

GINNY was probably more beneficial than damaging, in that much needed rain fell along the Carolina coasts and in southeastern New England and Maine. In northern and central Maine 6 to 18 in. of snow occurred in the cold air which pushed southward on the west side of the hurricane center. Two persons apparently perished in the snow storm and there was one other fatality. Possibly four others were lost on the Tug *Otho*. Damage resulted from minor beach erosion and relatively small structural loss to boats, houses, autos, etc., mainly in Maine and on Cape Cod. Total damage in the United States probably did not exceed \$400,000. According to reports, damage in the Canadian Maritime Provinces was confined to small boats and from minor flooding with no known deaths.

*Tropical Storm Helena, October 25-29.*—Tropical Storm Helena developed in an easterly wave a short distance east of the Lesser Antilles on October 25. An extensive cloud mass, apparently associated with the easterly wave, was observed by the TIROS satellite near 15° N., 55° W. on the previous day. Two ships in the disturbed area during the early afternoon of October 25 reported southerly winds of 32 and 40 kt. with continuous rain. A reconnaissance aircraft later in the day found similar conditions and a central pressure of 1005 mb., or 29.68 in. The system was described as ill-defined with no wall cloud but with squall bands in the eastern semicircle.

The storm intensified slightly as it moved west-northwestward but later weakened to below storm force after passing between Dominica and Guadeloupe. The 5000-ft. mountains of the islands evidently disrupted the poorly organized circulation.

During the night of the 26th, Helena became almost stationary then turned northward and intensified slightly the next day. Central pressure dropped to 1002 mb. (29.59 in.) and reconnaissance aircraft reported winds of 58 m.p.h. in squalls between Guadeloupe and Dominica. Most of the squalliness was confined to a small area in the eastern quadrant of the storm as the center moved northeastward from the vicinity of Antigua on the night of the 27th. During the next 24 hours the storm assumed a more northward course and gradually weakened. Reconnaissance aircraft on the 29th found only an area of squally weather with highest winds about 23 m.p.h.

Although Helena was never a well-defined storm, it caused considerable damage to small craft and roads in the Windward Islands. On Guadeloupe, five persons were reported dead, 500 homeless, and 14 seriously injured. A number of barges and fishing craft were sunk or seriously damaged. Total damage is estimated at no more than \$500,000.

The failure of Helena to intensify further and the erratic movement and northward recurvature can be attributed in part to a weak surface low pressure trough which persisted from the Windward Islands northeastward during the storm's history. This hampered the development of a strong easterly flow north of the center and the storm eventually moved northward in the trough. Conditions in the middle and upper troposphere were also not favorable for intensification as the storm remained under the northeastern portion of a 200-mb. anticyclone centered over the eastern Caribbean. Deepening is observed more frequently under the southwestern quadrant of upper-level anticyclones. Hurricane Ginny, off the southeastern coast of the United States at the time, may have affected Helena indirectly. Pronounced westerly and northwesterly flow at the 500-mb. and higher levels overspread the area from south of Ginny to the Lesser Antilles on October 27, resulting in vertical shear which was believed to be unfavorable to further development of Helena.

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