

Creation Breakfast Club Sunday Online August 9th, 2020

“Blind as a Bat? No, I don’t think so.”

This week’s lesson comes from a reminiscence of growing up on the farm in Kansas. As we got older, our parents would ship Uncle Sleepy & I off to NE Kansas east of St. Joe, MO in Doniphan County to spend a week or two in the summer dividing time between both our grandparents’ family farms. Our Mom’s parents still had fruit orchards at that time. I have vivid memories of watching them spray the orchards and watching the fruit bats flying out of the trees.

Bats are fascinating creatures and we have looked at them in passing previously when studying Biomimetics & echolocation, but first we need to get an overview of these unique and weird animals. Here are some fun facts about bats:

- Fun Facts About Bats: <http://youtu.be/b3w9ZbRQIek> (7:39 minutes)

Bats echolocation capabilities, which they share with some animals in the aquatic world like whales & dolphins, plus a few others in the animal kingdom, are unique among mammals .

- Echolocation – Ted Talk
https://ed.ted.com/best_of_web/NqEwVpR8#review (4:33 minutes)

Now that we have the overview on echolocation, look at this experiment these European scientists used to refine how bats use their echolocation to register large flat objects like ponds where they go to glide down and drink.

- BAT SENSE - by Nature <https://youtu.be/gZxLUNHEmPw> (3:08 minutes)

If we were meeting in person, at this point, we would be having the discussion about whether instinct or behavior can be “hardwired” into the DNA.

Interestingly enough, echolocation can even be learned by humans. Listen to this story about Daniel Kish, who has been blind since he was 13 months old, but has learned to “see” using a form of echolocation. He clicks his tongue and sends out flashes of sound that bounce off surfaces in the environment and return to him, helping him to construct an understanding of the space around him.

- **Daniel Kish: How I use sonar to navigate the world**
<https://www.youtube.com/watch?v=uH0aihGWB8U> (13:07 minutes)

Flight, in animals, locomotion of either of two basic types—powered, or true, flight and gliding. Winged (true) flight is found only in insects (most orders), most birds, and bats. Recently, we have looked at the incredible hovering of hummingbirds and the eerie soundless flight of owls in hunting their prey, but today we are going to look at flight in bats which has fascinated scientists for years.

- **Secrets of the Bat Wing | ScienceTake**
<http://youtu.be/xLsXazDVEUA> (1:10 minutes)

Long thin muscles in the bat wing that aren't attached to any bones? Now that's a little unusual, wouldn't you say? We need to explore that a little more to clarify that:

- **Bats Take Flight**
<https://www.youtube.com/watch?v=BNNAxCuaYoc> (6:30 minutes)

The implication here is that bat flight is more complicated than that in birds. Therefore, we should take a look at the design and engineering to pull that off.

If you will remember back last year, we looked at the Illustra Media video, “Flight: The Genius of Birds” and got a detailed animated explanation about the anatomy of birds enables them to have such powerful flight.

- <https://www.youtube.com/watch?v=aFdvkopOmw0> (1:47 minutes)

Last week we talked about part of Orville & Wilbur Wright's success was observation of birds in flight, implementing what they observed. Today, we want to observe how differently birds and bats fly, observing the obvious engineering and design in both models. I think you will come away scratching your head thinking how anyone could come to a conclusion that this was the end result of time and chance.

- How do Birds & Bats Fly? <https://youtu.be/HqFSogbymo0>
(3:48 minutes)

If you will remember in the first video in this lesson, it made reference to bats first appearing in the fossil record over 50 million years ago. Well, if that is the assumption, then let us look at that fossil again.



The oldest bat fossil found to date was uncovered in Wyoming

(Source: Royal Ontario Museum)

However, as many of us have traveled to our nation's capital and taken in the many Smithsonian Museums, I was particularly fascinated, on one Navy Reserve trip to Bethesda, with the Bone Hall at the National Museum of Natural History there. Check out this modern skeleton of a fruit bat on display there.



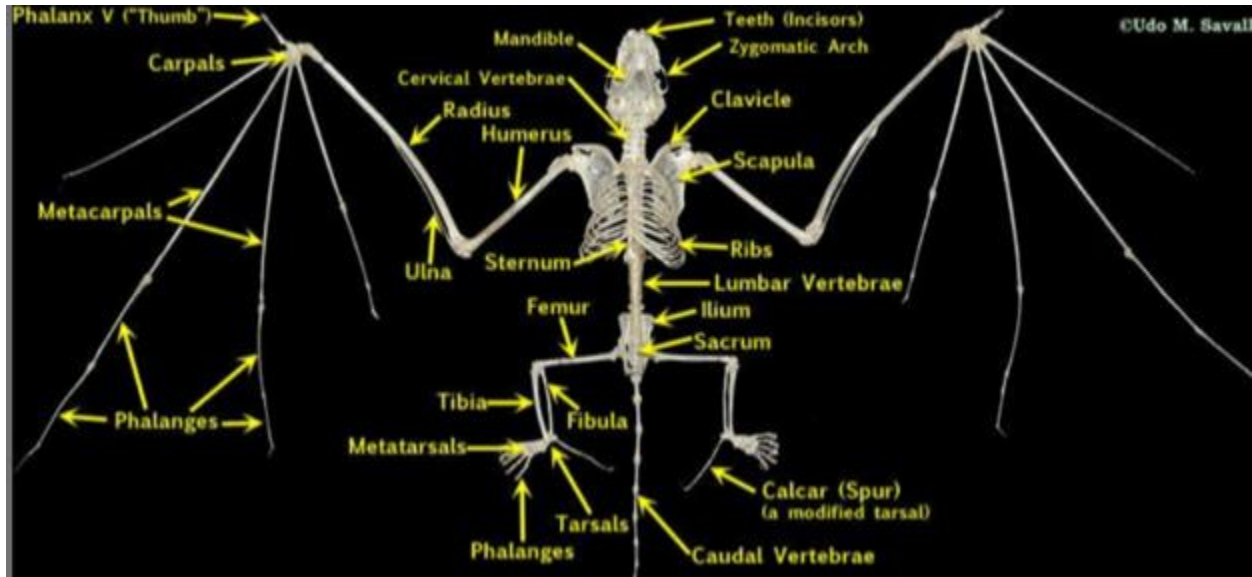
Bat Skeleton at Smithsonian Bone Hall

To see if anyone is reading these lessons, here is your homework assignment. In looking at the “supposed” 50 million year old fossil and comparing it to the skeleton in the Bone Hall at the Smithsonian Museum of Natural History, what questions should come to your mind? Remember last week’s lesson about assumptions and conclusions?

Now you may say, this skeleton does not have a tail like the fossil bat. However, if you Google that, you will see that, indeed, most bats do have tails. Among the over 1000 species of bat species in the world, except for 3, the rest all have tails, as you can see in the photo below.



In fact, this anatomical skeletal model, diagrams out the bone of the bat, including the caudal vertebrae (i.e. the tail). Check out the photo below.



When Ruth & I were visiting Sydney, Australia many years ago, I remember walking in the Royal Botanical Gardens there and see the large “flying foxes” hanging in the trees during the day. Every night at dusk, the “flying foxes” would come out to hunt and could be seen & heard flying overhead circling the skies over downtown Sydney. It reminded me of old WW2 footage of the armadas of B-17s crossing the English Channel to bomb Germany.

- Fruit Bats in Australia: <https://youtu.be/UL0cQ0rhqN8> (2:25 minutes)

To finish up today, here is our “*fun piece*” for the weekend. Check out this video about these little “flying foxes” that were new arrivals to the Australian Bat Clinic after an extreme heat event separated them from their mother who didn’t make it. Whenever I see baby animals, the verses in the Genesis 1 creation account scream off the pages at me, as God commands the plants and animals to “bring forth after their kind”. It is entitled, “Baby Bat Burritos”:

<https://images.app.goo.gl/BDXPRMsXrQNoSxqW9> (2:24 minutes)

Enjoy the Whidbey Summer. Maranatha!

Larry & Ruth