



**CALIFORNIA STATE SCIENCE FAIR  
2002 PROJECT SUMMARY**

<b>Name(s)</b> Aaron M. Cox	<b>Project Number</b>  22802
<b>Project Title</b> <b>If the Air Chamber Is Increased in Volume at a Constant Pressure in the Air Cannon, Then the Projectile Travels Farther</b>	
<b>Objectives/Goals</b> The objective was to determine if the volume of compressed air in a compressed air cannon would affect the distance a projectile will travel. <b>Methods/Materials</b> An air cannon and three compressed air chambers were constructed out of PVC pipe. The three chambers range in size from 30# x 2#, 45# x 2#, and 60# x 2#. Each compressed air chamber was individually attached, filled to a pressure of 100 p.s.i , and used to launch a projectile five times. Each projectile was measured and then cut to a uniform size. The travel distances of the five projectiles from each of the chambers were measured from muzzle (front) of the barrel to the rear of projectile. Data was analyzed and compared. <b>Results</b> The projectiles fired from the largest (60#) compressed air chamber consistently outdistanced the projectiles fired from the two smaller compressed air chambers. The averaged data showed that each additional cubic inch of air chamber propelled the projectile 9.49 inches. <b>Conclusions/Discussion</b> My conclusion is that the projectiles fired from the largest of the compressed air chambers flew farther because the projectiles had an increased force from the compressed air to propel them further out of the cannon.	
<b>Summary Statement</b> Showing that larger volumes of compressed air at a constant pressure propel projectiles further.	
<b>Help Received</b> Father helped record projectile distance and helped transport equipment to test site.	