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An Analysis of Ted Williams' Red Seat Homerun: The Physics of Home Run Trajectories. ELIZABETH DENNIS, ANDREW CHAP, EDI NACO, TIMOTHY ROACH, MATTHEW KOSS, COLLEGE OF THE HOLY CROSS TEAM — Baseball, the great American pastime, has been played in some manner since 1744. While the rules, names, and uniforms have changed and evolved, the basic physical principles of balls in flight have not. By examining the forces on a baseball, we calculated and studied the trajectory of batted balls based on models by Adair, Watts and Bahill, and Sawicki et. al.. We calculated several possible trajectories from these models for one very impressive homerun. On June 9, 1934, Ted Williams hit a homerun at Fenway Park that was said to go 502.5 feet before it landed on the head of Joseph Boucher seated in Section 42, Row 37, Seat 21. How far would the ball have gone if its path was not impeded by Mr. Boucher's straw hat? The answer depends on several parameters including ball rotation, velocity, launch angle, and prevailing winds. A key feature of this homerun was that it was hit on a day of 20 mph tail winds and low humidity. According to our calculations, Ted Williams or another of the greatest players of all-time, could have hit homerun this far. The most probable case, in our opinion, seems to occur at an initial velocity of 118 mph, with a launch angle of 28 degrees, and a rotation rate of 1800 rpm. However, this is at the extreme of what appears to be humanly possible.

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