

Reply

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From the communication by Mr. Ramage and from conversations with Dr. H. Riehl, the following is postulated as adjunct to the remarks in my previous paper¹ concerning the distribution of rainfall in tropical storms.

As a tropical storm moves from the open ocean to a land area of appreciable size, its structure will vary not only because of changes in surface friction, but also because of changes in the moisture supply. That portion of the storm which is over the land will draw in air which has less precipitable water; and thus, with the same amount of lifting, this air will produce less rain and thereby weaken the storm.

A glance at fig. 7 in my paper,¹ which gives the radial velocity of the air relative to the moving center, will show that the strongest flow into the storm through a ring 300 mi from the storm center takes place in the left-front quadrant or, more generally, in the forward portion of the storm. Looking at the set of relative trajectories (fig. 8), we can see that the air crossing this ring 300 mi in radius reaches the zone of strong convergence near the center of the storm (see fig. 9) in the diametrically opposite quadrant from that which it entered. An exception is that of the air in the right-rear quadrant near the storm center, since this air comes primarily from directly in front of the storm.

With this picture in mind, let us consider the effect on the amount of rainfall in the various portions of

¹L. A. Hughes, "On the low-level wind structure of tropical storms," *J. Meteor.*, 9, 422-428, 1952.