Humans 'share history' with ancient fish

Neil Shubin tells Elon students to 'find their inner fish'

By Bonnie Efird

"Soon you will be at the top of the world". That's what Dr. Neil Shubin's fortune cookie read the day he found his old high school geology book. His old book held the answer to his question—Where could 375 million-year-old sedimentary rocks be found? Answer: The Canadian Arctic.

And there, in the Canadian Arctic, Shubin found what came to be called Tiktaalik roseae seven years later. Oh, the irony.

Shubin, a Professor and Dean of the Organismal Biology and Anatomy Department of University of Chicago, is the co-discoverer of the 'missing link' in the evolution between ancient fish and land animals.

Shubin discovered the 'missing link', or Tiktaalik roseae, in 2004, and has since written his book titled "Your Inner Fish: A Journey into the 3.5 Billion-Year History of the Human Body."

"Other creatures become vehicles to understanding our own bodies," Shubin said in his talk at Elon University Monday night. His talk, titled "Finding Your Inner Fish", focused on the structural connections between the ancient jawless fish and modern day land animals…even humans. Sounds fishy, huh?

Shubin joked about the reactions he gets when people find out what he does for a living. "I'm a fish paleontologist," he said. "What?! I want my money back!" he said, imitating the made-up reaction of a University of Chicago student.

Although Shubin's sense of humor was well accepted, the seriousness of his huge discovery was the overarching theme of the talk.

Monday March 8th
McCrary Theatre 7:30 pm

Weekly Events

Monday

Neil Shubin
"Finding Your Inner Fish"
McCrary Theatre 7:30 p.m.

Tuesday

Ian Hobson
Piano
Whitley Auditorium 7:00 p.m.

Wednesday

Michael Chabon
"I was Edgar Allen Poe!"
McCrary Theatre 7:30 p.m.

Thursday

Kerrii Anderson
Legends of Business
LaRose Digital Theatre 4:30 p.m.

Friday

An-My Le
Photography exhibition
Arts West Gallery

Admission: $15 or Elon ID

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"Anytime you use your wrists or shake your head you can thank Tiktaalik." -Neil Shubin

It took Shubin from 1998 to 2004 to finally find the missing link he was looking for. He set out on his journey to find intermediates in the evolution process as evidence that land animals share history with the earliest fish.

In his search to find the geographical location the types of fossils he wished to find, Shubin looked for three criterions. He needed to find sedimentary rock around 375 million-years-old that had been preserved above ground.

After an unsuccessful two years looking for the ancient fish fossils in the Devonian rock beds of Pennsylvania, Shubin decided he was searching in the wrong place. It was then that he found his old book and made the move to the Canadian Arctic in 2000.

"It's incredibly remote," Shubin said of working in the not-so-convenient location called the Fram Formation. "You have to bring your own food and all of your own supplies. You're hundreds of miles from the nearest base, and there are polar bears."

"I'd carry and sleep with a gun because of the polar bears." -Neil Shubin

The location is dangerous and freezing with winds gusting up to 80 mph. This made working in the Fram Formation a challenge. Shubin also said he remembers having to seal up the food supply because "the polar bears have really good noses."

The polar bears were one of the biggest threats of the location, believe it or not. "I'd carry and sleep with a gun because of the polar bears," Shubin said.

Despite grueling conditions, the way the light would catch the fossils made the location ideal, as the Canadian Arctic has 24 hours of daylight.

Shubin credits his intern Jason Downs, the youngest researcher and a student from the University of Pennsylvania, for finding what were soon to be the first thousand pieces of the Tiktaalik roseae.

One evening after a long day, Shubin and his colleagues worried as Downs didn't return at 7 p.m. while working late by himself. To Shubin's surprise, a great discovery had been made.

"In comes Jason—his eyes are like globes," Shubin said. "He's like 'I found it', and we knew it wasn't a polar bear he had found, because in every pocket of his parka was bone after bone after bone."

After Downs' discovery, Shubin and his colleagues found the layer where they found the fossilized bones of flat-headed fish—exactly what they were looking for—sticking right out of the rock.

After the fossils were wrapped in plaster and sent home, Steve Gates, a professor at Brown University, pieced together Tiktaalik roseae. The creature had a flat head and a neck independent of the shoulder, two characteristics they expected to find of the intermediary creature between the ancient fish and land animals.

Shubin and his colleagues named the creature Tiktaalik meaning large freshwater fish in the language of the natives. "We wanted it to have a name in their language," Shubin said.

So, what's the relevance of Tiktaalik roseae to our lives today? "These features are part of our own anatomy," Shubin said of the neck, the joints, and the flat head.

Shubin jokingly compared a fish to Professor Albert Einstein and received a good laugh from the audience to show the evolutionary changes. "Anytime you use your wrists or shake your head you can thank Tiktaalik," he said.

Although Shubin does not make the claim that humans evolved directly from fish, he acknowledges a shared history humans have with these ancient fish. "It doesn't mean that the Tiktaalik is the actual ancestor to all humans," he said.

Through his research and discoveries, Shubin said he enjoys exploring the unknown, and has stumbled across great things.

"Every time I do an expedition I learn something new about myself," he said. "There are always some crazy things happening that I never could have predicted. And anytime you do that, it kind of pushes your own limits."