The significance of these finds is more impressive when correlated with the exhaustive work on shatter cones by R. S. Dietz, who much earlier showed their relation to high energy impact processes. Shatter cones and the new high pressure silica minerals found in the 1.2 km Arizona crater and in the 30 km Ries Kessel give substantial support to the proposal by Dietz that the inner Vredefort ring (64 km) in South Africa, where properly oriented shatter cones have been found, was formed by a meteorite.[6]

The encouragement inherent in these finds and proposals no doubt contributed greatly to an all-out effort by Canadian workers who earlier had been alerted by the find of the Chubb crater (3.5 km) described by V. B. Meen.[7] Lately, reports[8] have it that the Nastapoka arc in Hudson Bay (Fig. 2), representing part of a 440

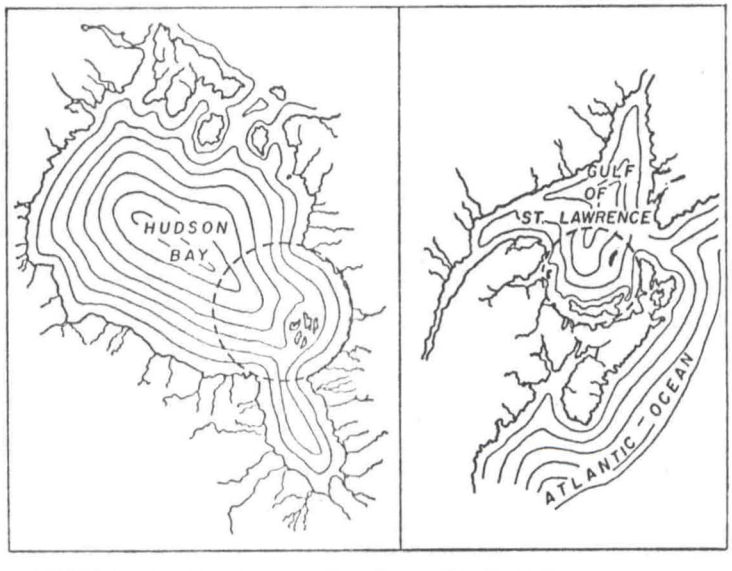

FIGURE 2.—Location of the Hudson Bay and Gulf of St. Lawrence arcs of ancient meteor craters.

km diameter circle, is a portion of a meteorite scar, as first pointed out by Kelly and Dachille[9] in 1953. More recently the Canadian workers believe they have positive evidence that the Gulf of St. Lawrence is essentially the site of a meteor crater approximately 320 km in diameter (Fig. 2).

The facts are not in to show whether these large craters show all the characteristics of impact phenomena. The overlap of the shatter cone and high pressure mineral criteria stands by as a potential check on other lines of evidence, some of which have been worked out for the Ries Kessel in a doctoral thesis,[10] supervised by Pro-