

ZigZagZine

Issue 7

CREATING, THINKING, IMAGINING

November/December 2008

Here Come the Monarchs!

Monarch butterflies, after flying as much as 3000 miles, begin to arrive in Mexico and California

by Jessica Chase

Have you recently noticed monarch butterflies outside your car window, or fluttering around in your backyard? Maybe you've even seen one sipping nectar from a flower. If so, you probably live somewhere along a flyway (Atlantic or Pacific), because fall is the colorful monarch's time to migrate to a warmer climate.

Monarchs were originally native to Mexico, where there is a mild environment year round, and because Mexico has milkweed. Monarchs depend on the milkweed plant for their entire life cycle. When a monarch is a caterpillar, it eats milkweed leaves. When it has built its chrysalis, it hangs from the leaf stem. Once it has become a butterfly, it sips the nectar from the flowers. And, if it's female, it lays its eggs on milkweed plants.

Thousands of years ago, milkweed grew only in southern climates. It's speculated that as milkweed plants spread into more northerly climates, monarchs followed them, and developed a pattern of north-south migration, based on the seasons. Today, when the weather begins to cool in

northern climates, monarchs east of the Rocky Mountains migrate southward to Mexico, and monarchs west of the Rockies migrate to the central and southern coasts of California.



Photo by Jessica Chase

This monarch has just arrived at Natural Bridges State Beach, a major overwintering site for monarchs in California.

The largest number of monarchs "overwinter" in Mexico. Over 100 million monarchs stay there all winter, in just a few specific areas that have just the right microclimate. These areas are all in central Mexico, near Mexico City, in the Transvolcanic Mountains. Areas that have just the right conditions, or microclimates, are called "magic circles." They must have trees that the monarchs can

hang from, as well as just the right temperature range.

Monarchs west of the Rockies head to the California coast for the winter. Right now, Natural Bridges State Park in Santa Cruz has the most butterflies, at 1,400 as of mid-October. At the peak of the season, Natural Bridges will tie with Santa Barbara for the most butterflies, at around 100,000.

Scientists study the migration of monarchs by "tagging" them. They take a small sticker with a Web address and phone number and gently stick it to the monarch's wing. If someone finds the monarch dead, he or she can report where it was found to

(continued next page)



Photo by Jennifer Dees

This is common milkweed, or *Asclepias syriaca*, in Michigan. *A. syriaca* grows well in northern climates and is very important for spring and summer generations of monarchs.

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ZigZagZine's First Anniversary!

That's right, it's ZZZ's first anniversary! It's been a year since our first issue, November/December 2007, which means I've been publishing ZigZagZine for a whole year. Thanks so much to everyone who's contributed over the past year! I hope you enjoy the great stuff we have in this issue.

Want to get published? Readers new and old can send in articles, stories, poems, and artwork for our next issue. If you'd like to contribute to our January/February issue, see page 3 for details. In the meantime, check out our Web site at zigzagzine.com. — Jessica Chase, Editor

the scientists, to help them better understand where, when and how monarchs migrate. The stickers are lightweight, because anything heavier would make it difficult for them to fly. Nonscientists can help with the ongoing study by keeping an eye out for monarchs with stickers. They can also volunteer to help with tagging.

Two years ago, when I lived near New York City, I tagged monarchs with my Roots & Shoots group in Riverside Park, on the edge of Manhattan, along the Atlantic flyway. On a tally sheet, we recorded the number printed on the sticker, and whether the butterfly was male or female. The butterflies were easy to tag, because they flocked to a plant known as Butterfly Bush, *Buddleia*. It attracts all kinds of butterflies to its sweet nectar. All we had to do was gently pluck off the butterflies by the wings and tag them, before setting them free. If you'd like to learn more about the migration of monarchs, I can recommend two great Web sites: [Monarch Watch](#) and [Journey North](#).

Male and female monarchs have very few differences. The male is slightly bigger and brighter. The lines on the wings of the female, which actually outline veins, are much thicker than those on the male. The most prominent male-only features are two black dots on the lower wings. These are scent glands filled with pheromones, which the male uses to attract the female.

The female butterfly lays just one egg on each milkweed plant. She lays about 400, so it takes her a few days to lay them. The eggs are extremely small, about the size of the head of a pin! After 6 or 7 days, they hatch.

When the caterpillar hatches, it's only about the length of the nose of Thomas Jefferson on a nickel! For two



Photo by Jennifer Dees

Monarchs feed on the nectar of many different flowers.

translucent. Soon, you can see the wings clearly through the chrysalis. When the monarch finally breaks out, its wings are damp and flimsy. It begins to pump blood into its wings until they are stiff and firm. Then, without any practice, it lifts into the air and begins to explore.

Although we may see lots of monarchs during migrations, monarchs are actually threatened due to loss of habitat. We can help monarchs by planting milkweed in our gardens. Along the California coast, *Asclepias curassavica* grows best.

I planted some in our garden a couple of weeks ago. Because we have a "Mediterranean" climate in San Francisco, milkweed can grow here year-round. However, milkweed grows well in most parts of the country from spring to fall. Why not plant some in your garden next spring? If you're lucky, monarchs will use your plants as a "refueling stop," and maybe even lay some eggs there.



Photo by Jessica Chase

Monarchs gather at "overwintering" sites. When their wings are closed they may appear brown, and blend in with these bare branches.

Here are some places to see overwintering monarchs in California:

San Leandro - Monarch Golf Course; Tours every Saturday Nov. 6 - Feb. 5. Contact: butterflynaturalist@earthlink.net.

- Fremont - [Ardenwood Historic Farm](#)
- Santa Cruz - [Natural Bridges State Park & Lighthouse Field State Beach](#)
- Pacific Grove - [Monarch Grove Sanctuary](#)
- Carmel - [Point Lobos State Park](#)
- Morro Bay - [Morro Bay State Park](#)
- San Luis Obispo - [Pismo State Beach](#)
- Santa Barbara - [Coronado Butterfly Preserve](#) 



Photo by Jennifer Dees

This female monarch is landing on a milkweed plant. Could she be laying an egg there? She lays only one egg on each plant.

weeks, the caterpillar does nothing but eat milkweed leaves and rest. Slowly, it grows bigger, shedding its skin again and again until it's about two inches long.

The caterpillar then spins a silk "button" on the stem of the milkweed, and grasps it with two legs on its backside that are made specially for the purpose. Then it hangs upside down in a "J" shape. The caterpillar slowly sheds its skin one last time, transforming into a chrysalis.

Over two weeks, the chrysalis becomes more and more

Fiction by Jack Wooldridge

Here is a report I made about a fictional hominid find that would unify the human family trees. I also wrote a report by a scientist who doubted my claims. All the places in this article are real!

THE PALEO-ANTHROPOLOGICAL TIMES

New Fossil Found in Sierra de Atapuerca, Spain

by H. Ominid

A team of paleoanthropologists working near the Atapuerca Mountains in Spain have uncovered a new "missing link" that may help to end the debate over one part of the human family tree.

Homo heidelbergensis, first discovered on October 21, 1907, came from Mauer where a workman named Daniel Hartmann spotted a jaw in a sandpit. The jaw was in good condition except for the missing premolar teeth, which were eventually found near the jaw. But what may seem to be a simple case of a new hominid is actually a subject of controversy in the scientific community.

Many scientists disagree on whether *Homo heidelbergensis* is actually a new species, or an early form of *Homo sapiens*. Jack Wooldridge, who has unearthed the body of a 150,000 year old male, stands above the dig and peers down at his find.

"You can see that the bone structure and anatomy are remarkably similar to those of *Homo sapiens*," he says. "Apart from a few small differences in the skull and upper body, you could pretty much say that they are the same. But the DNA we have managed to extract proves that this is not a *Homo sapiens*, or a *Homo heidelbergensis*, but a mix of the two. So we can see that *Homo heidelbergensis* is most likely an early stage of *Homo sapiens*."

Despite criticisms from other scientists, who feel he may be jumping to conclusions, Mr. Wooldridge says that he still firmly believes that he has found a missing link between *Homo heidelbergensis* and *Homo sapiens*. He will be making a presentation at the coming Paleoanthropological Society meeting in Chicago, where he will also have his find on display.

Another scientist, Professor Albert Calen, doubts Mr. Wooldridge's claims. We talked to him at his college in New York, the Anthem Institute. He is a middle-aged man with thinning gray-brown hair, and seemed quite relaxed

as he told about his studies and the conclusions they have led him to.

"You see," he says as he pulls up some files on *Homo heidelbergensis* on his computer, "the fossil record tells a very different story from the one Mr. Wooldridge has told us. The differences in these fossils (he points to pictures of

some fossil hominids) are larger than what he has claimed. I believe he has jumped to conclusions in deciding he has found a 'missing link'."

We asked Mr. Calen what species he thinks Mr. Wooldridge has found, if he doesn't think it's a missing link between *Homo heidelbergensis* and *Homo sapiens*. He laughed and told us, "Oh no, don't get me wrong. I completely agree with Mr. Wooldridge that he has found an early form of *Homo sapiens*. I just don't think it has as much to do with *Homo*

heidelbergensis, if it has anything to do with the species, as he does. I think that he has jumped to conclusions calling it a missing link. As they say, one piece of evidence does not a theory make!"

We wish Mr. Jack Wooldridge and his team, Tammy and James O' Rourke, luck in presenting their discovery. This could be a new page in paleoanthropological lore, or as Mr. Calen has said, it may just be another sentence on this page of hominid history. *zzz*



Art by Jack Wooldridge

CONTRIBUTE!

We accept stories, poems, articles, and artwork from kids and teens. The deadline for our January/February 2009 issue is December 15.

If you'd like to see your work in *ZigZagZine*, please send submissions to info@zigzagzine.com. Check out our Web site at zigzagzine.com for details!

Random Acts of Nature Photography

by Nico Peck



Branch Reflection



Waterfall Crossing



Shimmering Beach

The Wizard of Dissenter City

By Atticus Shaindlin

I am a wizard. My name is Zarvanor Hawkeye. But some people call me Zarv.

When I was ten years old, my father was a potion seller, and my mother was a spell caster. I wanted to be just like them when I grew older. I knew a few potions myself. I knew how to make a parvonar potion. If you drank a parvonar potion, you would become invisible for two hours.

One day my father said, "Your mother and I going to the volcanoes to learn more about the element of fire."

"Goodbye, dear," said Mother.

"Goodbye, Mother," I replied.

Three days passed. I was slumped on the couch like a potato. But I decided to get up. I wanted to check the mail. I opened the mailbox, and there was a telegram. I went back inside, and opened the telegram. It read:

"Dear Zarvanor, my name is Alexander Rovington. I have the terrible duty to inform you that your parents have fallen into a volcano and haven't been seen since.

We have put together search parties to look for them, but nobody has found them. I am terribly sorry."

I stared at the telegram for about a minute. Everything was silent. Then all of a sudden, I burst into tears. I couldn't stop. A while later, I finally managed to stop.

Nothing in my life had ever been so tragic. I sat back down on the couch, and fell asleep.

The next morning, I woke up. I went into town. I wasn't feeling very well. I decided to go get some groceries.

I went over to the bus stop. I noticed a dark square in the pavement, so I decided to check it out. I knocked on it, but didn't hear anything. I kept walking.

But then I noticed a sound. I looked behind me, and I saw the piece of pavement had opened! I went over to look in. but then I slipped, and fell into the hole. The piece of pavement closed above me.

It was so dark that I couldn't see anything.

Then all of a sudden a hand grabbed my shoulder. I jumped in fear. "Who are you?" I yelled.

"Who are you?" asked a voice. All of a sudden, a light went on. I saw who the person was. It was a wizard!

"What are you doing here?" asked the wizard.

"I don't know," I replied. "My parents just died. I wanted to get some groceries, so I was walking to the bus stop, when I noticed a dark piece of pavement, and you know what happened next."

"That's very sad," said the wizard. "Would you like me to teach you wizardry?"

"That would be great!" I shouted.

"Shhhh," said the wizard. "We don't want anybody to know about this place."

"Oops. Sorry," I said.

Four weeks passed. I knew plenty of spells and charms by that point. One day, I realized that I didn't know his name yet.

"Excuse me," I asked.

"What is your name?"

"Amavor," he replied.

"I'm Zarvanor," I said.

"Thank you for showing me all these spells."

"You're welcome," said Amavor.

"Did I tell you that my parents were pretty much wizards too?" I asked.

"Really?" he asked.

"Yes," I said. "But they fell into a volcano."

"There's something you should know," said Amavor.

"What is it?" I asked.

Then he said something so amazing that I could hardly believe it.

"I'm your grandfather."

I didn't speak. I didn't know what to say.

Then finally, I asked, "You're not serious, are you?"

"Yes, I am," said Amavor.

I couldn't believe it.

"You mean this whole time I was taught wizardry by my grandfather?"

"Yes," he said.

I ran into his arms, and gave him a huge hug.

For the next five years, he fed me, let me live with him, and taught me wizardry. By the time I turned fifteen, I could beat him in a wand duel. He gave me a wand of my own. It was made of emerald. He told me that there would be many adventures and quests in my life.

Two years passed. One day, we went into town. A

I screamed at the man. I was angrier than I had ever been before. I pointed my emerald wand at the man, and turned him into stone.

man saw my grandfather's wand. He stepped in front of us and pulled out a gun. He pointed it at my grandfather. "Give me the wand, or else."

My grandfather refused to give him his wand. Just as my grandfather pointed his wand at the man, the man shot him.

I stared at my grandfather lying dead on the ground. I was so mad. First my parents had died, and then my grandfather was murdered. I screamed at the man. I was angrier than I had ever been before.

I pointed my emerald wand at the man, and turned him into stone.

Two days went by. I was walking down an alley, when I tripped on something. I got up and looked at what it was. It was a wooden flute. I picked it up, and tried playing it. I wasn't that bad. So I walked home playing my new wooden flute.

The next morning, I looked outside the window. There was a snake and next to it was a man with black hair, green eyes, and a sword. I went outside and asked him, "Could you point me to the clothing shop?"

"It's down the street, and to the left," he said.

"Thank you," I said.

I walked down to the clothing shop. It seemed that they were sold out of almost everything. I walked down the aisle. I stopped at the robes. I bought one made of linen. (It was five dollars.)

I walked down to the old market. I bought three apples, four pears, and two carrots.

Just as I was leaving I heard, "Stop, thief!" I looked behind me, and I saw the man who shot my grandfather! He was running out of the store, holding two bags of oranges.

I tried blocking his path to the door, but he ran towards me and pushed me over. Then he turned around and shot me in the arm.

Since then, I have never had good strength.

Some time later, I was trying to decide what to do. I had always wanted to go to Dissenter City. I was seriously thinking of going there. I thought I might make a friend. Or get a new home. Or maybe even find an adventure.

So I decided to do it. I set off for Dissenter City to find a home, a friend, and an adventure. *zzz*

Riley's Tech & Science Column

by Riley Price

Wired NextFest

Every fall, the Wired NextFest is held in Millennium Park in Chicago. This event is free and open to the public, and showcases some of the most advanced technology being researched at the time.

From buildings that fit in a suitcase ([Suitcase Pavilion](#) by Virginia Tech) to goo that you can wrap around your finger, then repeatedly hit your finger (hard!) with a hammer and not feel any pain or pressure ([D3O](#)), to the cutest robot I've ever seen ([Keepon](#), a Japanese robot that looks like two rubber balls put together), Wired NextFest has some of the coolest gadgets I've seen this year. Some more highlights of the Wired NextFest:



- [Brainball](#) – Two players face each other across a table and put on headsets. On the table there is a plastic strip with a rubber ball in the middle. There are two circles on each side of the table. The object is to get the ball into the other player's circle by calming down. The machine will read your brainwaves and move the ball away from you.

- [i-Real](#) – This is a "personal mobility device" developed by Toyota. It looks like a high-tech chair but it moves around like a car. See this [YouTube video](#) for a demonstration.

- [Gigapan](#) – A device that takes thousands of shots with an ordinary digital camera to form a [Gigapixel](#), a picture with more than 1 billion pixels of data.

For more information, visit the [Wired NextFest Web site](#). *zzz*

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