). 3) Ship "Velocity", from Inagua in 21 days. Had heavy N.E. winds and had been N. of lat. 36 N. since Sept. 4 (The New York Times, Sept. 17, 1864, p.8, col.6). 4) Bark "R. Murray, Jr." Sept. 5 made Barnegat, then took a gale from E.N.E. which lasted 4 days and drifted back to lat. 36 N. (The New York Times, Sept. 12, 1864, p.8, col.5). 5) Bark "Irma" was compelled to haul offshore in consequence with the easterly gale (The New York Times, Sept. 12, 1864, p.8, col.5). 6) Bark "Alice Franklin" was blown off from 8 miles E. by S. of Barnegat to lat. 37 N., long. 75 W. during the E.N.E. heavy gale of Sept. 5 (The New York Times, Sept. 16, 1864, p.8, col.4). 7) U.S. transport "Karnak" had a heavy N.E. gale 30 miles S. of Hatteras at

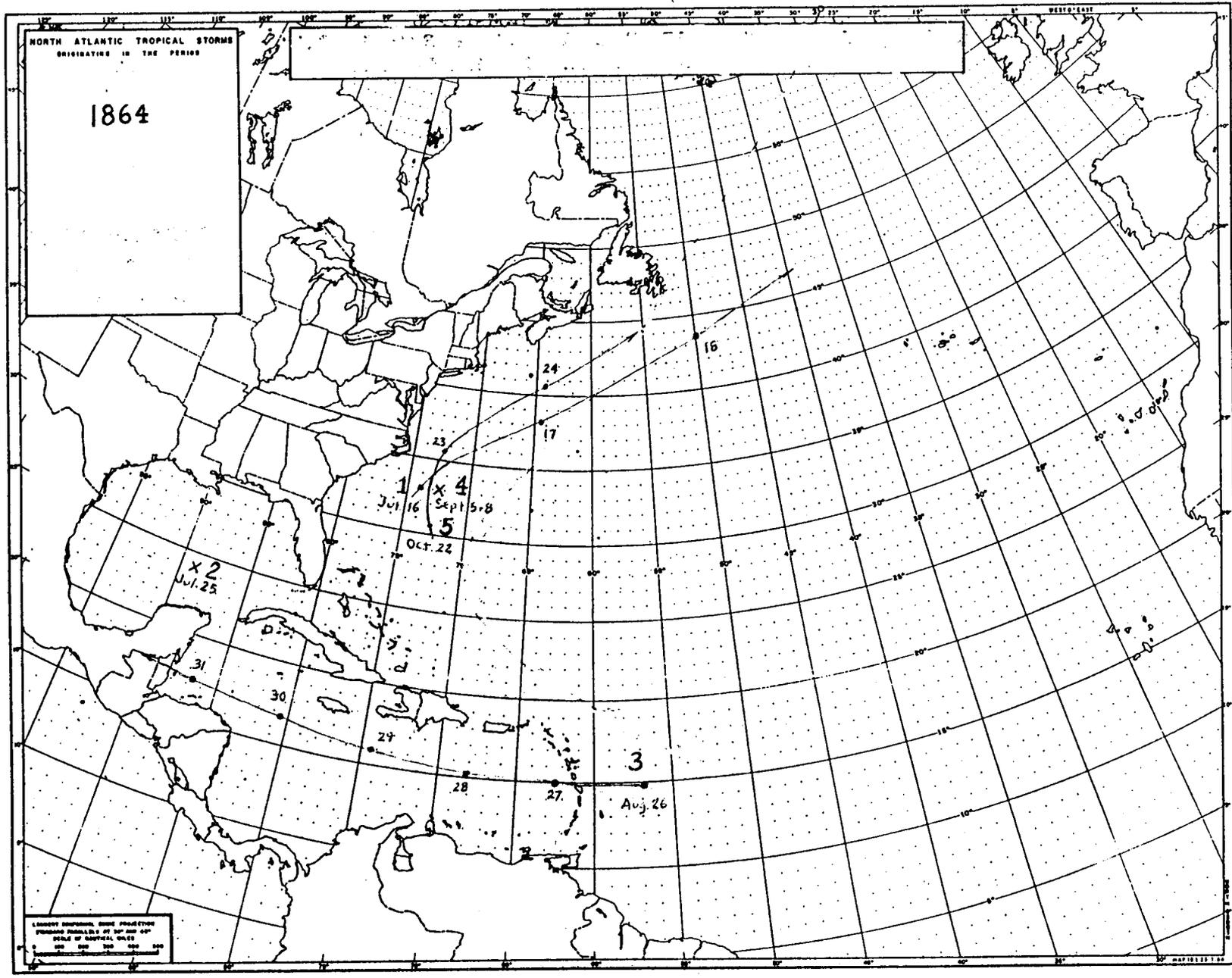


Fig. 7

2:20 A.M. Sept. 7; at 4:20 A.M., the gale was still blowing (The New York Times, Sept. 12, 1864, p.8, col.5). 8) U.S. transport "Dudley Buck" had a heavy gale off Hatteras on Sept. 8 and was obliged to lay to for 24 hours (The New York Times, Sept. 13, 1864, p.8, col.4). 9) Brig "Abbie Thaxter" (from Cardenas, Cuba, in 17 days). Had heavy N.E. and N.W. wind most of the passage (The New York Times, Sept. 17, p.8, col.6).

The above information in general and item 9) in particular suggest that the gale center was to the southeast of Hatteras. Because of its location and time of the year it occurred, it was safe to assume that the system had tropical characteristics. Therefore, Storm, 4, 1864 was placed near 33 degrees North, 72.5 degrees West (Fig. 7). Because no definite motion could be inferred from the information above, no track was attempted for the storm which was then arbitrarily denoted as having been stationary in that position over the period Sept. 5-8. However, as the U.S. mail steamer "Liberty", 4 days from Havana, experienced head winds and heavy seas during the passage (The New York Times, Sept. 16, 1864, p.1, col.6) and the ship "Creole" experienced heavy gales from the N., north of lat. 32 N., coming from New Orleans in 7 days (The New York Times, Sept. 16, 1864, p.8, col.4), the life-span of Storm 4, 1864 might have extended beyond Sept. 8.

Storm 5, 1864 (Oct. 22-24).

This is the fourth new storm case that the author has documented for 1864. A track for this storm is shown in Fig. 7.

The following information was used to studying Storm 5, 1864:

- 1) Steamship "North Star" (from Aspinwall, Panama, Oct. 17). Experienced very heavy weather N. of the W. I. Islands (The New York Times, Oct. 29, 1864, p.8, col.4).
- 2) Steamship "Atlanta" (from New Orleans, Oct. 18). Encountered strong N. gales the latter part of the passage. The ship reported a position at lat. 32 44 N., long. 76 37 W. on Oct. 24 (The New York Times, Oct. 29, 1864, p.8, col.4).
- 3) Steamship "Santa Martha" (from Cartagena, Colombia, Oct. 11 and Kingston, Jamaica, Oct. 15). Since Oct. 22 had heavy gales from N.N. (?) to W.N.W. (The New York Times, Oct. 30, 1864, p.8, col.5). Author's note: N.N. is a typographic error which should read N.N.E., N. or N.N.W.
- 4) Ship "Victoria", coming to New York from Liverpool, had a heavy gale from E. to N.E. over the Gulf Stream on Oct. 23; the ship was compelled to lay to for 24 hours under bare poles (The New York Times, Oct. 27, 1864, p.8, col.4).
- 5) Ship "Northampton", at lat. 38 10 N., long. 67 27 W., had a hurricane from N.N.E. to N.N.W. on Oct. 23 (The New York Times, Oct. 28, 1864, p.8, col.4).
- 6) Ship "Morro Castle", 220 miles E.S.E. of Highlands, experienced a hurricane beginning from S.W. and going around to E. and N.E. on Oct. 23, lasting for 12 hours (The New York Times, Oct. 28, 1864, p.8, col.4).
- 7) Bark "Amelia Priest", from Philadelphia to Le Havre. About 250 miles S.E. of Sandy Hook, had a S.E. to N.E. gale on Oct. 23. The vessel then headed for New York (The New York Times, Oct. 31, 1864, p.8, col.5).
- 8) Brig "Stanley", off Hatteras, Oct. 24, in a N.W. gale, started deck, stove gallery, split sails, etc. (The New York Times, Oct. 31, 1864, p.8, col.5).
- 9) Ship "Clara Wheeler", Oct 24, lat.

39 17 N., long. 65 W., had a heavy gale from S.W. which shifted suddenly to N.W. and blew a perfect hurricane for 12 hours (The New York Times, Nov. 1, 1864, p.8, col.3). 10) Bark "Annie W. Lewis" (coming to New York from Liverppol), been 16 days from long. 60 23 W., had a severe gale with a heavy sea (The New York Times, Nov. 2, 1864, p.8, col.6). 11) Ship "Sorrento" (from Liverpool in 58 days). In long. 58 10 W., experienced heavy westerly winds (The New York Times, Nov. 3, 1864, p.8, col.5).

Based on the information provided by the "North Star" and the "Santa Martha", the author started a track for Storm 5, 1864 on Oct. 22 (Fig. 7). According to her departure day from Panama and knowing that she arrived in New York the day before her report was published in The New York Times, the author estimated that the "North Star" should have reached a position between lat. 25 N. and lat. 30 N. and roughly at long. 73 W. on Oct. 22. This position is to the N.E. of the Bahamas and also to the north of the W. I. (West Indies) Islands, where she mentioned to have encountered very heavy weather. By following a similar reasoning, the author has estimated that the "Santa Martha" (which left Jamaica on Oct. 15, arrived in New York on Oct. 29 and reported gales from the N.N.E. the N. or the N.N.W. to the W.N.W. starting on Oct. 22) should not have been very far from lat. 30 N., long. 73 W. on Oct. 22.

Information which was produced by the "Northampton", the "Morro Castle" and the "Clara Wheeler" suggests that Storm 5, 1864 reached hurricane intensity.