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ST. LOUIS, MO.

April 8, 1939

Dr. Forrest C. Allen  
University of Kansas  
Lawrence, Kansas

Dear Dr. Allen:

On the enclosed blueprint we have shown a conventional flat type backboard on which we have drafted your shooting diagram. The dotted lines represent the changes in the corresponding zone boundary lines when the diagram is transferred to the convex faced backboard. When viewed from the front the slanting lines, which extend towards the upper corners of the convex backboard, will appear slightly curved. You will note that on these slanting zones we have shown an auxiliary dotted line  $8-1/4"$  from the edge of the board - this line represents the difference between a carom shot striking the flat backboard on its extreme edge and the same angle shot striking the convex backboard. We have taken the liberty to also show, in dot-dash lines, the outline of the newly designed bank, as suggested by Mr. Porter.

The method used in obtaining the new boundary lines was to compute the angle of incidence and reflection of your shooting diagram zone boundary lines on the flat type backboard, using the center of the basket as a focal point. By applying these same angles to the curved backboard we computed the corresponding lengths of arcs. We are enclosing copies of our computations for your comments as to whether we correctly interpreted the line of thought you expressed in your letter to Mr. Weinzettel.

Sheet #1 shows the angles of incidence and reflection of your shooting diagram boundary lines.

Sheet #2 shows the same angles applied to the curved backboard.

Sheet #3 shows the resultant change in the floor zone boundary lines.

You will note from sheet #3 that the floor shooting zone boundary lines will spread radially from the face of the backboard towards the end zone on either side, resulting in a somewhat wider shooting zone for the corresponding zone on the backboard.

If, in your opinion, the dimensions as shown on the enclosed print are correct, upon your advice we would gladly paint the diagram on all three or any one of the sample banks which we are sending you.