Reply

ABDUL JABBAR ABDULLAH

State University of New York at Albany

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Mr. Brown raises two points in connection with my theory concerning the "square cloud." The first point calls for distinguishing between a pressure jump line and a pressure surge line. The second point seems to favor the Goldman-Fujita theory which states that the square cloud was actually the thick anvil of a thunderstorm system.

With regard to the first point I wish to say that I agree with Mr. Brown that a pressure surge line is not the same as a pressure jump line. However, I do not agree with him on the idea that a pressure jump line is incapable of producing convective activity. The significance of the pressure jump line lies in the idea that soon after breaking occurs it develops into an atmospheric bore which is mainly a line of instability, penetrating deep into the underlying fluid. This, of course, does not preclude the possibility of the formation of pressure surge lines as a result of the thunderstorm activity. Which one of the two lines leaves a more marked trace on the barograph does not greatly affect the main hypothesis.

As to the second point, I wish to say that an examination of Fig. 2 of Mr. Brown's comments reveals the fact that the area covered by the square cloud was also an area of considerable convective activity where cumulonimbus and cumulus clouds were observed. The argument must center around the mechanism which triggered this activity. The fact that this activity was so well organized must be taken as a confirmation of the mechanism suggested in my paper.

As a matter of fact I don't see any contradiction between the Goldman-Fujita theory and mine. It is well known that thunderstorms resulting from strong convective activity do not usually form a continuous deck at low levels. They rather appear as separated individual cells. The spreading out of the anvils would act to connect these cells and make them appear as a continuous deck at higher levels. It, therefore, seems to me that the two theories supplement, rather than contradict, each other.