Feathery Functions – Exploring Bird Ancestors

The Oakland Owlet's Families and Friends visited Cranbrook Institute of Science (CIS) on November 16th for a special program about birds and dinosaurs. Paleontologists have discovered several Cretaceous fossil specimens with feathers. Scientists now know more details about these ancient creatures that were previously unimagined. Some of these fossils are recognized as ancient birds. This discovery has led to the realization that birds are living relatives of some dinosaurs.

Upon arriving at the CIS, the group was greeted and led into a classroom filled with skeletons and models of ancient creatures. Our instructor immediately shared a model impression of a famous ancient bird - Archaeopteryx. Archaeopteryx is one of the most important fossils ever discovered. Archaeopteryx was about the size of a Crow but with a much longer tail and a mouth full of teeth. This fossil specimen helped people understand that a new group of animals was emerging unlike any other animals at the time. Archaeopteryx represented a transition between non-avian dinosaurs to birds. Archaeopteryx signaled changes were taking place which would result in the birds we see today.

Paleontologists are great storytellers who can reconstruct organisms from small features and incomplete skeletons. One new feature found of ancient bird fossils was feathers. High magnification instruments of today have helped scientists to better understand bird evolution by examining feathers. Archaeopteryx was not the only ancient bird found in fossil beds. Other bird fossils have been discovered in the last thirty years in China. Our instructor took time to share some of these discoveries using skeletons, slides and skulls. Researchers can now determine feather colors, the ecological niches and much more about ancient birds by just looking at fossilized feathers. However, there are still unanswered questions about feathers. Feathers are essential to birds' survival along with other adaptations unique to birds. Large cavities in the skulls of birds make them light weight in comparison to other animals. Hollow bones are characteristic of modern birds.

Just before leaving the classroom, everyone had a few minutes to look at the skeletons and the artifacts in the room. From the classroom, our group entered the museum to explore. Our first stop was the ***"Life Changes Over Time***" exhibit near the entrance. This exhibit focuses on dinosaurs and is a wonderful place to see *Tyrannosaurus rex*

cast skeleton along with examples of dinosaurs that paleontologists believe are bird ancestors including *Deinonychus.*

CIS has specimens of other extinct animals including birds. Our tour focused on these unique bird exhibits for the next hour. A glass case near the entrance has examples of birds. One bird in this case is the **Carolina Parakeet.** This colorful bird is now extinct but once lived in the old growth forests along the rivers of the southern United States. The Carolina Parakeet is the only Parakeet of the United States. The last captive Carolina Parakeet died at the Cincinnati Zoo in 1918. CIS is one of the places where a specimen of this extinct bird can be seen.

Our next stop was the "***Woodlands Den"*** where dioramas of Michigan natural communities display the assemblage of animals and plants unique to these natural places that are threatened throughout the state. Our group moved onto the extensive exhibit area of "***Every Rock Has a Story***." This exhibit has a large model of planet Earth. It is a good place to consider bird migration and its challenges. The earth is changing. We paused and discussed the vast features of our planet.

Our guided museum tour ended with the display of the Passenger Pigeon. The Passenger Pigeon, once common in the United States is now extinct. An egg of the Dudo bird, another extinct species, is also on display. The group was encouraged to explore CIS independently. **This field trip was made possible by a grant from Audubon Great Lakes.** It was a wonderful firsthand learning opportunity to explore extinction, bird ancestors and life on Earth.

Photo Credits: Kathleen Dougherty & Cranbrook Institute of Science.