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*A Twenty-first Memoir on the Law of Storms in the Indian and China Seas ; being the Cyclone of H. M. S. Fox, in the Bay of Bengal, 30th April to 5th May 1851. By HENRY PIDDINGTON, President of Marine Courts.*

In the following Memoir, for the materials of which I am principally indebted to the zeal of Capt. Biden of Madras, the same arrangement as with preceding ones has been adopted ; that is, the documents are first given, and then a Tabular abstract of them, which is followed by a detailed statement of the grounds on which the various positions of the centre are laid down on the Chart, and by such observations on the various phenomena of the Cyclone as may have seemed necessary to direct attention to them.

*Abridged extract from the Log of the Ship Diana, Capt. Fletcher, from Sydney, forwarded by Capt. C. Biden, Madras.*

*April 29th.*—Moderate breeze during the night from W. S. W. to S. W. At 8 A. M. severe squall with heavy rain. Noon strong breeze and cloudy. Latitude by D. R.  $1^{\circ} 41' S.$  ; Long. by D. R.  $86^{\circ} 17' E.$

*30th.*—Fresh breeze with hard squalls and heavy rain and lightning. During these twenty-four hours wind veering from S. W. to West. Latitude by Obs.  $00^{\circ} 06' N.$  ; Long. by Obs.  $86^{\circ} 00' E.$

*May 1st.*—Fresh breeze with hard squalls and heavy rain ; in reefs, and made all preparations for heavy weather, obliged to haul the foresail up



while the squalls lasted. Latitude by D. R.  $1^{\circ} 56' N.$ ; Long. by D. R.  $86^{\circ} 20' E.$

*May 2nd.*—Throughout these twenty-four hours strong gale with terrific squalls, accompanied with a deluge of rain and vivid lightning. Found the ship had been set by the current to the Eastward twenty miles, although heading N. W. by N. to W. N. W. Wind W. by S. to S. W. Latitude by Obs.  $3^{\circ} 04' N.$ ; Long. by Obs.  $87^{\circ} 00' E.$  Fresh gale with hard squalls and heavy sea. Split main top-sail, handed fore-sail and fore top-sail.

*May 3rd.*—Hove ship to under close-reefed main top-sail. Noon more moderate, made sail again. Wind from W. S. W. to S. W. by S. Latitude by D. R.  $4^{\circ} 15' N.$ ; Long. by D. R.  $87^{\circ} 05' E.$  Commences with fresh breeze and cloudy. At 8 p. m. severe gale with heavy sea. Hove ship to again under close-reefed main top-sail.

*May 4th.*—At 2 a. m. more moderate, made sail again. Noon, blowing hard, handed main-sail. Wind W. S. W. to S. W. by S. Latitude by D. R.  $4^{\circ} 50' N.$ ; Long. by D. R.  $86^{\circ} 50' E.$  Strong gale throughout.

*May 5th.*—At 11 a. m. ship hove to sixteen hours during this day's log. Wind S. W. to S. S. W. Latitude by D. R.  $5^{\circ} 4'$ ; Long. by D. R.  $86^{\circ} 10' E.$  Commencing with squalls and wind more moderate. At 8 p. m. blowing hard with heavy squalls during the night.

*May 6th.*—Noon. Ditto W. wind S. S. W. to S. W. Latitude by Obs.  $5^{\circ} 23' N.$ ; Long. by Obs.  $85^{\circ} 44' E.$

*Extract from Log Barque Hannah, Capt. H. Smith, from Penang bound to Madras. Civil Time. Forwarded by Capt. C. Biden.*

*Tuesday, April 29th.*—Commences with gloomy and unsettled weather throughout the forenoon. P. M. calm with very unsettled and squally appearance round the compass and heavy swell from the southward. Midnight moderate breeze from the westward and clear. Lat. D. R.  $8^{\circ} N.$ ; Long.  $82^{\circ} 50'.$

*Wednesday, April 30th.*—Daylight fine with westerly wind, coast of Ceylon in sight, Friar's Hood bearing W. S. W. Noon calm, p. m. weather looking again very unsettled and squally. 2 p. m. wind round the compass with heavy rain. 5 p. m. strong breeze sprung up suddenly from the W. N. W. with very threatening appearance all round the compass, in first reef of top-sails, 6 p. m. tacked ship, wind westerly, midnight moderate breeze and clear. Lat.  $7^{\circ} 50'.$ ; Long.  $82^{\circ} 08'.$

*Thursday, May 1st.*—Daylight, light drizzling rain appearing from the N. N. W. wind variable and puffy; down main royal yard, in second reef of top-sails; towards noon heavy squalls from the westward and much rain



with heavy cross sea. P. m. tremendous squalls in quick succession from W. S. W. and S. Westward with every appearance at times of a gale of wind, at other times clearing as quickly. 3 p. m. battened down hatches fore and aft, got all prepared for bad weather. During this night strong squalls from the South-westward with heavy thunder and lightning and rain : *between the squalls quite calm, the ship often loosing steerage way*—the sea awfully confused. Lat.  $8^{\circ} 40' N.$ ; Long.  $81^{\circ} 43' E.$

*Friday, May 2nd.*—Daylight steering to the N. N. Westward with strong gale and cross sea, ship knocking about awfully, sent down mizen topmast; 8 A. m. wore ship finding the gale increase while the ship's head was to the Northward; kept the wind free for about two hours, trying to push to the Southward; but the cross sea increased so rapidly, threatening to sweep the decks every minute, were compelled to lay to under main topsail and canvas in the mizen rigging; main topsail yard went near the slings; noon gale increasing with tremendous squalls and rain; P. m. saw a barque running to the Eastward under closed-reefed topsails and reefed foresails, wind Westerly, veering about two points each way, sea running very high and confused, ship labouring much, often dipping the lee quarter boat in the water. 10 p. m. during this night all hands including native passengers slept in the cabin. Lat. D. R.  $8^{\circ} 40' N.$ ; Long. D. R.  $82^{\circ} 10' E.$

*Saturday, May 3rd.*—Daylight clear, blowing a hard gale of wind from the Westward with awful sea; noon moderating, made sail and wore ship to the N. Westward, weather moderate and clear; towards midnight gale increasing; in main topsail, courses and jib; during this night blowing hard with heavy puffs, wind Westerly. Lat. D. R.  $8^{\circ} 53' N.$ ; Long.  $82^{\circ} 25' E.$

*Sunday, May 4th.*—Daylight fine, wind moderating, set courses and main topsail. Noon do. weather, wind S. W. by W. with heavy cross sea, weather continuing clear. Midnight gale increasing with tremendous puffs of wind; in mainsail and jib. Lat. D. R.  $9^{\circ} 00' N.$ ; Long.  $83^{\circ} 00' E.$

*Monday, May 5th.*—Moderating, set mainsail and jib, all hands employed during the day repairing damages aloft, &c. Noon p. m. blowing hard with confused sea in mainsail and jib. Lat. D. R.  $9^{\circ} 40' N.$ ; Long.  $81^{\circ} 50' E.$

*Tuesday, May 6th.*—Daylight blowing hard, wind steady with very fine weather aloft. 8 A. m. moderating set mainsail and jib. 10 p. m. suddenly lost the strength of the wind, saw the land of Nagore, bearing West. Noon out all reefs. Lat. Obs.  $11^{\circ} 4'$  Long.  $80^{\circ}; 10'.$



*Extract from the Log of H. M. S. Fox, Commodore Lambert; from Trincomalie bound to Madras. Civil Time. Log forwarded by Capt. C. Biden, M. A. Madras. A few additions from the newspaper abstract.*

*At Noon 1st May, 1851.*—H. M. S. *Fox* was by Acct. in Lat.  $8^{\circ} 57' N.$ ; Long.  $81^{\circ} 17'$  (Madras bearing N.  $13^{\circ} W.$  256 miles) standing to the N.  $\frac{1}{2}$  W. and N.  $\frac{1}{2}$  E. to midnight  $7\frac{1}{2}$  to  $2\frac{1}{2}$  knots. Wind variable from W. b. N. to W. N. W. force (6) to (9).<sup>\*</sup> Weather thick and squally with thunder, lightning and rain. Bar. *rising* from 29.67 at 3 p. m. to 29.74 at midnight; Ther.  $82^{\circ}$ . The direction in which the lightning was seen is not given.

*2nd May.*—A. m. wind variable from North to W. b. N. Force (5) to (9) at noon marked N. N. W. (9.) Ship standing to the N. East. Bar. 8 a. m. 29.67; at noon 29.60; Ther.  $82^{\circ}$ . Squally, thick rainy weather throughout. Noon, Lat. Acct.  $10^{\circ} 0' N.$ ; Long.  $81^{\circ} 38' E.$  p. m. gale increasing to a hurricane; force marked (10) and (11.) Wind N. N. W. to 8 p. m. when W. N. W. again; at midnight ship heading to the N. E. Bar. 5 p. m. 29.53; at 8, 29.50; midnight, 29.47; ship lurching heavily and lying to under a close-reefed main topsail.

*3rd May.*—A. m. wind N. N. W. very heavy squalls (9) to (11). Bar. 29.37; at 6 a. m. W. b. N. (8) to (10). Bar. fell to 29.30: Symp. 29.20; at 9 (10); and at 9h 45' (12) when the ship was obliged to bear up for the safety of her masts; running 12 knots under the remnants of her close-reefed main topsail having previously lost the jibboom while lying with the lee quarter deck guns at times in the water:† heavy and confused sea on. At 4 a. m. the Bar. is marked 29.33; and at noon 29.37; Ther.  $82^{\circ}$ . Heavy squalls sea rain and thick weather. Noon Lat.  $10^{\circ} 21' N.$ ; Long.  $82^{\circ} 40' E.$  Wind W. S. W. To midnight, ship scudding to the East and E. b. S 70.3 miles in the 12h. Wind W. N. W. W. S. W. and S. W, (9) to (11) throughout.‡ Bar. 29.40 at 4 p. m. and 29.50 at 10 p. m.

*4th May.*—A. m. wind S. S. W. (11). Ship standing at 7 a. m. to the E. b. S. and at 8 hauled to the N. West. Wind till noon S. S. W. (9) to (10). Squally but clearing at times, Bar. 29.57 to 29.70 at 10 a. m. Noon Lat. Acct.  $10^{\circ} 22' N.$ ; Long. by Chr.  $84^{\circ} 35'$ . P. m. wind South to S. b. W. (8) to (10). Ship standing to the Westward. Gale decreasing, cloudy and squally. Bar. 29.70 to 29.72 at midnight; Ther. not marked.

*5th May.*—A. m. wind South, to noon (7) to (9). Ship standing to the Westward, squally with cloudy and blue sky. Bar. 29.74 to 29.80 at

<sup>\*</sup> Admiral Beaufort's numbers.

† From a notice in the Nautical Magazine.

‡ So in MSS. Log; though this must be an error.



noon; Ther.  $84^{\circ}$ ; Noon Lat. Obs.  $10^{\circ} 25'$  North; Long. Chr.  $83^{\circ} 55'$  East. P. m. to Midnight, weather fair. Wind S. S. W. to South.

*Extract from the Log of Ship Mary Ann, Capt. Darby; from Swan River bound to Madras. Civil Time. Forwarded by Capt. Biden.*

*Wednesday, April 30th.*—Light winds and variable from S. W. to North with heavy rain during the night. Bar. 29.67; Aneroid 29.65. Very close and sultry. Ther. 84; Lat. Obs.  $9^{\circ} 48'$  N.; Lat. by double Alt.  $9^{\circ} 50'$  N.; Lat. by Obs.  $9^{\circ} 47'$  N.; Long. by Chr  $81^{\circ} 33' 48''$  E.

*Thursday, May 1st.*—First part light breeze from the North. Noon wind variable from the Westward and North with rain; double-reefed topsails at 4 p. m. During the night very dull and oppressive weather, a few stars appeared but unable to obtain sights. Lat. by Account  $10^{\circ} 31'$  N.; Long. by Account  $81^{\circ} 8'$  E.; Bar. 29.60; Aneroid 29.60; Ther. 81.

*Friday, May 2nd.*—Strong gale and very variable from N. N. E. to N. W. with heavy rain, never ceasing in the 24 hours; during the night much heavy thunder and lightning in the Northern quarter, close reefed topsails and furled all but main topsail: 8, hove too under close-reefed main topsail. 3 p. m. Barometer still falling to 29.40. Sent down royal yards and made the ship snug for the night. Noon, Lat. by Acct.  $10^{\circ} 38'$  N.; Long. by Acct.  $81^{\circ} 17'$  E.; Bar. 29.52; Aneroid 29.53; Ther. 82.

*Saturday, May 3rd.*—Blowing a severe gale with heavy rain and terrific squalls at daylight; at 4 a. m. Barometer 29.30. Ship lying to under close-reefed main topsail. Noon, Barometer 29.33; p. m. still blowing hard, with less rain toward evening. Midnight, Barometer 29.30. Wind from West to S. West.

*Sunday, May 4th.*—A. m. blowing still a gale, and sea much confused, lying to under main topsail. Noon a most fearful sea struck the ship, and filled the deck full of water. No sights. Lat. Acct.  $11^{\circ} 49'$  N.; Long. Acct.  $82^{\circ} 34'$  E.; Bar. 29.38; Aneroid 29.35; Ther. 82; p. m. blowing hard with high sea; at 8, more moderate. Wind at S. S. W. set close-reefed fore top-sail and reached her under the two top-sails. Midnight, Bar. 29.40 in. clined to rise.

*Monday, May 5th.*—A. m. wind inclined to moderate, but heavy sea running; at daylight, Barometer 29.45. Noon more moderate, made sail. Lat. by Obs.  $10^{\circ} 11'$ ; Long. by Chr.  $82^{\circ} 20'$ ; Bar. 29.55; Aneroid 29.55; Ther. 84.



*Extract from the Log of the Schooner Joseph Manook from Swan River to Calcutta, by Capt. H. S. Dick. Civil Time.*

*Memorandum—I have compared this with the vessel's Log and made a few additions. H. P.*

We had heavy N. W. squalls from  $1^{\circ} 30'$  to  $6^{\circ}$  N. Being then sheltered by Ceylon the wind became light and variable. I wished to call in at Madras, so kept as much to the Westward as possible, and in Lat.  $10^{\circ} 30'$  N. and Long.  $81^{\circ} 8'$  E. on the—

*1st May*—The Barometer began to fall from 29.82 to 29.72; Ther.  $82^{\circ}$  with heavy dark appearance and much rain: at 5 P. M. Civil Time, tacked to the S. W. wind W. N. W. and the Bar. had risen to 29.78. Midnight very heavy N. W. squalls and much lightning to the Eastward. Bar. 29.78: close-reefed and sent top gallant yards upon deck.

*May 2nd.*—Wore to the N. West; wind West; Bar. 29.77; at 3 A. M. wind North, blowing hard with every appearance of a gale, though the Bar. high, being 29.78; at daylight weather the same, Bar. 29.78: at 8 A. M. down main topmast and in flying jibboom, Bar. 29.74; 11 A. M. blowing hard from N. N. W. and a high sea: in topsail. Noon Lat. by account  $10^{\circ} 40'$  N.; Long.  $81^{\circ} 3'$  E.; Bar. 29.72; blowing very hard, and a high sea running; at 2 P. M. Bar. 29.64 wind N. W. by W. blowing half a gale, hove the vessel to under storm sail, with her head to the North Eastward, the sea running very high with rain. Midnight ditto weather Bar. 29.56.

*May 3rd.*—1 A. M. blowing hard with rain; wind N. W.; Bar. 29.48; at 8 A. M. but little wind, vessel would not steer, but a heavy confused sea; at 7.30, a heavy gust from N. W.; Bar. 29.46; at 8 A. M. hard gale from W. N. W. and a tremendous heavy confused sea; Bar. 29.45; at 9 A. M. blowing with most violent gusts from West, shipped several heavy seas over the poop, unshipped the binnacle. The third sea washed the man from the helm nearly overboard; I ordered the helm to be lashed a lee as it was not safe for a man to remain there, had my tell tale compass screwed up under the top gallant forecandle; wind West by N.; Bar. 29.44; after 9 A. M. all hatches battened down, could not note the Bar., but the wind West, blowing in most furious gusts; at 4 P. M. opened one board of the hatch for some biscuits and to note the Bar. which was then 29.44; closed up the hatches for the night, so could not note the Bar.; wind during the night from W. to W. by S. blowing in most fearful gusts.

*May 4th.*—Daylight more moderate; wind W. by S. opened companion hatch and found the Bar. risen to 29.59; at 10, wind S. W. set reefed trysail and storm staysail; Bar. 29.62. Noon fresh gales with a tremend-



ous sea; Bar. 29.64; at 4 P. M. fine appearance but the Bar. had fallen to 29.59. I supposed by setting the trysail and staysail, we had made head way to the N. W. into bad weather again, wind S. S. W. wore ship to the S. E.; at 8 P. M. decreasing gales and fine appearance, sea still very high; Bar. 29.73. Midnight strong gales from South, Bar. 29.75.

*May 5th.*—At 4 A. M. fresh gales and the sea very high, Bar. 29.76. Daylight fine. Blowing hard from the Southward and the sea running very high. I gave up all thoughts of going to Madras, as it was not prudent to stand to the N. W.; at 8 A. M. Bar. 29.78; made sail and stood to the N. E. for Calcutta. Noon a very high sea; wind South; Bar. 29.86 and fine weather; Lat.  $10^{\circ} 49'$ ; Long.  $83^{\circ} 35'$  having been set to the S. S. E. 160 miles during  $3\frac{1}{2}$  days' gale. Midnight cloudy with rain; Bar. 29.90; sea still very high.

*May 6th.*—Fine clear weather; wind S. S. W.; Lat.  $13^{\circ} 26'$ ; Long.  $84^{\circ} 21'$ ; Bar. 29.96.

My little vessel rode most gallantly over the seas, with only a very small storm mainsail set, coming up and falling off only one point each way; I was never in so heavy a breeze before, it seemed almost impossible the little vessel could live in such a cross confused sea. By your book I fancy I was upon the right tack though perhaps you will censure me for not running to the S. E. but I thought it would only be a common monsoon gale which we expect in these months or I should have done so; and coming from the Southward we have had our Bar. ranging high, I thought nothing of the fall till it was below 29.67; as I have often had it as low as that in the bay during the S. W. monsoon for 6 and 7 days together.

*Extract from the Log of the H. C. Steamer Hugh Lindsay from Paumbum and Cuddalore to Madras. Civil Time. Forwarded by Capt. Biden.*

*On the 2nd May, 1851.*—The *Hugh Lindsay* at Noon had Porto Novo Chimney bearing S. W. Moderate breezes S. W. b. W. and heavy rain; Bar. 29.77. At 5, anchored at Tranquebar. At Midnight heavy squalls of wind and rain with lightning and thunder, and threatening appearances from the N. West with a heavy swell on. Wind W. N. W.; Bar. at 4 P. M., 29.69.

*May 3rd.*—A. M. the same; and a thick gloomy appearance all round; weighed at 3.30 A. M. At 7.30 A. M. wind W. N. W. Nagore Pagoda N. W. finding the wind and sea fast increasing, and every appearance of a heavy gale stood out to sea instead of anchoring at Négapatam. Bar. 29.40;\*

\* So in MSS. but apparently an error; 29.70 was probably meant?



at 2 A. M.: 29.62 at 8 A. M.: 29.60 at Noon, when eased the engines and hove to. P. M. N. W. to W. N. W. fresh gale and incessant rain. 9 P. M. Westerly. Sunset to Midnight, heavy squalls of wind and rain with a heavy sea. Bar. 29.55 at 2 P. M., to 29.58 at Midnight.

*May 4th.*—A. M. fresh gales, heavy sea and constant rain increasing at daylight to heavy gusts and a heavy sea running, all around thick and misty of a dull red colour. At noon the same. No observations. Bar. 29.50 at 2 A. M.;\* at 4, 29.50; at 6, 29.52; at 8, 29.54; at 10, 29.58; and at Noon 29.57. Wind marked for the twelve hours Westerly to S. W. P. M. wind S. W. very heavy squalls and sea running very high. 4 P. M. moderating to Midnight. Bar. 29.52 at 2 P. M., to 29.70 at Midnight.

*May 5th.*—Weather becoming fine. Lat. Obs. 9° 59' N.; Long. Chr. 81° 49' East.

*Register of Winds kept on board the dredging vessel at the Paumbum Channel, by Mr. Colin Gib, Superintendant, and forwarded by Capt. Biden:*

*May 1st.*—Wind S. W. Blowing fresh all day with heavy rain, thunder and lightning.

*May 2nd.*—Wind N. N. W. Fresh breeze during the 1st part of the day accompanied with rain; at about 5 P. M. breeze freshened considerably with heavy rain; and at about 9 o'clock it had increased to a hard gale, with tremendous gusts at short intervals; in one of which the Port chain cable of the steam dredge snapped; held on, however, with the remaining four; wind veering frequently from S. W. to N. N. W.

*May 3rd.*—Wind S. W. Blowing a hard gale with violent squalls at times.

*May 4th.*—Wind S. W. Blowing a gale of wind; and although sheltered by the Islands and reef there was a heavy sea running at the Buoy. Dredge riding uneasily.

*May 5th.*—Wind S. S. W. Gale still continues, but the squalls neither so frequent nor so violent.

*May 6th.*—Wind S. S. W. Blowing fresh; weather more settled, gale evidently broken.

*Abridged Extract from the Log of the Barque Sarah from the Nicobars to Madras, forwarded by Capt. Biden. Civil Time.*

The *Sarah* was from the 28th to the 30th April with squalls from the S. W. and calms near the Nicobar Islands.

\* So in MSS. though 29.58 is marked at Midnight.



*April 30th, 1851.*—At Noon, the *Sarah* was in Lat, by Obs.  $6^{\circ} 36'$  N.; Long,  $93^{\circ} 12'$  East. P. m. fresh S. S. W. winds and fine, increasing to Midnight, when cloudy with heavy squalls of wind and rain.

*May 1st.*—A. m. increasing from S. S. W. with heavy squalls and a high sea running, to daylight, when hard gales and heavy gusts “*veering from South to S. W.*” Hove to at 8, under bare poles. Noon, successive heavy gusts with a continuation of hard rain and heavy seas, with thick weather from the S. W. P. m. lying to under bare poles “*with continued heavy gusts of wind from South to S. W.*” Midnight blowing a perfect hurricane.

*May 2nd.*—Begins with continued heavy gusts blowing, and rain making “a mere drift of wind South to S. W.” Noon, moderating a little. 2 P. m. increasing again; and at 7 P. m. hurricane with an awful heavy sea. Midnight more moderate, made some sail.

*May 3rd.*—Daylight, heavy gusts again, moderating at times, and P. m. successive heavy squalls from S. to S. W. are marked. At Midnight strong breezes and squalls.

*May 4th.*—Apparently the monsoon breeze, with squalls, and on—

*May 5th.*—The Lat. by Obs. is marked  $10^{\circ} 40'$  N.; Long.  $86^{\circ} 10'$  East. The *Sarah* had no Barometer on board, and no positions by D. R. are given during the bad weather.

*Extract from the Log of the Barque Ostrich, Capt. Stephenson, from Madras bound to Moulmein. Civil Time. Log forwarded by Capt. Biden.*

The *Ostrich* sailed from Madras on the 28th April, and on—

*May 1st, 1851,* at Noon, was in Lat.  $14^{\circ} 19'$  N.; Long.  $82^{\circ} 45'$  East; with wind from the E. N. E. and squally weather at Midnight. Bar. at Noon is marked at 29.75; Symp. 29.84; Ther.  $84^{\circ}$ .

*May 2nd.*—A. m. wind E. N. E.; at 8, East; and at Noon E. N. E. again; heavy squalls with rain. Lat.  $13^{\circ} 10'$  North; Long.  $83^{\circ} 10'$  E.; Bar. marked for Noon at 29.60; Symp. 29.75; Ther.  $83^{\circ}$ . Midnight increasing gale and heavy squalls.

*May 3rd.*—Making all snug for bad weather. Violent squalls. A. m. wind E. b. N.; at 8, East; Noon to Midnight continued and increasing squalls, rain, and sea. Noon Lat.  $12^{\circ} 46'$  N.; Long.  $83^{\circ} 00'$ ; Bar. 29.40; Symp. 29.60; Ther.  $82^{\circ}$ .

*May 4th.*—A. m. wind S. East. Strong gale and heavy squalls. Noon more moderate Lat.  $13^{\circ} 4'$  North; Long.  $82^{\circ} 21'$  East; Bar. 29.33; Symp.



29.39; Ther. 84°. At 2, P. M. wind E. S. E.; at 8, increasing again to Midnight, when wind is marked S. E.

*May 5th.*—A. M. wind S. S. E. Strong gales; 6 more moderate; under some sail, Bar. being at 2 A. M. at 29.26; Symp. 29.31, after which they began to rise. Noon Lat. 14° 54' North; Long. 82° 37' East; Bar. 29.60; Symp. 29.80; Ther. 83°. Midnight, out reefs.

*Abstract from the Log of the P. and O. Company's Steamer, Precursor, from Point de Galle towards Aden. Civil Time. Forwarded by Mr. Parfitt, Chief Officer.*

The *Precursor* left Point de Galle at 6.20 P. M. on the 30th April. Wind and sea increasing from W. b. S. Bar. 29.77 to 29.76 at Midnight, Sympiesometer not in good order: Ther. 81°.

*May 1st, 1851.*—A. M. strong winds W. b. S. and cloudy; heavy head sea and frequent squalls. 4 A. M. Bar. 29.74; Ther. 83°; at 8 A. M. Bar. 29.79. Noon more moderate, but very heavy sea, Lat. by Obs. 5° 5' N.; Long. 77° 3' East; Bar. 29.80; Ther. 85°. P. M. wind W. b. N. 4 P. M. Bar. 29.72; at 8, 29.82; Midnight 29.82. Wind and weather the same.

*May 2nd.*—Moderating to Noon when Lat. 3° 21' North; Long. 78° 18' East; Bar. 29.88; Current S. 55° E. 41 miles.

*Abridged Log of the Ship Hyderabad, Capt. Castles; from Calcutta to the Mauritius, reduced to Civil Time. Forwarded by Capt. C. Biden.*

*May 3rd.*—P. M. Lat. by Acct. (worked back from Noon of the 4th) 14° 05' N.; Long. 83° 47' East; 1 P. M. Bar. 28.90. Strong breezes from the East. Ship standing S. S. W. 6 P. M. wind E. S. E.; increasing, with a confused sea to Midnight. Bar. 28.80 at 8 P. M. and Midnight.

*May 4th.*—Increasing gales with a very heavy head sea; made all snug. Wind S. E. b. E. from 6 A. M. Noon blowing "a drift of wind." Lat. 12° 30' N.; Long. 82° 20' East; Bar. 28.74. Sea running very high. Ship running 4 knots per hour to the W. S. W.; P. M. the same; at 4, complete hurricane; ship on her beam ends for upwards of two hours; decks swept continually of every thing. Bar. from 28.74; at 1 P. M. to 28.70 at Midnight. Drift about  $\frac{1}{2}$  mile per hour. Wind for the P. M. and A. M. of the 5th is said to have been "mostly from S. E. b. E. to East; gradually veering to the Southward throughout the latter part."

*May 5th.*—At 4 A. M. Bar. 28.71; at 8, 28.72. Noon hard gale with a heavy sea. Wind about S. E. b. S. Noon Lat. by Acct. 12° 50' N.; Long.



81° 40' East; Bar. not marked; p. m. Bar. 28.74; more moderate, but a tremendous head sea. Wind E. b. S. at 8 p. m.; Bar. 28.80 at Midnight, and weather more settled.

*May 6th.*—At 4 a. m. Bar. 28.84 5, wind E. S. E. Noon moderate Lat. 13° 57' N.; Long. 82° 37' East. Wind S. S. W.

*Abridged Extract from the Log of the Ship Mary Harrison; from Sonapore to Madras; by Mr. J. Sutherland, Chief Officer; forwarded by Capt. Biden. Civil Time.*

*May 2nd.*—Wind N. E. to N. N. E. at Noon, and then N. b. W. to N. E. again. Bar. falling from 29.60 a. m. to 29.50 at Noon; and 29.40 at Midnight; Ther. from 85½ to 83½. Squally and cloudy making preparations for bad weather. Heavy swell from S. E. and threatening appearance. Position at Noon Lat. 13° 41' N.; Long. 82° 15' East.

*May 3rd.*—Wind marked North to N. N. W. 4 a. m. Bar. 29.38; Noon 29.36; Midnight 29.30; Ther. 83½. Position at Noon Lat. 13° 12' North; Long. 81° 28' East. A. m. very squally; made all snug and hove to at 8 p. m. under close-reefed main topsail.

*May 4th.*—A. m. wind North. 8 a. m. N. N. W.; 8 p. m. N. W.; 10 p. m. shift to S. W. Bar. a. m. 29.30; Noon 29.05; 8 p. m. 28.91; 10 p. m. 28.80; Midnight 28.80. Position at Noon; Lat. by Acct. 12° 41' N.; Long. 81° 38' East. A. m. strong gale, and heavy sea getting up; “at 8 p. m. cleared up and wind moderated a little; at 10 p. m. sudden shift to S. W. throwing the ship almost on her beam ends;” lost main topsail, jibboom, &c.

*May 5th.*—A. m. “storm raging with unabated fury;” 4 a. m. heaviest; 4.30 a. m. abated to a strong gale; 5 a. m. Bar. started almost instantly from 28.80 to 29.03.” Very confused sea, but ship behaving very well, wind throughout, S. S. W. to South. Noon, Lat. Acct. 13° 11' N.; Long. 81° 50' East; Bar. a. m. 28.84; at 5 a. m. 22.03; Midnight 29.58; Ther. 82° to 83½.

*May 6th.*—Confused irregular sea, but weather gradually becoming fine. Bar. 29.60 to 29.72; at Midnight Ther. 84°. Noon Lat. 13° 23' North; Long. 81° 52' East.



## Register of Day Observations taken by Capt. W. Farley, Actg. Master Attendant at Cocanada.

Date.	Sunrise.				At 10 A. M.				At 2 P. M.				Sunset.				Remarks.
	Bar.	Ther.	Winds.	Aspect.	Bar.	Ther.	Winds.	Aspect.	Bar.	Ther.	Winds.	Aspect.	Bar.	Ther.	Winds.	Aspect.	
May 1	29.84	85°	East.	Hazy.	29.81	88°	East.	Clear.	29.78	94°	S. S. E.	Clear.	29.76	87°	S. E.	Hazy.	1st.—Faint airs and calms with sultry weather in the evening pleasant Easterly winds.
" 2	29.83	85	E. N. E.	Cloudy.	29.83	93	N. E.	Cloudy.	29.83	93	N. E.	Cloudy.	29.72	87	N. E.	Gloomy.	2nd.—Threatening appearances of heavy weather in the Bay; scud passing to the Southward prodigious-ly.
" 3	29.83	93	N. E.	Dark.	29.75	83	N. E.	Ditto.	29.75	83	N. E.	Ditto.	29.70	85	N. E.	Cloudy.	3rd.—Strong gales throughout and cloudy, attended with violent squalls and heavy rains and threatening weather to S. Eastward.
" 4	29.73	82	N. E.	Cloudy.	29.73	83	N. E.	Ditto.	29.70	82	N. E.	Ditto.	29.70	82	N. E.	Ditto.	4th.—Continuation of the weather of the preceding day: heavy rains during the night.
" 5	29.70	82	E. N. E.	Ditto.	29.77	84	East.	Ditto.	29.72	83	East.	Ditto.	29.70	82	S. E.	Ditto.	5th.—Commences with more moderate wind but a continuation of the weather.
" 6	29.88	83	S. E.	Ditto.	29.75	83	South.	Ditto.	29.73	83	S. S. W.	Ditto.	29.70	82	S. S. W.	Ditto.	Noon fine. 6th.—Moderate and fine.

Observe.—The Barometers among the shipping ranged between 29.25 to 29.30. The same at Talarow in the residence of a Mr. Eaton, some 12 miles hence during the blow on the 3rd May. The winds were steady at N. E. for three days and gradually moderating; in the meantime veering to the Eastward by S. and S. E.



*Extract from the Log of the Ship Catherine Apar, Capt. Fowler ;  
from Mauritius to Calcutta. Reduced to Civil Time.*

*May 2nd*, 1851.—Midnight, dark cloudy, unsettled weather with variable winds ; 4 to 8 A. M. calms ; 8 to 12, wind West to S. W., 5 knot breeze. Noon, Bar. 29.49 ; Symp. 29.20 ; Lat. Acct.  $10^{\circ} 44'$  North ; Long.  $84^{\circ} 14'$  East. P. M. light winds and calms, gloomy threatening appearance ; 4, freshening from Eastward ; at 8, strong gusts making preparations for bad weather. Bar. 29.43 ; Symp. 29.18. Midnight, hard squalls and rain. Wind Easterly.

*May 3rd*.—Dark cloudy and blowing very heavy at times. 2 A. M. wind E. S. E. ; 3, Bar. 29.33 ; Symp. 29.12 ; 5, wind still E. S. E. Bore up North. Bar. 29.29 ; Symp. 29.12 ; Noon strong breezes E. S. E. ; Bar. 29.40 ; Lat. Obs.  $12^{\circ} 40'$  ; Long. Chr.  $83^{\circ} 32'$ . Throughout the preceding 24 hours very heavy clouds hanging about the horizon, hot sultry weather and gloomy appearance, squalls heavy at times with heavy rain, but little or no sea on. P. M. fresh gale Easterly. Ship standing North ; 8, Bar. 29.50. Midnight, dense masses of clouds and hard squalls.

*May 4th*.—Hard squalls ; 8 A. M. fresh gales E. b. S. ; at 11, a terrific squall ; Noon, strong gales and heavy sea ; Lat.  $15^{\circ} 13'$  N. ; Long.  $82^{\circ} 66'$  E. Current N. 51 W. 33 miles. During the last 24 hours steady gales East and E. S. E. with hard squalls and much rain. P. M. the same decreasing at sunset ; 9 P. M. wind S. East.

*May 5th*.—Wind hauling to S. S. E. ; Daylight moderate ; Noon fresh breeze and squally. Lat.  $16^{\circ} 42'$  N. ; Long.  $84^{\circ} 25'$  East ; Bar. 29.67 ; Simp. 29.46 ; Current, N. 78 East 39 miles.

*Extract from the Log of the Ship "Atalanta," Capt. R. F. D. Towle ;  
from Coringa bound to Pondicherry, forwarded by Capt. Biden.*

*April 30th*, 1851.—Light winds throughout from S. S. E. : S. E. and E. S. E. with occasional calms and slight showers, Lat.  $12^{\circ} 45'$  N. ; Long. Chr.  $83^{\circ} 58'$  E. ; Bar. Noon 29.80.

*May 1st*.—Variable winds with fluctuating Bar. Smart squalls from East, veering to N. E. and N. N. W. Steered S. b. W. : S. S. W. and S. W. At Noon gloomy all round with drizzling rain, wind light at N. E. Lat. Acct.  $11^{\circ} 34'$  N. ; Long. Acct.  $83^{\circ} 40'$  E. ; Bar. Midnight 29.76 ; 4 A. M. 29.66 ; 8 A. M. 29.72 ; Noon 29.75 ; Bar. 3 P. M. 29.61 ; 5, 29.63 ; 6, 29.66 ; 8, 29.68 ; 9, 29.70 ; 11, 29.70. Light winds and cloudy. At 11 P. M. dark gloomy weather with drizzling rain, winds flying about from S. E. to



E. S. E. East, N. E. and N. N. W. At Midnight, winds light and variable from N. N. W., N. E. and E. S. E. with vivid lightning, showing a heavy black bank to the Southward.

*May 2nd.*—In all sail. At 0.30 a hard squall from E. S. E. with heavy rain, thunder and lightning, kept away West under topmast staysail. At 2 A. M. light winds from N. N. W. round to East, and back again. At 5 A. M. wind apparently steady at North; set double-reefed topsails, foresail, and bent and set a new fore topmast staysail (the other having split) steered South and S. S. W. At 10 A. M. a threatening appearance all round, wind veering in heavy gusts from North to N. W. in all sail and scudded South under fore topmast staysail. Supposing from appearances this to be the commencement of a hurricane or heavy gale, the centre of which would now be about E. N. E. of us, the wind being N. N. W. kept South to run out of it, according to the theory of storms and made all snug. Noon dark gloomy weather Bar. fast falling, sea getting up and wind agitated with every indication of a gale, wind *flying about from North to N. W. and vice versâ* with heavy puffs and rain. Got stay tackles on foremast to cat-heads. Ship scudding as before South and S. S. W. under fore topmast staysail. 2 A. M. Bar. 29.64; 4, 29.64; 5, 29.66; 8, 29.64; 9, 29.63; Noon 29.61; Lat. Acct. 10° 46' N.; Long. Acct. 81° 41' E. P. M. strong gales, from N. N. W. dark gloomy weather and heavy rain. Ship scudding South, under fore-topmast staysail. At 3 P. M. constant heavy squalls, rain and a high sea. Lashed the courses and fore topsail to the yards with studding sail gear, and jib to the boom. At 5 P. M. Barometer still falling, squalls more frequent and very heavy, accompanied with a torrent of rain. Close reefed and set main topsail, and hove ship to on port tack. Wind then at N. N. W. Head up to N. E. off to East. At 6 P. M. the wind shifted in a furious squall to W. N. W. then to West. We on the right tack to meet it. Ship's head up North, off N. E. with the sea. Midnight blowing a heavy gale, squalls harder and more frequent with a deluge of rain and scud, a tremendous sea running and ship lurching heavily, as well as shipping a great quantity of water over all every time she lunched to leeward. Bar. 3 P. M. 29.55; 5, 29.53; 7, 29.51; 8, 29.58; 10, 29.56; Midnight 29.56.

*May 3rd.*—A. M. gale blowing with unabated fury, violent squalls and rain as before. Sea running in Pyramids. At 4 A. M. *frequent lulls of two to five minutes duration followed by furious gusts*, in one of which the main topsail blew away, as also the lee side of mainsail. Ship lurching heavily and shipping much water over all. Noon, blowing a hurricane at W. S. W. Ship's head up N. N. W., off to North. 2 A. M. Bar. 29.52;



4, 29.54; 6, 29.55; 9, 29.60; 11, 29.54; Noon 29.54; Ther. 79°.\* P. M. furious squalls from W. S. W. heavy rain and high sea. Ship lurching violently at times and shipping much water. Hove to under bare poles. Head up N. N. W. off N. N. E.

*May 4th.*—Midnight, the wind shifted to the S. W. blowing with the same fury. *Lulls between the gusts as yesterday.* A constant wash of water across the deck, vessel making no water to speak of. Noon, squalls less frequent and violent. Still blowing hard with heavy confused sea. 2 P. M. Bar. 29.54; 4, 29.49; 8, 29.50; Midnight 29.56. P. M. strong gales from S. W. with heavy confused sea; got a new fore royal in the mizen rigging to keep the ship to the wind. Head up W. N. W. off N. W. b. N. At 6, the mizen stay carried away close to the main mast, got a tackle on it and set it taut. At 9 P. M. gale fast abating and sea going down. 10, Lat. per Mer. Alt. 41° 46' N.; 10.30 P. M. Lat. per Mer. Alt. Spica 10° 47' N. Wind at South. 2 A. M. Bar. 29.54; 4, 29.52; 8, 29.58; 10, 29.66; Noon 64; Ther. 82°. Bar. 2 P. M. 29.64; 8, 29.68; Midnight 70.

*May 5th.*—Midnight, moderate and fine with confused sea, and lighting to the N. W. Daylight ditto weather with high sea. Noon, fresh steady breezes with fine clear weather. A confused sea still running. Lat. Obs. 10° 53' N.; Long. Chr. 83° 34' E.: Bar. 29.80; Ther. 85°. Set the jib. 8 A. M. Bar. 29.75; Noon 80.

*Notes of the Weather experienced at Vizagapatam between the 30th April and 6th May, 1851, by G. Hudson, Esq. Master Attendant.*

*Wednesday, April 30th.*—Variable light airs and sultry weather throughout. *An unusually clear atmosphere* without a cloud in the sky. The sea very smooth and of a dark blue color. *The distant hills around (at other times obscured by haze) presented a bright and clear appearance,* and the verdure on them was perceptible to the naked eye. Bar. 29.80. †

*Thursday, May 1st.*—The first part of this day light airs from the N. W. inclining to a calm. Sun bright and powerful. Bar. 29.80. *Emily* 29° 85'.

Noon, light Northerly airs veering to N. E. and continued in that quarter to the evening. A smooth sea and a long swell setting in from the Eastward.

\* No position given.

† This range of Barometer is from the Log of the Bark "*Emily*" wrecked at Bimlipatam 20 miles North of this place; at 4 P. M. on Monday, May 5th, 1851, by the heavy sea and Easterly squalls driving her from her anchors.



Sunset, wind veering gradually to the Northward and cloudy in that quarter.

*Friday, May 2nd.*—Commences with moderate N. W. winds, and increasing swell from the Eastward. Sky overcast. Bar. 29.80; *Emily*. 29.78.

Midday, a dense horizon and cloudy.

Sunset, similar weather. Barometer indicating a slight change. Bar. 29.73.

*Saturday, May 3rd.*—Fresh N. W. winds with thick hazy weather.

Noon, wind veering to N. and N. E. and threatening appearances in that quarter with drizzling rain. A high sea tumbling in from Eastward. Bar. A. M. 29.72; Noon 29.69.

Sunset, sharp squalls and heavy rain from N. E. Sea increasing.

*Sunday, May 4th.*—Baffling winds from N. E. to East without any increase. Weather assuming thick and gloomy appearances. Bar. 29.78; Sunset 29.75 and 29.64.

Sunset, ditto weather. Wind drawing round to the E. S. E. in heavy squalls and much rain, with intermittent lulls.

*Monday, May 5th.*—Winds from S. E. in hard squalls with heavy rain and thick dark weather. The sea all this day running fearfully high, and surf breaking as far as the eye could see. Bar. 29.75 and 29.68.

Sunset, wind Southerly with dense black clouds overhead, and heavy rain throughout the night.

*Tuesday, May 6th.*—Winds S. and S. W. Weather clearing up and a moderating confused sea. Bar. 29.80.

We have not had our usual strong S. S. W. winds, or as termed *along shore* Winds, in the month of April. The two days before the gale, I, as well as others, observed that the atmosphere was unusually clear; not a cloud was seen in the heavens. Stars at night very bright, beautifully clear horizon, a dark blue smooth sea, and the distant hills around appeared clear and brighter than usual to the eye. This strange and sudden change of fine weather for this season, from my long experience on this coast, I have invariably found the forerunner of a storm.

*Abstract of the Log of the Barque Paragon, Capt. ———; from Masulipatam to Vizagapatam. Civil Time.*

*May 3rd, 1851.*—A. M. squally from N. E. b. E. Ship working to the N. East. Noon strong gales with thick cloudy weather. Lat. 17° 00' North; Long. by Acet. 83° 15' East; 3 P. M. Bar 29.67; Symp. 29.66; making all snug, gale increasing to Midnight, when Bar. 29.66.



## AT MADRAS.

The following are the various documents forwarded to me by Capt. Biden or published by him in the newspapers and abridged to suit our purpose where necessary. The Cyclone was felt only as a severe Northerly, N. Westerly, Westerly and South Westerly gale at Madras, but of sufficient severity and menacing appearance to order all the ships to sea from the roads.

“Sunday afternoon, the 4th May, became more squally than we have already described this morning, and the glass showed a downward tendency throughout; although, with us at any rate, it did not fall rapidly till after one A. M. on Monday the 5th, between which and 4 o'clock it reached its lowest depression, 29.110. Soon after 3, the wind began to blow in violent gusts, increasing to a gale as day drew on. At the Observatory, its greatest force was between 8 and 9 o'clock A. M., but it appeared most violent with us, and certainly did all the mischief done, some time before that. This, however, was at a distance of five miles from the Observatory, and judging from the much greater damage sustained in our neighbourhood, as regards the levelling and rending of trees, the stripping of hedges, the mutilating and killing of birds, &c., we should infer that the wind was stronger, as well as earlier in its visit to us, than at the spot of official observation. This remark applies indeed to the Presidency generally, where only the gardens seem to have suffered.

“The amount of rain that fell during Sunday night and Monday morning, was very great for the time of year. Below we give the Observatory record, but whether it indicates as much as fell in parts to the North West of Madras, since the country was far more flooded than we have before seen it after a similar amount of fall.

RAIN,		WIND.			
Inches.		Direction and Force.			
May 2nd—	0.298	N.	N.	E.	Gentle breeze.
„ 3rd—	3.822	N.	by	E.	Fresh breeze.
„ 4th—	2.890	N.	N.	W.	Strong breeze.
„ 5th—	11.445	S.	by	W.	Squall and gale.
<hr/> Total—		18.455			

“At 6 P. M. on the 4th there was a heavy sea on, the rollers breaking amongst the Dhonies and beyond 5 fathoms, and the surf had much increased—whilst a rapid scud and other threatening indications seemed to be the precursor of a severe gale. The Barometer was then at 29.464 and the wind North.”



"*May 4th.*—Brisk gale N. E. b. E with lightning in the S. E. At 2. 30, Bar. 29.60; 6 A. M. Wind E. b. N. Noon *more moderate*, with a heavy rolling sea. Lat. 16° 24' North; Long. 83° 26' E.: Bar. 29.68. P. M. wind E. b. N. gale increasing and a high sea running in all directions. At 10h. 30' P. M. wind chopped to S. East. Midnight moderating.

"*May 5th.*—A. M. strong breezes S. E. with a heavy sea from South; 2 P. M. Bar. 29.70. Noon moderating Lat. 16° 41' North; Long. 84° 18' East.

"Twelve native vessels (Brigs and Dhonies) were said to be missing, and the Barometer on this day, 5th May at 5 P. M. is stated to have been at 29.53, the wind South and the sea much fallen."

*"Extraordinary Observations of the Standard Barometer at Madras,  
2nd and 4th May, 1851.*

Date.	Time.	Bar. uncorrected.	Ther.	Wind.	Date.	Time.	Bar. uncorrected.	Ther.	Wind.
Friday, May 2nd, 1851.	A. M.				May 2nd.	P. M.			
	h. m.					h. m.			
	8 41	29.808	85.0	N. E.		41	29.723		N. b. E.
	9 41	790	85.0	North.		51	723		
	51	788	85.0			3 1	714		
	10 1	792	85.0			11	712		
	11	794				21	712		
	21	796				31	706		
	31	790				41	702		N. N. W.
	41	794	85.5	N. N. E.		51	700		
	51	790				4 1	700		
	11 1	786				11	700		
	11	790				21	704		
	21	796				31	710		
	31	800	85.0			41	716		N. b. E.
	41	788		East.		51	704		
	51	784				5 1	710		
	0 1	777				11	700		
	11	770				21	696		
	21	774				31	690		
	31	776				41	686		N. b. W.
	41	792	83.0	North.		51	684		
	51	796				6 1	688		
	55	803				11	694		
	1 1	782				21	694		
	5	761				31	696		
	11	758				41	698		N. b. W.
	21	746				51	702		
	31	734				7 1	704		
	41	730		N. b. E.		11	710		
	1 51	730				21	720		
	2 1	732				31	720		
	P. M.					41	722		N. b. W.
	2 11	728				51	724		
	21	723				8 1	725		
	31	720				11	725		



Date.	Time.	Bar. uncorrected.	Ther.	Wind.	Date.	Time.	Bar. uncorrected.	Ther.	Wind.
Friday, May 2nd, 1851.	P. M. h. m.				May 3rd,	A. M. h. m.			
	7 21	29.722				5 51	29.620		
	31	718				6 1	628		
	41	724	North.			11	631		
	51	724				21	638		
	9 1	727				31	644		
	11	731				41	642	N. N. E.	
	21	732				51	650		
	31	734			7 1	654			
	41	736	North.		11	662			
	51	733			21	667			
10 1	736				31	664			
11	738				41	670		North.	
	21	740			51	672			
	31	740			8 1	672			
	41	737	N. E.		11	668			
	51	736			21	676			
11 1	731				31	680			
	11	727			41	676		North.	
	21	720			51	680			
	31	716			9 1	686			
	41	712	N. E.		11	686			
	51	710			21	696			
					31	691			
					41	685		N. b. E.	
Satur- day, May 3rd, 1851.	A. M. h. m.				51	686			
	0 1	29.712	N. b. E.		10 1	700			
	11	708			11	702			
	21	704			21	697			
	31	705			31	678			
	41	703			41	680		N. N. E.	
1 11	683				51	678			
	21	680			11 1	672			
	31	675			11	656			
	41	670	N. b. E.		21	660			
	51	664			31	664			
2 1	652				41	654			
	11	651			51	654			
	21	644			P. M. h. m.				
	31	644			0 1	654			
	41	640	N. W.		11	652			
3 1	630				21	640			
	11	627			31	641			
	21	618			41	632			
	31	620			51	630			
	41	624	N. W.		1 1	622			
	51	638			11	624		N. N. E.	
4 1	630				21	616		} North.	
	11	631			31	610		} N. N. E.	
	21	632			41	608		} North.	
	31	634			51	600			
	41	628	N. b. W.		2 1	597			
	51	630			11	591			
5 1	630				21	587			
	11	626			31	583		} North.	
	21	638			41	586		} North.	
	31	634			51	581		N. N. E.	
	41	630	N. b. E.		3 1	574		N. N. W.	



Date.	Time.	Bar. uncorrected.	Ther.	Wind.	Date.	Time.	Bar. uncorrected.	Ther.	Wind.
	P. M. h. m.					A. M. h. m.			
May 3rd,	3	11	29 568	N. N. W.	May 4th,	0	41	29.594	N. b. E.
		21	580	N. N. E.		1	1	590	
		31	582	North.			11	584	
		41	578	North.			21	578	
		51	576				31	574	
	4	1	570				41	570	N. N. E.
		11	568				51	567	
		21	574			2	1	562	
		31	576				11	560	North.
		41	580	N. E. b. N.			21	555	
		51	580				31	550	
	5	1	580				41	548	North.
		11	584				51	544	
		21	586			3	1	540	North.
		31	590				11	536	
		41	598	North.			21	534	N. b. E.
		51	600				31	532	
	6	1	602				41	530	North.
		11	602				51	534	
		21	608			4	1	540	
		31	614				11	540	North.
		41	614	N. E. b. N.			21	542	
		51	616				31	542	N. b. W.
	7	1	614				41	544	
		11	614				51	544	North.
		21	610			5	1	546	
		31	615				11	548	
		41	622				21	545	
		51	630				31	544	North.
	8	1	628				41	540	
		11	628				51	538	
		21	630			6	1	542	
		31	632				11	548	North.
		41	640	N. b. E.			21	544	
		51	640				31	546	
	9	1	643				41	547	
		11	645				51	556	
		21	646			7	1	560	
		31	646				11		
		41	646	N. N. E.			21		
		51	647				31		
	10	1	647				41	556	N. N. E.
		11	648				51		
		21	645			8	1		
		31	640				11		
		41	637	N. N. E.			21		
		51	638				31		
	11	1	638				41	570	North.
		11	638				51		
		21	636			9	1		
		31	634				11		
		41	630	North.			21		
		51	620				41	572	North.
							51		
Sunday, May 4th, 1851.	A. M. 0	1	616		10	41	557	N. N. E.	
		11	612		11	41	549	North.	
		21	608		P. M. 0	41	492	North.	
		31	602			1	41	470	N. N. E.



Date.	Time.	Bar. uncorrected.	Ther.	Wind.	Date.	Time.	Bar. uncorrected.	Ther.	Wind.
	P. M.					A. M.			
	h. m.								
May 4th,	2 41	29.458		N. N. W.	May 5th,	9 21	482		South.
	3 41	448		North.		41	493		South.
	4 41	434		North.		10 21	502		
	5 41	464		North.		41	518		S. E.
	6 41	466		N. N. W.		11 21	542		
	7 41	476		N. N. W.		41	540		S. E.
	8 41	490		N. N. W.		P. M.			
	9 41	454		W. N. W.		0 21	556		
	10 41	464		N. N. W.		41	560		South.
	11 41	406		N. W.		1 21	555		
						41	556		South.
May 5th,	A. M.					2 21	560		
	0 41	400		N. W.		41	560		South.
	1 41	380		W. N. W.		3 21	570		
	2 41	362		W. N. W.		41	570		S. b. W.
	3 41	336		W. S. W.		4 21	582		
	4 41	347		S. W.		41	596		S. b. E.
	5 41	322		S. W.		5 41	626		South.
	6 41	362		S. W.		6 41	662		S. b. E.
	7 41	392		S. W.		7 41	699		South.
	8 41	432		S. W.		8 0	708		South.

Lowest at 5h. 36.—29.316.

10 A. M.	4 P. M.
Maximum.	Minimum.
Diff.	
2d —29.800 —	29.684 Diff.
3d — .702 .098	.568 116
4th— .593 109	.432 136

N. B.—On the 2nd and 3rd instant the wind hauled round repeatedly to N. N. E. and from 10 P. M. to midnight, on the 2nd it was N. E. ; at 11 A. M. on the 3rd the wind was N. N. E.

C. B.

“ Further particulars of the late Gale.”    *Extracts from the Log of the Barque Palm.*

Barque *Palm* slipped May 3d, 6h. 40m. A. M., steered E. S. E. until 2 P. M., going 5 knots. She hove to under close reefed main top sail and mizen stay sail, lying E. N. E. then N. E., North, and N. W. ; at 2 P. M. May 5th, blowing very hard with heavy sea and rain, lost our stern boat and had main topsail blown away, noon on same day more moderate, 2 P. M. made sail. May 6th 9 A. M. set main sail, 10.30 made Sadras Hills, and 3.20 anchored in Madras Roads, passed several pieces of wood, apparently teak.



Monday, at 2 A. M., Barometer fell to 28.95, wind W. S. W. blowing a very hard gale, with a tremendous sea on, which broke in over the lee gangway. Captain Norie thinks he was 70 miles S. E. from Madras.

(Signed) J. NORIE,

*Master of the Barque Palm.*

*Extracts from the Log of the Barque James Hall.*

*Saturday, May 3rd, 1851.*—At 3.30 P. M., put to sea with the *Sophia* in company under reefed fore sail and main try sail. At 8 P. M. Madras light N. W. in 23 fms. At 10 P. M. light hardly discernible from the deck; N. W. b N. midnight frequent squalls with heavy rain, Barometer 29.61; split the fore top mast staysail.

*Sunday, May 4th.*—A. M. heavy squalls with a confused sea. Vessel pitching deep with incessant gusts of wind; in main trysail at daylight. At 8 A. M. the Barometer falling fast to 29.50 hauled up the foresail and stowed it, vessel taking heavy lee lurches. The lee quarter boat under water at times; hove the ship to under bare poles. Three sail in company under close reefed topsails. From 1 A. M. to 10 A. M. wind at North; Hd. from E. to E. S. E. Noon heavy gales with drizzling rain and a high sea on, vessel taking heavy lee lurches and the sea making a clean breach over all; Barometer 29.41. From 11 A. M. to 4 P. M. wind at N. N. W. Hd. from E. N. E. to East. At 4 P. M. Barometer 29.38. The gale at its height, from 5 P. M. to 9 P. M. Hd. N. E. to E. N. E. From 10 P. M. to midnight wind at West, Hd. from North to N. N. E. The gale blowing with great fury and heavy incessant gusts at intervals, ship labouring heavy and taking heavy lee lurches. The sea making a clean breach over all, Three sail in company under bare poles, worked the bolts that secure the tiller to the rudder head through. Barometer 29.55.

*Monday, May 5th.*—From 1 A. M. to 10 A. M. wind at S. W. Hd. from N. W. to W. N. W. Heavy gales and cloudy with rain and incessant gusts and a high sea on, vessel labouring heavy and taking fearful lee lurches. At daylight, 3 sail in company under bare poles, Barometer 29.64. At 8, the weather clearing up; at 11 A. M. the gale moderating; noon, strong gales and cloudy. Barometer 29.66; Latitude by account  $11^{\circ} 0'$  N.; Longitude by account  $81^{\circ} 43'$  East. P. M. gale decreasing and a high sea on, set mizen and fore topmast staysail at 6 P. M. The weather appearing more settled; at 8, made sail. Steering W. S. W. wind South. Midnight strong breeze and cloudy with a sea on; Barometer 29.84.

*Tuesday, May 6th.*—Latitude observed  $12^{\circ} 34'$  N.; Longitude  $80^{\circ} 56'$  East; P. M. steering W. S. W. wind at South fresh breezes and free; at



sunset made sail, sounded 28 fathoms, and came to at 1 P. M. on the 7th, in Madras Roads.

JOHN B. M. HARRIS, *Commander,*  
*James Hall.*

*Extracts from the Log of the Ship Duke of Cornwall.*

*Thursday, May 1st.*—Unsettled appearance, Bar. setting to 29.65-75, wind Easterly veering to N. E. and N. N. E. latter part. Moderate cloudy weather.

*May 2nd.*—Strong breeze to N. N. E.; 11 A. M. signal made to shipping to send down T. G. yards and masts. Bar. 29.70; 8 A. M. falling to midnight 29.50 blowing hard and heavy rain, riding easy but heavy sea on. Midnight strong gales and heavy squall at N. N. E. Bar. 29.50; 3.30 A. M. the same, Bar. 29.48.

*May 3rd.*—6 A. M. signal made to slip (5 or 6 went) but we could not, having the Barque "*James Hall*" a cable's length to leeward of us and a heavy swell on to E. N. E. wind N. N. E. blowing fearfully in squalls. 8 A. M. Bar. 29.54; Noon 29.50 blowing fearfully in squalls. 3 P. M. Bar. 29.48. "*James Hall*" with 2 anchors down drifted a good distance from us. 4 P. M. Bar. 29.40; slipped, blowing fearfully at N. N. E. and a heavy swell to E. N. E. stood to the S. E. under storm trysails and double reefed fore topsail, our run up to Midnight 44' true S. E. by E. Midnight Bar. 29.38, blowing hard to North. Head to the Eastward.

*Sunday, May 4th.*—Midnight strong gales and heavy squalls, heavy sea on, ship labouring and straining much. 2 A. M. Bar. 29.38 wind N. N. W. the tiller broke; got the rudder head jammed in the trunk as quick as we could, but its surging had materially started head of the sternpost, kept the ship to under storm main trysail. 4 A. M. Bar. 29.30. Ship not keeping to well, being obliged to keep the rudder as much amidship as possible, on account of wrenching stern post more—paid the stream Hemp cable over the weather bow, with a long Teak fish spanned at the end of it, and kept to better. 5 A. M. had got a spar lashed on rudder head which helped it a little. 8 A. M. Bar. 29.20; blowing fearfully hard to N. W. and a confused sea on, rising in pyramids and heavy rain; 10 A. M. 29.25 (Noon 29.24; wind W. N. W.); 1 P. M. 29.18; 2 P. M. 29.18 (3 P. M. 29.5 minimum) wind West blowing awfully hard and a continued deluge of rain; 5 P. M. 29.10; 8 P. M. 29.14; wind W. S. W.; Midnight 29.30; wind W. S. W. a deal of lightning since 10 P. M. in the N. N. W. and blowing a fearful hurricane, harder since 10 P. M. than before I think, *and the changes of wind preceded by a lull of 2 or 3 minutes.* The decks in a deluge of water and shipping tremendous seas, ship in much distress.



*May 5th.*—2 A. M. Bar. 29.30 ; wind S. W. Port Tack ; 4, 35 S. S. W. ; 8, 29.40, trysail ; Noon 29.50 South ; 4 P. M. 29.55 ; 6, 29.62. ; 10, 29.67. { Until 4 A. M. blowing terrific and a heavy confused sea. 8 A. M. more settled and no rain. Noon a hard squall and cloudy. No observation. Up to this time the drift about  $1\frac{1}{2}$  per hour.

2 P. M. more moderate, but blowing a hard gale, wind South ; 3 P. M. during the afternoon succeeded in getting a very fair temporary tiller on the rudder head ; lying W. S. W. under fore, main and mizen storm trysail. 8 P. M. Lat. from indifferent observation  $12^{\circ} 20'$  ; Long. Jupiter  $81^{\circ} 49'$ . Midnight fresh gales to South, and more sea on, chiefly to W. No soundings with 75 F.

*Tuesday, May 6th.*—First part a hard gale to South veering at 4 A. M. to S. S. W. and cloudy with high sea on, it yet breaking over us. Bar. 4 A. M. 29.67 ; 8 A. M. 29.78 ; Noon 29.75 ; 8 A. M. hard gales to S. S. W. ; Noon do. ; the sea very confused. Obs. Lat.  $12^{\circ} 15'$  ; Long.  $81^{\circ} 15'$  ; 2 P. M. Bar. 29.70 ; 4 P. M. Bar. 29.70, wind S. S. W. strong but weather fine. 8 P. M. Bar. 29.75, wind S. by W. fresh and fine but sea on. Midnight Bar. 29.70, fresh wind South and fine. No bottom 75 F.

*Wednesday, May 7th.*—Midnight. Moderate and south and fine, Bar. 29.78. No bottom 70 F. 2 A. M. sounded in 53 F. 3 A. M. 47 F. ; 4 A. M. 35 ; Daylight. Sadras Hills West ; 7 A. M. Bar. 29.85. Moderate South winds and fine weather. 10 A. M. St. Thomas' Mount N. W. wind Southerly light and fine, Bar. 29.80.

*Barque "Slains Castle."*

H.	K.	F.	Courses.	Winds.	Remarks—Saturday, May 3rd, civil time.
2			In Madras Roads.	North.	4 A. M. heavy gale with heavy rain and confused sea.
4					
6				N. b. E.	10 squalls increasing prepared for slipping.
8					
10					
12				North.	Noon slipped from anchor, wind N.
2					Heavy rain.
4			Sympiesometer.		P. M. do. wind ; running off shore, E. S. E.
6			29.35 S.	North.	S. E. by E. S. E., S. E. by S. until 6 P. M.
8			29.375		Wind steady at N. hove too.
10				North.	
12			29.30		Midnight same weather in 60 fathoms.



H.	K.	F.	Sympieso- meter.	Winds.	Remarks—Sunday, 4th May.
2					A. M. wind beginning to veer to W. in squalls, sea becoming like a boiling pot, vivid lightning accompanying the squalls, but no thunder heard.
4			29.20		
6					
8			29.20		
10			29.20	N. b. W.	Noon, very dark thick weather, wind veering rapidly.
12	11		29.125	N. W. b. N.	
2				N. W. b. W.	3 P. M. terrifically heavy squalls, with thunder and lightning immediately overhead.
4				W. b. N.	
6				W. b. S.	4, beginning to take off, but still blowing very hard.
8			29.325	W. S. W.	
10			29.525		
12			29.55	S. W.	Midnight still moderating.

During the height of the gale it was almost dark like very thick fog. Morning, observed a curious brick-red appearance in the sky.

I should suppose that I was, at the time of the height of the gale, about 100 miles S. E. by E. or S. E. of Madras.

From Midnight of May 4th, until 6 P. M. of May 5th gradually moderating, and sea becoming more regular. I then bore up under close reefed topsails and foresail and stood in to the Westward; my Bar. pumped so much that I could not depend on its indication.

Noon May 6th, made sail and at 4 made Sadras Hills, wind continuing steady from S. W.

May 8th, Noon, Sympiesometer 29.70, having risen since the height of the gale 575.

H. J. ANDREW,  
*Master of the Barque Slains Castle.*

To Captain C. BIDEN,

MY DEAR SIR,—I beg to send you an extract from the Barque *Aztec's* Log Book from the time of slipping from my moorings until my return into the Roads again, and have only to say that during my experience as a Commander for the last twenty-two years, I never experienced the elements to display so much confusion, and to blow with greater violence. Satur-



day May 2nd, Midnight increasing squalls with heavy rain, veered out 100 fathoms of cable, the Barometer standing 29.50, at 6, the signal guns were fired; heavy squalls at intervals, at 7 A. M. slipped from our moorings, and proceeded out to sea, the Barometer still on the decline. May 3rd, at 2 P. M. hove to under close reefed main topsail, Midnight hard gales with incessant squalls, wind due North, Barometer standing 29.20. May 4th, wind from N. N. W. to N. W. the gale still increasing, Barometer 29.00 5 P. M. furled the main topsail, the squalls still increasing and the Barometer still on the decline. Midnight the Barometer 28.80. May 5th, a perfect hurricane, wind West and the sea in a full state of illumination from the constant flashes of lightning, awful in the extreme, *I had all my sheep killed from the effects of the lightning*; at 4 A. M. the Barometer commenced to rise and the violence of the gale abated, Barometer 29.0. 8 A. M. the Barometer 29.10, the wind still subsiding, Noon strong winds, Barometer 29.30. May 6th, A. M. the weather still continuing to moderate made all sail for the Roads, the Barometer 29.50; at 6 P. M. came to an anchor in the Roads. During the heaviest of the gale I was in Latitude 12° 20' N. and Longitude 81° 12' E.

H. W. WRIGHT,  
*Barque Aztec.*

These remarks represent nautical time.

C. B.

*Madras, May 6th, 1851.*

Captain C. BIDEN,

MY DEAR SIR,—As you requested, I herewith send you an abstract of my log from slipping in Madras Roads on May 3rd instant, at 7 A. M. having perceived signals to do so from your department.

We proceeded to sea under double reefed topsails and foresail, after parting from 75 fathoms of chain, the wind then N. N. W.; at Noon wind the same, and eventually hove the ship to under a main staysail; at 4 P. M. on the 4th inst. until Midnight of the same date it blew a complete hurricane, the wind having suddenly shifted to W. S. W.; at 8 P. M. with heavy lightning and a turbulent sea at 4h. A. M. of the 5th, wind gradually decreasing and at Noon moderate, made all possible sail and stood in for land, the wind at South and S. S. W.; we had until our arrival again fine weather.

Farthest to the Eastward 81° 59' E.

Ditto Southward 12° 10' N.

Barometer during the heaviest of the gale 29.85.



The ship made excellent weather of it the whole time, splitting the topsail being the only mishap.

JOSEPH SWAN.

*Barque Sarah Swan, Madras Roads, May 9th, 1851*

May 8th 7h. P. M. Barometer 29.73.

10h. P. M. 29.77.

May 9th 7h. A. M. 29.78.

8h. A. M. 29.80.

11h. A. M. 29.79.

Memo.—As the standard Barometer at the Observatory was at 29.97; at 8 A. M. and the *Sarah Swan* at 29.80 this day .170 may be added to her Barometer when at its Minimum, viz. 28.85 + 17 which would give 29.02. as the indication of her Barometer during the height of the gale.

C. B.

*Ship William Fisher, Capt. Jones.*

To Captain BIDEN, H. C. S.

SIR,—At 6-30 A. M. of the 3rd instant, having observed and answered your signal to the shipping, I slipped my cable and stood to the Eastward under close reefed topsails, reefed foresail, mizen main trysail, and fore-topmast staysail. My Barometer at that time 29.30; at noon, took in the foresail; the squalls at that time very heavy; Barometer 29.20; at 6 P. M. gale still increasing, wind steady at north: and, being then by account in Latitude 12° 52' North; Long. 80° 54' East, shortened sail. At 8 P. M. the weather cleared up a little, and, during the night it blew a steady gale from the Northward, Barometer still falling; at Noon of the 4th, Latitude by account 12° 27' North; Long. 81° 3' East. Although the squalls at times were violent, accompanied with heavy showers, had it not been for the Barometer, I should have thought the gale nearly ended. At 4 P. M. there was much less wind and drawing to the Westward; during the day and night previous, the vessel had not shipped any water, and the decks had been dry fore and aft, except during the short shower; but at this time, the water was perfectly smooth. Nevertheless the Mercury had fallen to 28.60,—the sea, though calm, was covered with milky foam, and the horizon was circumscribed with that dense murky haze which almost invariably precedes a heavy storm or hurricane, and which appeared to be closing on every side, and I took advantage of the lull to see my sails and every thing else well secured. At 6.30 P. M. a heavy gust of wind split the main trysail. It lasted about 20 minutes, and came without the least warning, and rained in torrents during that time: the wind at N. W.; at 8 A. M. by account Lat. 12° 22' N.; Long. 81° 14' E. Ship hove to, under



close reefed main topsail, gale from N. W. b. N. At 8.30, heavy rain, gale increasing; at 9 p. m. another sudden and furious gust literally burst the close reefed main topsail to ribbons, the rain fell in sheeted masses; and at 10 p. m. the thunder and lightning made another addition to the fierce collision of the elements. This lasted without intermission until 2 a. m. of the 5th: the wind had gradually hauled round to the Westward and thence to the S. W.; at that time I wore ship's head to the S. Eastward. By account Latitude  $12^{\circ} 34'$ ; Longitude  $81^{\circ} 18' E.$ ; at 4 p. m. wind and rain moderated a little, thunder and lightning ceased. Barometer rising; at 8, made sail, &c. Strong gale and cloudy weather;—at Noon, wind at South, more moderate, wore to the Westward; weather cloudy. No observation during the day, but from those obtained during the night and next day, my reckoning must have been very correct. Made the light-house bearing N. W. at noon of the 6th becalmed all the afternoon. The above dates are all civil time, and you will observe that the Mercury in my Barometer ranges much lower than that at your observatory, for which reason I have mentioned the height of mine in the Roads at 6.30 a. m. on the 3rd, The Thermometer during the four days remained nearly stationary at  $84^{\circ}$ ; a number of small land birds were blown on board and easily caught, sometimes several together on the afternoon of the 4th; and I observed several shoals of very large skate on the 3rd and 4th.

W. B. JONES,

*Commander, Ship William Fisher.*

*Madras Roads, May 16th, 1851.*

*May 4th.*—Noon Bar. 29.90; p. m. 2h. 28.80; 4, 28.70; 5, 28.60; 6, 28.70; 6.30 a. m. 28.60;\* 7, 28.70; 9, 28.70; 10, 28.80; 12, 28.80.

*May 5th.*—3 a. m. 28.80; 4, 28.90; 5, 29.00; 8, 29.10; Noon, 29.35.

*Extract from the Log of the Ship "Cressy," Capt. Bell. (Civil Time).*

<i>Days.</i>	<i>Hours.</i>	<i>Bar.</i>	<i>Ther.</i>	<i>Winds.</i>	<i>Remarks.</i>
May 3rd,—	2 a. m.	29.60	$79^{\circ}$	N. N. W.	At 4.35 signal at Master Attendant's flag to slip and stand to sea; repeated at daylight with red flag and swallow tail and with guns from the Fort.
	4 do.	29.52	79	do.	
	6 do.	29.55	79	do.	
	8 do.	29.52	79	North.	
	10 do.	29.55	80	do.	
	12 do.	29.60	80	do.	
	2 do.	29.53	80	do.	
	4 do.	29.50	80	do.	
	6 do.	29.51	79	N. Easterly.	
	10 do.	29.55	79	do.	

\* At the Observatory at 6.41 the Barometer was 29.362.



	12 do.	29.50	79	do.	Slipped our cable at 6.45 under close reefed topsails and reefed fore-sail and stood away S. E. by E. blowing hard at North.
May 4th,—	2 A. M.	29.40	79	do.	Between 4 and 8 about P. M. on the 4th, wind about W. with furious squalls and heavy rain, a heavy cross sea running constant, quick flashes of lightning all night.
	6 do.	29.40	79	do.	
	10 do.	29.35	79	N. N. W.	
	12 do.	29.24	79	N. W.	
	2 P. M.	29.25	79	do.	
	4 do.	29.15	78	do.	
	6 do.	29.10	78	W. N. W.	
	8 do.	29.35	78	do.	
	9 do.	28.98	78	do.	
	10 do.	29.03	78	West.	
	12 do.	29.10	78	do.	
May 5th,—	2 A. M.	29.25	78	do.	
	4 do.	29.34	79	do.	
	6 do.	29.40	79	do.	
	8 do.	29.50	79	S. Westerly.	
	12 do.	29.60	79	South.	
	2 P. M.	29.62	79	South.	
	4 do.	29.65	79	West.	
	6 do.	29.68	79	do.	
	10 do.	29.70	79	S. S. E.	
	12 do.	29.70	79	do.	
May 6th.—	2 A. M.	29.65	79	South.	Returned to the Madras Roads at daylight on the 7th instant.
	4 do.	29.60	79	do.	
	8 do.	29.68	79	do.	
	12 do.	29.75	86	do.	

*Extract from the Log Book of the Ship Randolph, Wm. Dale Comr.  
forwarded by Capt. Biden.*

*May 3rd, 1851.*—At 6.15 A. M. saw the signal at the Master Attendant's flag staff to cut or slip, set the treble reefed topsails and slipped the cable and stood to the E. S. E. Strong breeze to the N. N. E. with hard squalls and heavy rain. At 10 A. M. kept away S. E. the gale increasing with heavy rain. At 6 P. M. hove to on the port tack under close reefed main topsail; Lat. by Acct.  $12^{\circ} 20' S.$ ; Long.  $81^{\circ} 00' E.$  At 7 P. M. the gale increasing with furious squalls, took in the main topsail. Midnight strong gale and heavy sea.

*May 4th.*—Wind North, blowing a heavy gale with violent squalls and heavy rain lying to under mizen trysail, the sea making from Westward and Bar. falling rapidly. Noon blowing a hurricane with a very high cross turbulent sea and heavy rain and lightning. The ship rolling heavily, her lee rail in the water; Noon Lat. by Acct.  $11^{\circ} 56' S.$ ; Long.  $81^{\circ} 10' E.$  The wind gradually drawing to the Westward. At 2 P. M. a heavy sea



struck the stern and washed away the boat. At 4 P. M. the wind S. W. blowing furiously with a tremendous sea. At 8 P. M. the hurricane abating, the Bar. rising; Midnight strong gale and heavy sea.

*May 5th.*—A. M. strong gale and high sea with hard squalls and rain at times. At 6 A. M. more moderate, set close reefed topsails; Noon strong gale and Southward and dark cloudy weather. The sea more regular. At 10 P. M. Lat. per Alt. of Jupiter  $12^{\circ} 7' S.$ ; Midnight fresh gale and clear weather, made sail.

*May 6th.*—A. M. fresh gale and clear, sea falling fast; at 12.30, brought up in Madras Roads.

*State of the Barometer during the Gale.*

		<i>Bar.</i>	<i>Aneroid.</i>	<i>Symp.</i>	<i>Wind.</i>
May 3rd,	6.30 A. M., .....	29.60	29.65	....	N. N. E.
„	Noon, .....	29.52	29.60	29.47	„
„	2 P. M., .....	29.44	29.55	29.40	„
„	6 „ .....	29.44	29.53	29.39	„
„	10 „ .....	29.44	29.52	29.39	„
„	Midnight, .....	29.40	29.45	29.35	„
May 4th,	4 A. M., .....	29.38	29.40	29.30	North.
„	8 „ .....	29.33	29.40	29.30	N. W.
„	Noon, .....	29.20	29.33	....	W. N. W.
„	2 P. M., .....	29.10	29.25		
„	4 „ .....	29.25	29.40	....	S. W.
„	8 „ .....	29.33	29.50		
„	Midnight, .....	29.38	29.52		
May 5th,	4 A. M., .....	29.41	29.55		
„	8 „ .....	29.55	29.70	....	Southerly.
„	Noon, .....	29.62	29.72		
„	Midnight, .....	29.70	29.80		

*Inland Notes by Capt. Biden.*

*May 5th to 6th.*—Vizagapatam—blowing a gale from N. N. E. to S. E. and South.

*May 5th to 6th.*—Bellary—from 4 P. M. from 5 to 8 A. M. 6th, gale with heavy rain.

*May 3rd.*—Guntoor—gale from Eastward.

*May 3rd to 6th.*—Secunderabad—heavy storms of wind but little rain.

*May 3rd.*—Chingleput—raining heavily till 10 A. M. of 5th, then heavy gale commencing at North and veering to East and South.



Tabular View of the Winds and Weather experienced by the different Ships at Noon each day 30th April to 5th May, 1851.

Date.	Name of Ship or Station.	Lat. N.	Long. East.	Winds and Weather.	Bar.	Symp.	Ther.	Remarks.
1851. 30th April.	Diana.	0° 6'	86° 00'	S. W. to West.				
	Hannah.	7 50	82 8	Unsettled weather latterly. Off Ceylon.				
	Mary Ann.	9 49	81 34	Light and variable S. W. to North.	29.67 Aneroid .65	..	84°	Heavy rain at night.
	Sarah.	6 36	93 12	Fresh S. S. W. winds and fine.	....	..	..	Increasing to midnight, when cloudy with heavy squalls.
	Atalanta.	12 45	83 58	Light winds S. S. E. to S. E. with calms.	29.80			
1st May.	VIZAGAPATAM.	17 41	83 16	Light airs and sultry weather throughout.	29.80	..	..	Unusually clear weather.
	Diana.	1 56	86 20	Fresh breezes hard squalls and rain. Westerly increasing latterly.				
	Hannah.	8 40	81 43	Heavy and tremendous squalls W. S. W. and S. W.	....	..	..	Every appearance of a gale.
	H. M. S. Fox.	8 57	81 17	W. b. N. to W. N. W. variable.	29.67 to .74	..	82	Lightning.



<i>Date.</i>	<i>Name of Ship or Station.</i>	<i>Lat. N.</i>	<i>Long. East.</i>	<i>Winds and Weather.</i>	<i>Bar.</i>	<i>Symp.</i>	<i>Ther.</i>	<i>Remarks.</i>
1851. 1st May.	Mary Ann.	10° 31'	81° 8'	Variable from Westward and North—rain.	29.60	..	81°	Night dull and oppressive.
	P. and O. Str. Precursor.	5 5	79 3	Strong winds W. b. S. Cloudy and frequent squalls. P. M. W. b. N.	29.70 to .82	..	..	Moderating on the 2nd in 3° 15' N. 78° 18' East.
	Joseph Manook.	10 30	81 8	Heavy dark appearance and much rain Wind W. N. W.	29.82 to .72 .78	..	82	Heavy N. W. squalls at Midnight.
	Ostrich.	14 19	82 45	E. N. E. and squally.	29.75	29.82	84	Squally at Midnight.
	Atalanta.	11 34	83 40	Smart squalls A. M. East to N. E. and N. N. W. Noon gloomy to Mid- night.	29.76 .66 and .75 to .70	..	..	Winds flying about N. N. W. to E. S. E. at Midnight and light- ning. Heavy bank to the South- ward.
2nd May.	VIZAGAPATAM.	17 41	83 16	Light airs N. W. and North to N. E. P. M. Northerly.	29.80 and .85	..	..	Long swell from the Eastward.
	Diana.	3 04	87 00	Wind W. b. S. to S. W. terrific squalls and de- luge of rain.	....	..	..	Current to the Eastward of 20' in the 24 hours.
	Hannah.	8 40	81 10	Gale increasing with tre- mendous squalls and rain. Wind Westerly veering about 2 points. each way.	....	..	..	Hove to.



Date.	Name of Ship or Station.	Lat. N.	Long. East.	Winds and Weather.	Bar.	Symp.	Ther.	Remarks.
1851. 2nd May.	H. M. S. Fox.	10° 0'	81° 38'	A. M. variable N. Noon N. N. W. P. M. hurri- cane. 8 P. M. W. N. W. to N. W. b. W.	29.67 Noon .60 Mid. .47	..	..	P. M. lying to.
	Mary Ann.	10 38	81 17	Strong gale variable N. N. E. to N. W. heavy rain.	29.52 An. .53	..	82°	Night much heavy thunder and lightning to the Northward, 8 P. M. hove to.
	Joseph Manook.	10 40	81 3	Increasing from North, Noon blowing hard P. M. N. W. b. N.; N. N. W.	29.79 8 .74 P. M. .64 12 .56	..	..	2 P. M. hove to.
	H. C. Str. Hugh Lindsay.	Off Porto Novo and Tranque- bar.	..	Threatening from the N. W.	29.69	..	..	Southerly, at anchor at Tranquebar.
22 23	Paumbum Chan- nel.	..	..	9 P. M. hard gale N. N. W.	....	..	..	Wind veering frequently from S. W. to N. N. W.
	Ostrich.	13 10	83 10	8 A. M. East Noon E. N. E.	29.60	29.75	83	Midnight increasing gale and heavy squalls.
	Mary Harrison.	13 41	82 15	N. E. to N. b. W. and N. East.	29.60 to .50 and .40	.. Noon. Mid.	85½ to 83½	Heavy swell from S. E. and threat- ening appearances.



<i>Date.</i>	<i>Name of Ship or Station.</i>	<i>Lat. N.</i>	<i>Long. East.</i>	<i>Winds and Weather.</i>	<i>Bar.</i>	<i>Symp.</i>	<i>Ther.</i>	<i>Remarks.</i>
1851. 2nd May.	Catherine Ap- car.	10° 44'	84° 14'	Dark cloudy and varia- ble and calms. 4 P. M. Eastward. Midnight hard squalls Easterly.	29.49 to 29.43	29.20 to 29.18	..	Making preparations for bad wea- ther.
	Atalanta.	10 46	81 41	A. M. squally N. N. W. to East 5 A. M. North 10 North to N. W. P. M. to 6, wind N. N. W. when shift to West.	29.64 to .61 P. M. .55 .51 .56	..	..	10 A. M. scudded to the South and S. S. W. Shift to W. N. W. and West; at 6 P. M. hove to, deluge of rain and scud.
	VIZAGAPATAM.	17 41	83 16	Light N. W. winds Noon dense horizon, P. M. the same.	29.80 and .78	..	..	Increasing swell from the East- ward.
3rd May.	Diana.	4 15	87 05	Fresh gale. Wind W. S. W. to S. W. b. S.	....	..	..	A. M. hove to, Noon moderate, made sail, 8 P. M. heavy gale.
	Hannah.	8 53	82 25	Hard gale from the Westward.	....	..	..	Moderating and towards midnight increasing again.
	H. M. S. Fox.	10 21	82 40	A. M. W. N. W. P. M. W. S. W. and S. W.	29.37 to 29.30 Noon .37 10 P. M. .50	29.20	..	9.45 obliged to bear up. Scudding to the Eastward to Midnight.
	Mary Ann.	....	....	Severe gale, heavy rain and terrific squalls. Wind W. to S. West.	29.30 to Noon .33 Mid. .30	..	..	Hove to throughout. Position not given.



Date.	Name of Ship or Station.	Lat. N.	Long. East.	Winds and Weather.	Bar.	Symp.	Ther.	Remarks.
1851. 3rd May.	Joseph Manook.	Not given.	....	A. M. N. W. blowing hard W. N. W. 9 West, violent gusts. Night W. to W. b. S.	29.48 to 29.44	..	..	5 A. M. but little wind, vessel not steering, heavy, confused sea; 7.30 heavy gust from N. W.
	H. C. Str. Hugh Lindsay.	....	....	Wind N. Westerly: gale.	29.40* to 29.58	..	..	Standing out to sea to Noon when hove to.
	Paumbum Channel.	....	....	S. W. hard gale.				
	Ostrich.	12° 46'	83° 00'	A. M. E. b. N. 8 East, Noon E. N. E. to Mid- night.	29.40	29.60	82°	Noon to Midnight continued and increasing squalls, rain and sea.
	Hyderabad.	14 05	83 47	P. M. strong breeze East- erly, 6 P. M. E. S. E.	28.90 to 28.80	..	..	Increasing with confused sea to Midnight. Ship standing to the S. S. W. and S. W.
	Mary Harrison.	13 12	81 28	North to N. N. W. squal- ly weather.	29.38 to 29.30	..	83½	8 P. M. hove to.
	Catherine Ap- car.	12 40	83 32	2 A. M. E. S. E. P. M. fresh gale East.	29.33 to 29.29 and 29.50	29.12	..	5 A. M. bore up North, heavy squalls and cloudy but little sea; P. M. fresh gale and hard squalls.
	Atalanta.	Not given.	....	A. M. to Noon hurricane W. S. W. P. M. furious squalls W. S. W.	29.52 .60 .54	..	79	Midnight shifted to S. W.

\* Probably an error.



Date.	Name of Ship or Station.	Lat. N.	Long. East.	Winds and Weather.	Bar.	Symp.	Ther.	Remarks.
1851. 3rd May.	VIZAGAPATAM.	17° 41'	83° 16'	Fresh N. W. winds. Noon North and N. E. and drizzling rain. Sunset sharp squalls and heavy rain.	29.78 to .72 and .69	..	..	Noon threatening to the N. E., high sea tumbling in from East- ward.
	Paragon.	17 00	83 15	A. M. squally from N. E. b. E. Noon strong gales and thick cloudy weather.	P. M. 29.67 to M. 29.66	29.66	..	Preparing for bad weather.
4th May.	Diana.	4 50	86 50	W. S. W. to S. W. b. S. strong gale.	....	..	..	Ship partly hove to.
	Hannah.	9 00	83 00	Wind S. W. Midnight increasing.	....	..	..	Heavy cross sea.
	H. M. S. Fox.	10 22	84 35	A. M. S. S. W. Noon S. S. W. P. M. South to S. b. W.	29.57 to .70 Mid. .72	..	..	At 8 A. M. hauled up to N. West again.
	Mary Ann.	11 49* Acct.	82 34	Blowing a gale at 8 P. M. S. S. W.	29.38 A. M. .35 Mid. .40	..	82°	At 8 more moderate.
	Joseph Manook.	Not given.	....	Daylight more moderate Wind W. b. S. Mid- night South.	29.59 to .73			

\* So in MSS. but by the following day's Lat. and the wind, it is evident it should be 10° 49'.



Date.	Name of Ship or Station.	Lat. N.	Long. East.	Winds and Weather.	Bar.	Symp.	Ther.	Remarks.
1851. 4th May.	H. C. Str. Hugh Lindsay.	Not given.	....	Increasing at daylight to Noon. Wind Westerly to S. W.	29.50 to .57	..	..	Hove to moderating towards Mid- night.
	Paumbum Channel.	....	....	Gale at S. W.	....	..	..	Heavy sea though sheltered by the islands.
	Ostrich.	13° 4'	82° 21'	A. M. S. East strong gale Noon more moderate 2 E. S. E. Midnight S. E.	29.33	29.39	84°	From 8 P. M. to Midnight increas- ing.
	Hyderabad.	12 30	82 20	Wind S. E. b. E. from 6 A. M. 4 P. M. hurri- cane S. E. b. E. to East.	28.74 to 28.70	..	..	Decks swept continually, Wind hauling gradually to the South- ward.
	Mary Harrison.	12 41	81 38	A. M. North 8 A. M. N. N. W. 8 P. M. N. W. 10 P. M. S. W.	29.30 to 28.80	..	..	10 P. M. shift to S. W.
	Catherine Ap- car.	15 13	82 56	8 A. M. fresh gales E. b. S. Wind E. to E. S. E. 9 P. M. S. East.	....	..	..	11 A. M. a terrific squall.
	Atalanta.	Not given.	....	Noon, less violent gale from S. W. Midnight South and abating.	29.54 to .64 P. M. .64 to .70	..	..	10¼ P. M. Lats. per Jupiter, and Spica give 10.46½.



Date.	Name of Ship or Station.	Lat. N.	Long. East.	Winds and Weather.	Bar.	Symp.	Ther.	Remarks.
1851. 4th May.	VIZAGAPATAM.	17° 41'	83° 16'	Baffling winds N. E. to East no increase. Weather thick and gloomy. P. M. drawing to E. S. E. in heavy squalls.	29.78 .75 .64	..	..	Much rain and lulls between the squalls P. M.
5th May.	Paragon.	16 24	83 26	Brisk gale N. E. b. E. 6 A. M. E. b. N. P. M. E. b. N. 10.30 S. E.	29.60 to .68	..	..	Lightning in the S. E. moderating at Midnight. Shift to S. E. at 10.30 P. M. High confused sea.
	Diana.	5 00	86 10	S. W. to S. S. W. strong gale.	....	..	..	Ship hove to for 16 hours since Noon late.
	Hannah.	9 40	81 50*	West 8 P. M. blowing hard.	....	..	..	Moderated about 8 A. M. on the 6th off Nagore.
	H. M. S. Fox.	10 25	83 55	South squally, but clearing up.	29.74 to .80	..	84°	Midnight fair.
	Mary Ann.	10 11	82 20	Moderating but heavy sea.	29.55 A. M. .55	..	84	Noon—made sail.
	Joseph Manook.	10 49	83 35	4 A. M. fresh gales South-erly; Noon South.	29.78 to .86	..	..	Current E. S. E. 160' since the last observation.
	H. C. Str. Hugh Lindsay.	9 59	81 49	Weather becoming fine.	29.52 to .70			

\* MSS. very badly written and possibly an error, H. P.



Date.	Name of Ship or Station.	Lat. N.	Long. East.	Winds and Weather.	Bar.	Symp.	Ther.	Remarks.
1851. 5th May.	Paumbum Channel.	....	....	S. S. W. a gale but not so violent as before.				
	Ostrich.	14° 54'	82° 37'	A. M. S. S. E. strong gales.	29.26 Noon .60	29.31 .80	83°	6, Moderated and made sail. Mid- night—out reefs.
	Hyderabad.	12 50	81 40	Noon hard gales about S. E. b. S. P. M. more moderate.	28.71 to 28.80	..	..	Midnight more settled. On the 6th moderate.
	Mary Harrison.	13 11	81 50	Wind throughout S. S. W. to South.	28.80 to 29.58	..	82 to 83½	4 A. M. heaviest weather; 4.30, abating to a strong gale. On 6th, becoming fine.
	Catherine Ap- car.	16 42	84 25	Wind hauling to S. S. E. Noon fresh breeze.	29.67	29.46		
	Atalanta.	10 53	83 34	Moderate and fine.	29.75 to .80	..	..	Confused sea still running at Noon.
	VIZAGAPATAM.	17 41	83 16	Wind S. E. in hard squalls, heavy rain and thick dark weather. Sunset southerly, dense black clouds.	29.75 .68	..	..	Sea running fearfully high, and surf breaking as far as the eye could see. On the 6th clearing up.
	Paragon.	16 41	84 18	Strong breezes S. E. moderating at Noon.	29.70	..	..	Heavy sea from South.



## SUMMARY.

We find that on the 30th April the *Diana*, almost on the Equator, had a fresh S. W. to Westerly monsoon in Long.  $87^{\circ} 00'$  East; and that again from the meridian of the Coast of Coromandel to  $84^{\circ} 00'$  East and between  $6\frac{1}{2}^{\circ}$  to  $13^{\circ}$  North, the weather was fine with fresh to light and variable winds from the Southward. The Barque *Hannah* only, off the Coast of Ceylon, finds it becoming unsettled towards Midnight.

*On the 1st May.*—The *Diana* in about  $2^{\circ}$  North is bringing up a strong Westerly monsoon and from the meridian of Trincomalee ( $81^{\circ}$ ) to  $84^{\circ}$  East and between Trincomalee and  $11^{\circ}$  North Latitude; the *Hannah*, *H. M. S. Fox*, the *Mary Ann* and *Joseph Manook* have variable Westerly breezes and squally, but except threatening appearances nothing to indicate a Cyclone. The *Fox's* Barometer was *rising* (if this be not an error?) and that of the *Precursor* Steamer (to the W. S. W. of Ceylon) doing the same. The *Joseph Manook's* Barometer is fluctuating from 29.82 to 29.72 and then to 29.78. The Northernmost vessels of those above-mentioned are the *Mary Ann* and *Joseph Manook* in  $10\frac{1}{2}^{\circ}$  North. We have then, a degree farther to the North and  $1\frac{1}{2}$  degrees to the Eastward, the *Atalanta* in Lat.  $11\frac{1}{2}^{\circ}$ ; Long.  $83^{\circ} 40'$  and the *Ostrich* in  $14^{\circ} 19'$  to  $82^{\circ} 45'$  with squally gloomy weather from the E. N. Eastward, the *Atalanta's* Barometer *falling* from 29.76 to 29.70 in the 24 hours. The Easternmost ships have N. N. Westerly airs at times, but there is nothing again in all the records to indicate that a Cyclone had yet commenced in any part of the Bay. We have unfortunately no positions given in the Log of the *Sarah* except those of the 10th, when she was in the neighbourhood of the Nicobars and in  $6^{\circ} 36'$  N., and  $93^{\circ} 12'$  East; and of the 5th, when she was in  $10^{\circ} 40'$  N., Long.  $86^{\circ} 10'$  East; having had in these four days a heavy gale rising to a hurricane from S. S. W. and of this we cannot say if it was part of a Cyclone or the monsoon only. Its peculiarity of veering from South to S. W. I shall subsequently remark upon, she must on this day have been about  $10^{\circ}$  East of Trincomalee, and the *Diana* also at about  $10^{\circ}$  to the S. East had also an increasing monsoon gale from the S. Westward.



*On the 2nd May.*—We have on this day *H. M. S. Fox*, the *Mary Ann*, *Joseph Manook*, and *Atalanta* all within a short distance of each other, with smart gales and squalls more or less severe (that of *H. M. S. Fox* being of force 9) from N. N. W. to N. b. W. so that we may take the centre of the Cyclone, for it had now formed or *descended* as such, to have been bearing E. N. E. from a point in about the centre of their various positions. I, of course, assume the log of *H. M. S. Fox*, as being a perfectly correct one, but I do not lay down the centre as bearing exactly E. N. E. from her, though she had the wind at noon N. N. W. because it is one of the peculiarities of this Cyclone that the wind throughout is described as fluctuating as much as from four to six points with most of the ships, which I shall subsequently remark upon.

The Cyclone, however, was of very limited extent, for we find the *Catherine Apar*, the log of which ship is perfectly well kept, at only 150 miles E. N. E. of *H. M. S. Fox*, with variable airs and calms, though the *Hannah*, 80 miles to the S. b. E. of the *Fox*, has an increasing gale with tremendous squalls, and the wind Westerly “varying two points each way.”

This estimate, for we can call it nothing better, will place the centre for this day in Lat.  $10^{\circ} 40'$  North, Long.  $82^{\circ} 25'$  East; but it gives the *Joseph Manook* and *Atalanta* the wind at North, while it is stated to have been N. N. W. by their logs; but then, as will be subsequently adverted to, the winds in this Cyclone appear to have been so unsettled, i. e. to have had so much incurving in the squalls, that it is impossible to lay down any positive centre from them.

*On the 3rd May.*—We have *H. M. S. Fox*, which ship had been standing to the N. Eastward (that is *into* the heart of the Cyclone,) as much as the gale allowed her, bearing up in a complete hurricane, at 9.45 A. M. to save her masts; and at Noon in Lat.  $10^{\circ} 21'$  N., Long.  $82^{\circ} 46'$  with the wind marked in the log W. S. W. at Noon, and W. N. W. at 7 P. M., a difference of 4 points in the hour, and it flies back again to W. S. W. at 3 P. M. ! Hence we can only take the average of West as representing the wind at Noon, but it was evidently very heavy, and the *Fox* was making very bad weather of it.

The next ship to her, the *Atalanta*, was also close on the South side of the centre, and though she had not the calm, yet her log describes



very remarkable alternations of lulls and gusts. Her position on this day is unfortunately not given, nor have I the detailed log to calculate it from, nor do the *Mary Ann* and *Joseph Manook* give their positions. The *Hugh Lindsay* also gives no position, but she was steaming out to sea with the wind N. W. and the *Hannah*, 87' miles South of the *Fox*, has a hard gale from the West. The *Joseph Manook* notes in her log a remarkable interval of calm about Noon, which may have been the centre; but her position is not given from the 1st to the 5th, so that we are quite at a loss to say if she really was at the centre, though with the strong Easterly current she experienced this is not impossible.

We have then to the N. N. Eastward of the *Fox* at 120 miles distance, the *Catherine Apcar* and *Ostrich*, with increasing gales from E. b. S. and E. N. E. and hard squalls, the first ship bound to Calcutta bearing up North to run as fast as possible out of the influence of the Cyclone. The *Mary Harrison*, 180 miles to the N. N. W. of the *Fox* and 75 to the Eastward of Madras, having the average of her winds about N. b. W. with squally weather, and at Madras the wind appears to have been variable between N. b. W. and N. N. E. and the weather sufficiently threatening for the ships in the roads to be ordered to sea at daylight.

These various winds do not give any certain position for the centre on the 3rd, but they establish clearly the existence of a Cyclone of irregularly blowing and *vibrating* winds, of which the centre must have been close upon the *Atalanta* and *H. M. S. Fox*, and upon the average parallel of the Southern group of vessels (*Atalanta*, *Fox*, *Joseph Manook*, *Mary Ann* and *Hugh Lindsay*,) and that the *Catherine Apcar*, *Ostrich* and *Hydrabad* were upon its Northern quadrants. The *Mary Harrison* (taking her position as correct) appears to have had her winds influenced by the shore, where indeed the winds on the approach of this Cyclone forcibly remind us of a Mexican *Norte*.

With these considerations, then, I have placed the centre for the 3rd May in Lat.  $11^{\circ} 08'$  N.; Long.  $82^{\circ} 18'$  East, which will give it a track of 35 miles only to the N. N. E. in the twenty-four hours, but there is nothing extraordinary in the Cyclone's being so nearly stationary for one day, and *H. M. S. Fox* which only made good a course of N.  $73^{\circ}$  East 71' miles, still reached only to the meridian of the centre



on the 3rd. The diameter of the Cyclone on this day cannot much have exceeded 220 to 250 miles, but its influence was beginning to be felt at 300 miles to the North by the *Paragon*; at Madras 190' to the N. W. ; and to the N. N. E. by the *Hydrabad* at about the same distance, and though the *Mary Harrison's* N. b. W. gale, (for she was hove to under a close reefed main topsail) is an anomaly, I have marked a circle for the *Hydrabad* and for Madras on this day.

*On the 4th of May.*—The centre on this day at Noon is perhaps best determined by the position of the *William Fisher*, which ship having slipped from Madras Roads on the 3rd, evidently met the centre at 4 P. M. and her reckoning being evidently most carefully kept (though it is not said if with any allowance for the current which sets so heavily along the coast in these gales), her position is probably nearer the truth than those of the *Mary Harrison*, *Ostrich* and *Hydrabad*, all of which were evidently close on the borders of the centre. Bearing in mind then that the *Mary Harrison* was probably farther to the S. W. perhaps as far as on the meridian of  $81^{\circ}$ ; and the *William Fisher* also a little farther to the South, we shall not be far wrong if we estimate the centre to have been about due West of the *William Fisher* or in Lat.  $12^{\circ} 30'$  N. ; and in Long.  $81^{\circ} 50'$  East; and that being closely followed up by the monsoon, of which it seems to have been a sort of precursor, the groups of ships to the Southward and S. Eastward of this spot, *Fox*, *Atalanta*, *Mary Ann*, and *Hannah* had the winds more Southerly than the exact quadrants of the Cyclone would allow them. The *Sarah* to the Eastward and the *Hannah* and *Diana* to the Southward seem both to have had the monsoon, but to the Northward and North Westward the influence of the Cyclone is seen in the Easterly winds of the *Catherine Apcar* and *Paragon* and at Cocanada.

This position of the centre makes the Cyclone to have travelled up on a course of N.  $33^{\circ}$ ; West 100 miles in the 24 hours, and it agrees very fairly with the probable positions and the winds as stated in the logs of the ships which slipped from Madras Roads, so that it cannot be far wrong.

*On the 5th May.*—It would appear that on this day about 3 A. M. the Cyclone passed inland a little to the Northward of Madras, where we find the winds to have veered from N. West at Midnight to



W. N. W.; at 2h. 41' A. M. and W. S. W. at 3h. 41' A. M. giving us, as a mean, the wind at West (centre due North of Madras) at 3h. 10' A. M. The Bar. is marked as having reached the minimum of 29.316 at 5h. 36' A. M.; hence at Noon and no doubt because of the closely following monsoon, we find all the winds between S. E. b. S. and S. W. and we have no inland reports from which even approximately to deduce the position of the centre, if there was one, and it is not at all unlikely, that even the low range of the Pulicat hills over which the Cyclone must have passed was quite sufficient to make its various movements so irregular that but little could safely be set down except from a very considerable number of careful local reports such as are obtained in America or England. I am inclined indeed to think that its action was much disturbed in the neighbourhood of the land on account of the great discharge of lightning which took place with some of the ships.

If we take the centre of the Cyclone to have "landed" some 30 miles due North of Madras at 3 A. M., this will give it a course of N.  $56^{\circ}$  West, 115 miles for the 15 hours, from the place of the centre on the 4th, and for the 24h. will give 184 miles on the same course to Noon placing the centre in Lat.  $14^{\circ} 12'$ ; Long.  $79^{\circ} 49'$  As before remarked this acceleration of rate and change of course on the approach of the Cyclone to land is by no means new to us having been frequently traced before by authentic reports.

I have not thought it necessary to mark on the Chart the runs of the ships from Madras Roads; the positions of one or two for the 4th and 5th are given, being referred to in their logs.

There are some peculiarities in this Cyclone worth remarking upon and the first of these is the remarkable—

**VIBRATION OF THE WIND.**—We find this phenomenon to have occurred not when the ships were close to the centre where the incurving of the wind-spirals (like that of the arrows on the vignette of some of the Charts) is to be expected, but at a considerable distance from the centre and even before we can affirm the Cyclone to have truly commenced, and this again to have occurred with the same ship for several days. Thus taking the ships in the order they are set down in the Summary, we find on the 1st May the ships and winds as follows:—



## SHIP.

## WINDS.

*Hannah*. . . . . Tremendous squalls from W. and S.  
Westward.

*H. M. S. Fox*, 1 P. M. . . Variable W. b. N. to W. N. W.

*Mary Ann*, 4 P. M. . . . . Variable West and North.

*Sarah*, near the Nicobars,  
4 P. M. . . . . Heavy gusts from South to S. W.

*Atalanta*, 9 P. M. . . . . Smart squalls, at Sunset, East to N. E.  
and N. N. W.

MAY 2ND. *Hannah*, 4 P. M. Wind Westerly (heavy gale) veering  
about two points each way.

*H. M. S. Fox*, 7 P. M. . . Variable from North to W. b. N.;  
P. M. hurricane.

*Mary Ann*, 6 P. M. . . . . Strong gale, very variable from N. N.  
E. to N. W.

*Sarah*, 4 P. M. . . . . Heavy gusts South to S. W.

*Mary Harrison*, 5 P. M. . . N. b. W. to N. East.

*Atalanta*, 4 P. M. . . . . Heavy gusts North to N. W.

*At Paumbaum*, 10 P. M. . . Gusts from S. W. to N. N. W.

On the 3rd May,—The *Hannah*, *H. M. S. Fox* and the *Joseph Manook* being close in upon the centre seem to have had the wind veering with tolerable steadiness and not vibrating as before.

*Sarah*, 4 P. M., successive heavy squalls from S. to S. W. are marked.

*Atalanta*, frequent lulls of two to five minutes followed by furious gusts, direction not given.

The ships putting to sea from Madras Roads do not seem to have experienced any vibration of the wind worth noting, and many of those mark it as “steady at North, &c.” As upon an average we may say that the centre of the Cyclone passed at about 30 or 40 miles from the whole of these ships, it would appear from this and from what we have extracted above, either that this vibration occurred towards the outskirts of the Cyclone and towards the S. W. where it may have been owing to the heavy monsoon, which was evidently following up the Cyclone, or that it occurred more at its commencement while it was settling down. The fact, however, whatever may have been the cause, is highly worthy of notice amongst other yet unexplained ones.



THE MANAGEMENT OF THE SHIPS. Those which were at sea scarcely require any comment, their errors, or good management, being so clearly seen from their logs and the Charts. H. M. S. *Fox* seems to have paid most severely for running too far in towards the centre. The ships in Madras Roads, however, furnish very instructive lessons. They all ran out more or less upon a wind, evidently to get an offing, forgetting that in so doing, they were risking the chances of meeting with the centre, by which if dismasted and thrown into the Northern quadrants, or as in the case of the *Runnimede* and *Briton* (12th Memoir; Journal, Vol. XIII.) if involved in it, they might have been carried by it like helpless hulks on shore again. Whereas by steering from a point to two or three points more to the Southward they would rapidly have brought the wind to the Northward and to the Westward of North, so as safely and easily to *run round* the Cyclone and so return to their anchorage without straining a rope-yarn. The direction of the wind and the fall of the Barometer were infallible guides for them.

THE BAROMETRIC INDICATIONS. These are also of very great interest, but as I have already prepared one paper upon them embodying through the aid of our new Science of Cyclonology a discovery which I think will be considered as one of much importance by Meteorologists, and this will probably be followed by another, I will not here anticipate upon what I may have to say in those papers.

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Piddington, Henry. 1853. "A Twenty-First Memoir on the Law of Storms in the Indian and China Seas Being the Cyclone of H.M.S. Fox, in the Bay of Bengal, 30th April to 5th May 1851." *The journal of the Asiatic Society of Bengal* 21(IV), 283–328.

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