



**CALIFORNIA STATE SCIENCE FAIR  
2003 PROJECT SUMMARY**

<b>Name(s)</b> <b>Jessie Y. Chew</b>	<b>Project Number</b> <b>S0602</b>
<b>Project Title</b> <b>Growth Structures in Bivalves from Pleistocene Coastal Reefs: Las Animas, Baja California, Sur</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The goal of this project is to measure and compare the growth rates of Pleistocene bivalves of the Las Animas region with those of modern-day bivalves of the same species. The information I collect in this project will further help me hypothesize the environment and climate of the Baja Coast during the Pleistocene Epoch.</p> <p><b>Methods/Materials</b> Information was collected with the help of selected Pleistocene and modern-day bivalves (with the modern shells on loan from the Natural History Museum of Los Angeles), an x-ray machine and x-rays to reveal growth lines of the bivalves at three and five minute exposure times (all of which was handled by my professor), the finished x-ray negatives of the bivalves, prints of the negatives for my use, a light microscope to calculate the growth lines and Microsoft Excel to store data.</p> <p><b>Results</b> I was unable to compare my Pleistocene bivalves with the modern-day bivalves because the x-rays of the modern-day bivalves failed to show growth lines on the negatives. One reason for this was the fact that since the bivalve shells were fairly new, the pearly nacreous layer within the shell was still intact, making x-ray penetration more difficult. Due to the insufficient amount of time and money, I was not able to expose the modern-day shells for longer periods of time and instead had to rely on outside information to find the modern-day growth rates of Baja bivalves.</p> <p><b>Conclusions/Discussion</b> Outside research shows that most modern bivalves of the Baja region grow at a rate of 1-1.6 cm/ year while the average yearly growth for the Las Animas bivalves was 2.07 cm/year. With this information, I can now conclude that the climate of Las Animas in the Pleistocene Epoch was once warmer and more favorable to the bivalves native to that area, for the average growth rate of the Pleistocene bivalves was 25% higher than the growth of modern species today. Even as the same species of bivalves continue to thrive on the southern tip of Baja, the climate today allows for little energy for extra growth beyond the minimum.</p>	
<b>Summary Statement</b> Growth rate comparison of Pleistocene and modern-day bivalves of the Las Animas region in Baja California	
<b>Help Received</b> Performed research at the University Of Southern California Department Of Geology under the guidance of Professor Donn S. Gorsline	