

**AEROLOGY**  
**U.S. NAVAL STATION**  
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COMPLETE

**Bermuda Meteorological Station**

**No. 3**

**The Bermuda Hurricane of**  
**20th October,**  
**1947**

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By

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# THE BERMUDA HURRICANE OF

20th OCTOBER,

1947

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Hurricanes have been known to approach Bermuda from almost every direction, but the majority have come from between south and west. In a large number of cases these have been ones which apparently formed in the prevailing easterlies in the latitude of the Antilles and recurved to the north, passing near Bermuda. The appearance of any disturbance in the easterly stream during the summer and early autumn is, therefore, an indication of possible danger which has to be closely watched by Bermuda forecasters.

On the afternoon of the sixteenth of October no observations were received from the Windward or Leeward islands, but reports from two ships indicated that there was probably a closed wind circulation centred about 19° north and 60° west, which is to say, about 850 miles south southeast of Bermuda. The Bermuda-Azores anticyclone was broken into two indefinite highs at this time and the easterly stream south of Bermuda was weak, so that if a hurricane did develop it might easily recurve to the north or northeast and affect Bermuda.

The following three maps at six-hourly intervals indicated that the circulation did exist and was apparently becoming more intense. It was moving slightly north of west so that by the morning of the seventeenth it was one hundred miles due north of Puerto Rico. The next two maps showed a continuance of the motion, but during the night of the seventeenth its movement slowed down somewhat and there were indications that it was changing its direction towards the north. Preliminary warnings of possible danger were, therefore, given to the Dockyard and other shipping interests. By the evening of the eighteenth it was definitely shown to be moving up the 70th meridian, almost due north, and was, at 8.00 p.m., about 550 miles southwest by south of Bermuda. Reports indicated that winds of hurricane force extended from the centre over a radius of 50-100 miles. Continuance of its northward movement would have made it pass rather more than 250 miles west of Bermuda, in which case we should have experienced only strong winds. However, it was in a position from which it could very readily move more to the east and pass fairly close or even to the south of Bermuda, and, consequently, the wireless station was asked to broadcast requests that ships in the area should forward us reports.

A considerable number of ship reports were received, and throughout the nineteenth and twentieth were the chief source of information on the position and motion of the storm. The storm was followed by the United States Army Reconnaissance Squadron, and in the earlier stages reports of radar fixes of the centre by these aircraft served to check the positions given by ship reports. However, the aircraft evacuated Bermuda on the nineteenth and although they continued to follow the storm from U.S. bases, their reports were not received by us.

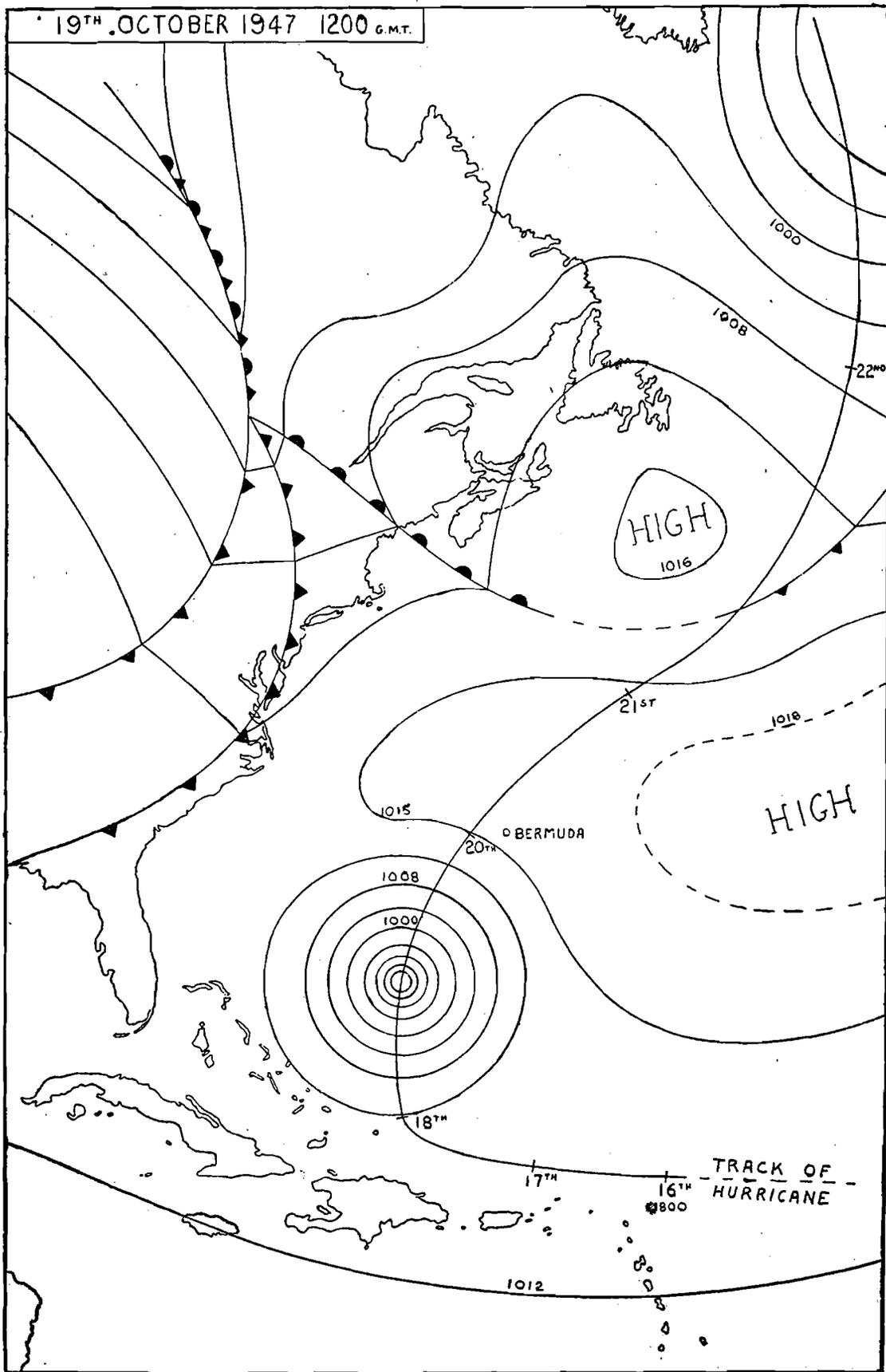


FIGURE I. Synoptic chart for 8 a.m., Bermuda Time, October 19th, 1947.

By the morning of the nineteenth the Bermuda sky was overcast and the storm centre about 400 miles to the southwest, moving at 12-14 m.p.h. in a north northeasterly direction. Owing to the general configuration of the weather map it was felt that the storm would gradually turn more to the northeast and pass from 50-100 miles to the west, giving, in all probability, southerly winds of hurricane force. Consequently, a general hurricane warning for Bermuda was issued at 11.30 a.m. Figure I. gives a copy of the map for 1200 G.M.T. on which the warning was based, and also shows the track followed by the storm, the positions marked being those for 8.00 a.m. Bermuda time (1200 G.M.T.) on the particular dates. At this time the Bermuda winds were moderate east southeasterly, and the pressure, although falling slowly, was still 1014 millibars (29.94 inches), only 4 millibars lower than twenty-four hours previously.

During the afternoon there were several brief falls of rain and the wind began to freshen. Ship reports for 8.00 p.m. placed the centre 270 miles southwest of Bermuda and confirmed the earlier forecast of a turn to the northeast. Figure II., which is a tracing of the barograph record at Hamilton, shows that after 9.00 p.m. a more rapid fall of pressure set in and continued until the centre was at its closest about twelve hours later. During the night the wind continued to increase and slowly veer, reaching gale force about midnight, while there was intermittent rain.

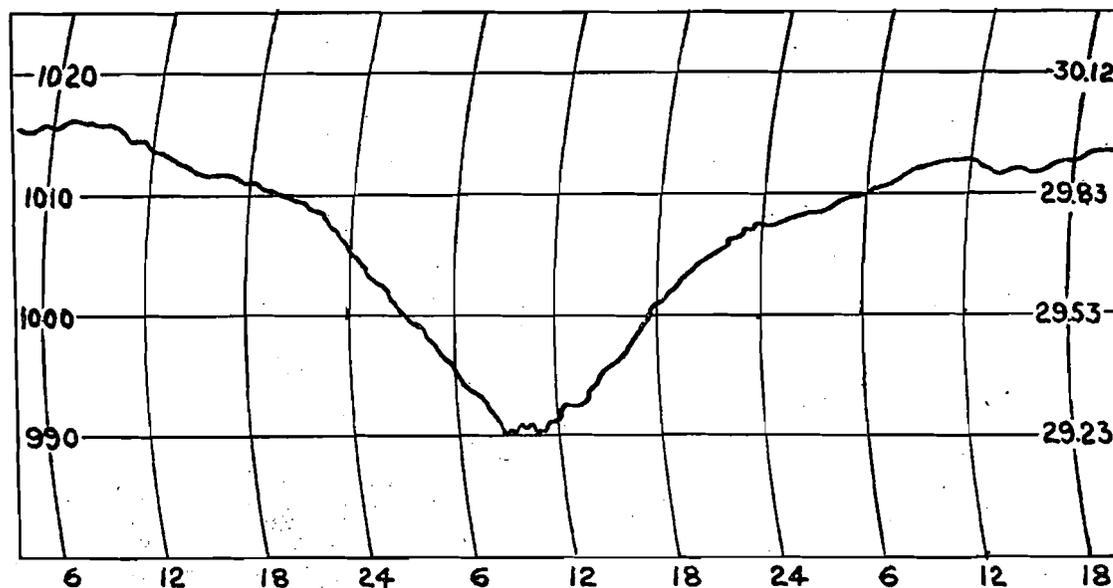


FIGURE II. Barograph record at Hamilton from 6 a.m., 19th, to 6 p.m., 21st October, 1947.

An interesting point, however, is that according to reports there was no noticeably large swell on the south shore. Such a swell is a frequent forerunner of hurricanes, and the absence of swell and the resultant "roaring" in south coast bays is regarded by many Bermudians as a sign that no hurricane winds will be experienced locally.

By dawn the wind had reached 55 m.p.h. from the south southeast, and as all available reports confirmed the continued approach of the storm, No. 4 hurricane warning was hoisted, indicating that winds of hurricane force from the south were considered certain. Hurricane force was reached about 9.00 a.m. from the south southeast, when rain became

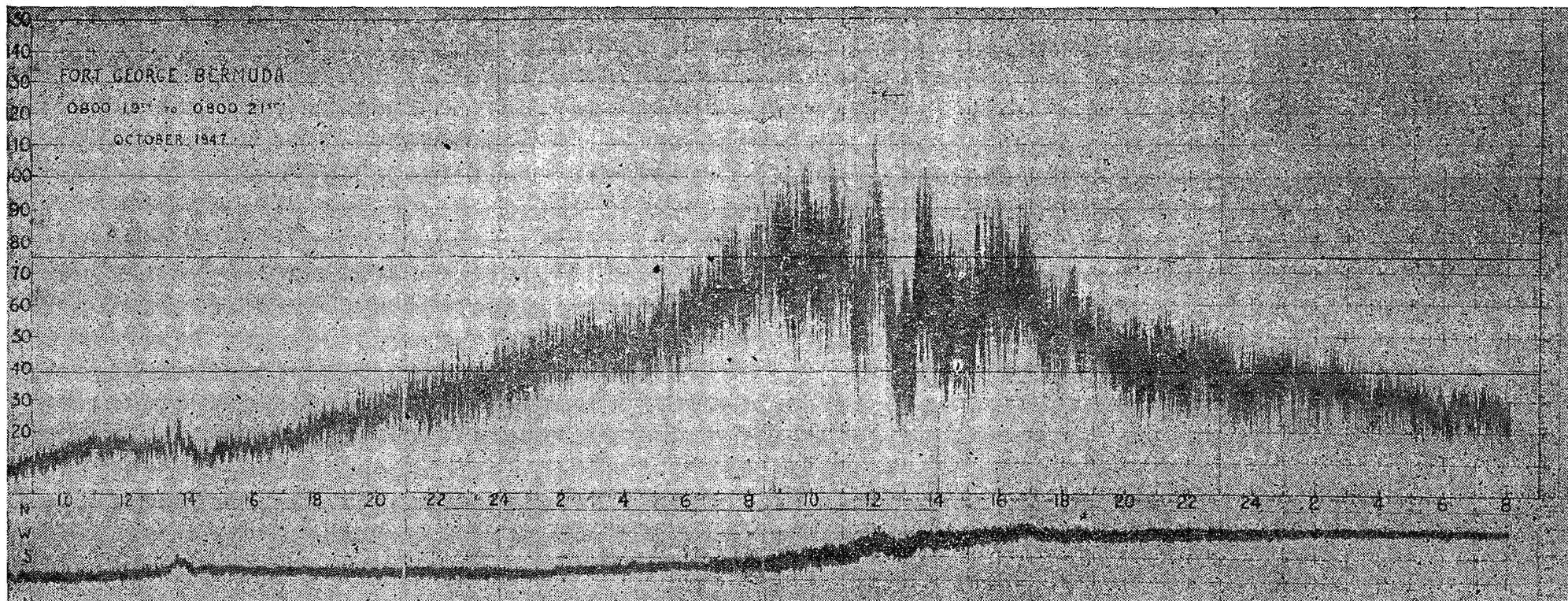


FIGURE III. Wind record on Dines Anemometer, Fort George, from 8 a.m., 19th, to 8 a.m., 21st October, 1947.

continuous and the pressure reached its lowest level of 990.2 mbs. (29.24") at Hamilton. It rose slightly to 990.9 at 10.00 a.m., but fell again to 990.2 at 11.00 a.m., after which it began to rise unsteadily. At St. George's a minimum of about 990 mbs occurred at 11.30 a.m.

Figure III. is a photograph of the Dines anemometer record at Fort George (8½ miles north east of Hamilton) and shows that after 9.00 a.m. the wind continued to veer but remained about 75 m.p.h. until 11.00 a.m. when it decreased fairly rapidly to be 55 m.p.h. in a brief lull at 11.30 when the rain stopped. Wind speed increased rapidly again until noon, when for a bout a quarter of an hour a mean speed of 90 m.p.h. from the southwest, with one gust to 126 m.p.h. gave the highest winds recorded during the storm. After this the wind backed to south southwest and fell to 40 m.p.h. for three-quarters of an hour before veering to the southwest and increasing to near hurricane force again by 1.20 p.m.

Between 11.30 and 1.30 the lower cloud cover broke, and for about an hour the sun was visible through a cloud layer, which was, apparently thin alto stratus. The situation was very similar to that in a warm sector, and all the indications seemed to show that perhaps a warm front was present and passed about 11.30 a.m. Rain commenced again with the veer to southwest, and was continuous from shortly after 2.00 p.m. to 6.00 p.m. Pressure also began to rise fairly steadily at 1.30 p.m., all of which are indications that a cold front could have passed at about this time. The wind remained about 55-65 m.p.h. and continued to veer until it was west by north about 5.00 p.m., after which there was little change in direction, and the speed gradually decreased and was below gale force shortly after midnight.

The total rainfall was small, only 0.8 inch being recorded at St. George's and 1.2 inch in Hamilton on the nineteenth and twentieth, while the maximum fall in one hour was 0.2 inch. This comparatively small rate of fall, which is considerably less than is often recorded with winter storms, is one of the reasons why the damage caused by the hurricane was relatively light. There was a considerable amount of damage done by the wind; branches were broken off many trees and a great many crops of vegetables were damaged—tomatoes and bananas in particular being flattened in many places. Power and telephone lines were blown down and it was several days before normal services were restored even in Hamilton. A number of roofs were blown off, but in general, very little damage was done to buildings of normal Bermuda construction. Cedar trees were affected by salt spray and the breaking of branches, and in a few cases were uprooted. The trees which seemed to receive the most damage throughout the Islands were the Pride of Indias, of which a very large percentage were uprooted or broken. There was a certain amount of damage to boats, but as most had been securely moored in view of the warnings, the damage was restricted to isolated cases. Several of the International Racing Yachts moored on the Hamilton waterfront broke their masts as a result of the sea swept up, particularly by the southwest wind. Electric power went off in Hamilton about 8.30 a.m. which stopped the meteorological teleprinters and telephone, so that until power was restored about 12 hours later our only route for weather reports was by emergency line from the radio station to the Hamilton Cable Office and

thence by runner to us. The only casualty was a linesman of the Electric Power Company who fell from a pole when attempting to fix the broken wires and died of his injuries.

The hurricane continued to move northeastwards after passing Bermuda, and by the morning of the twenty-first was about 400 miles to the northeast. During the following night it was caught in the circulation around a large depression moving southeast off Labrador and Newfoundland, and the movement speeded up so that by the morning of the twenty-second it was about 450 miles east of Newfoundland, 1,400 miles northeast of Bermuda. During the twenty-second it moved round the circulation of the other depression, and reports received were insufficient to enable it to be distinguished on the morning of the twenty-third, when it was possibly 200-300 miles east of the southern tip of Greenland.

This was the third major tropical storm to give hurricane winds in Bermuda in the last twenty-one years, the two previous being 22nd October, 1926 and 16th October, 1939, all, it will be noted, in the same week of the year. In 1926 the centre passed over Bermuda, while in 1939 the centre was estimated to pass 50 miles to the east. Public reaction to the storms has been interesting, as the 1939 storm appears to have been forgotten and the general comment is that this is the first storm since 1926. Actually the 1939 hurricane was worse than the recent one. The steady wind reached 100 m.p.h. with a maximum gust of 131 m.p.h. from north northwest. There was moderate to heavy rain for thirty hours, giving a total of 7.35", the pressure fell to 984.6 mbs. (29.08 ins.), and at least as much damage was done. Bermuda residents are accustomed to northwest gales in the winter giving winds over 60 m.p.h. while southerly gales are much rarer. It is possible, therefore, that 1947 impressed because of the southeasterly and southerly winds, while 1939 with its north to northwesterly winds was soon forgotten. Another factor, too, is that people are much more hurricane conscious now that the United States Army Reconnaissance Squadron is based here and the papers publish details of all flights into hurricanes even when they are distant in the Caribbean and Gulf of Mexico and would otherwise barely receive mention in Bermuda.

Meteorological Office,  
Bermuda.  
17th November, 1947