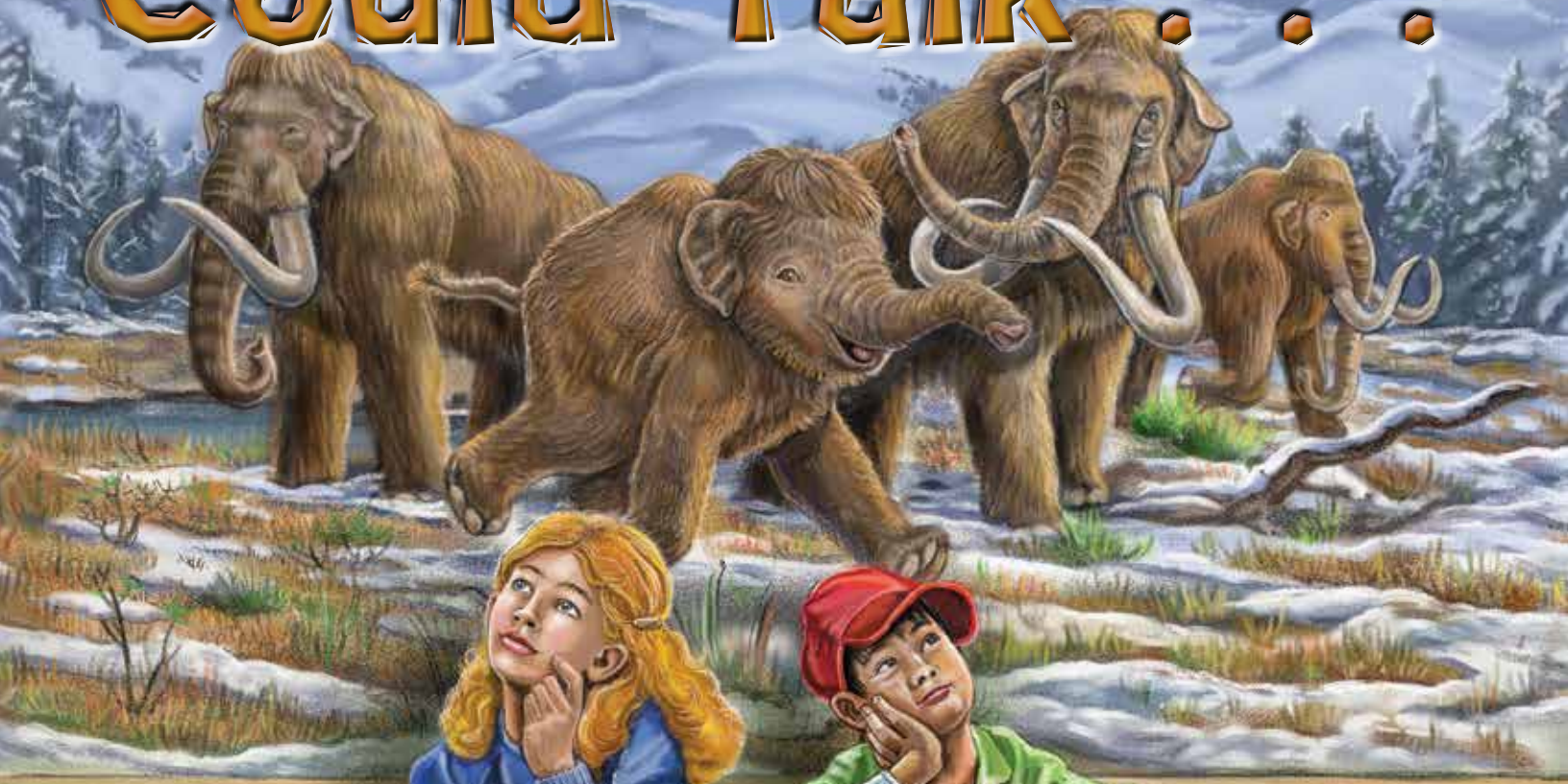


If a Mummy Could Talk . . .



By Rhonda Lucas Donald

Illustrated by Cathy Morrison

If a Mummy Could Talk . . .

If a mummy could talk, what would it say? Of course, mummies can't talk. But with modern scientific tools we can still discover what a mummy has to tell us. Read the stories of mummified Egyptian pharaohs and priestesses, baby elephants, pampered pets, and even a prehistoric bison. Uncover clues to centuries-old murder mysteries and human sacrifices, and even find out what a person or animal had for a last meal! Information from real scientists explains how we know what we know about each mummy.

So what do these mummies have to say?

Lots, it turns out!



Arbordale Publishing offers so much more than a picture book. We open the door for children to explore the facts behind a story they love.

The *For Creative Minds* includes

- Mummy Map
- Mummy Scientists and Their Tools
- How to Make a Mummy
- Mummy Sequencing
- Natural or Not?

Thanks to the following individuals for verifying the accuracy of the information in this book.

- Dr. Johan Reinhard, currently an Explorer with National Geographic Society
- Dr. Salima Ikram, Distinguished University Professor of Egyptology at The American University in Cairo
- Dr. Randall Thompson, HORUS Group

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From the team that explored the clues of the past in *Dino Tracks* and *Dino Treasures*



Rhonda Lucas Donald has written more than a dozen books for children and teachers. She has written *Deep in the Desert* (Silver Moonbeam Children's Book Award), *Dino Tracks*, and *Dino Treasures* for Arbordale. In addition, she has won awards for articles and stories appearing in *Ranger Rick* and *Big Backyard* magazines. She is a member of the Society of Children's Book Writers and Illustrators, National Science Teachers Association, and the Cat Writers Association. Rhonda and her husband share their Virginia home with their dog, Dixie, and their cats, Huxley and Darcy. Visit her website at www.browntabby.com.

Cathy Morrison may have started her art career in animation but she soon fell in love with illustrating children's books and has been doing so for 20 years. She's also illustrated *Dino Tracks*, *Dino Treasures*, *Nature Recycles—How About You?*, *Daisylocks*, *This Land is Your Land*, *Tortoise and Hare's Amazing Race*, *Three Little Beavers*, and *Animalogy: Animal Analogies* for Arbordale. She is a member of the Society of Children's Book Writers and Illustrators. Cathy works from home in a studio loft overlooking a beautiful view of the Mummy Range, on the northern side of Rocky Mountain National Park. Check out her blog at www.cathymorrison.blogspot.com.



Rhonda L. Donald



Cathy Morrison

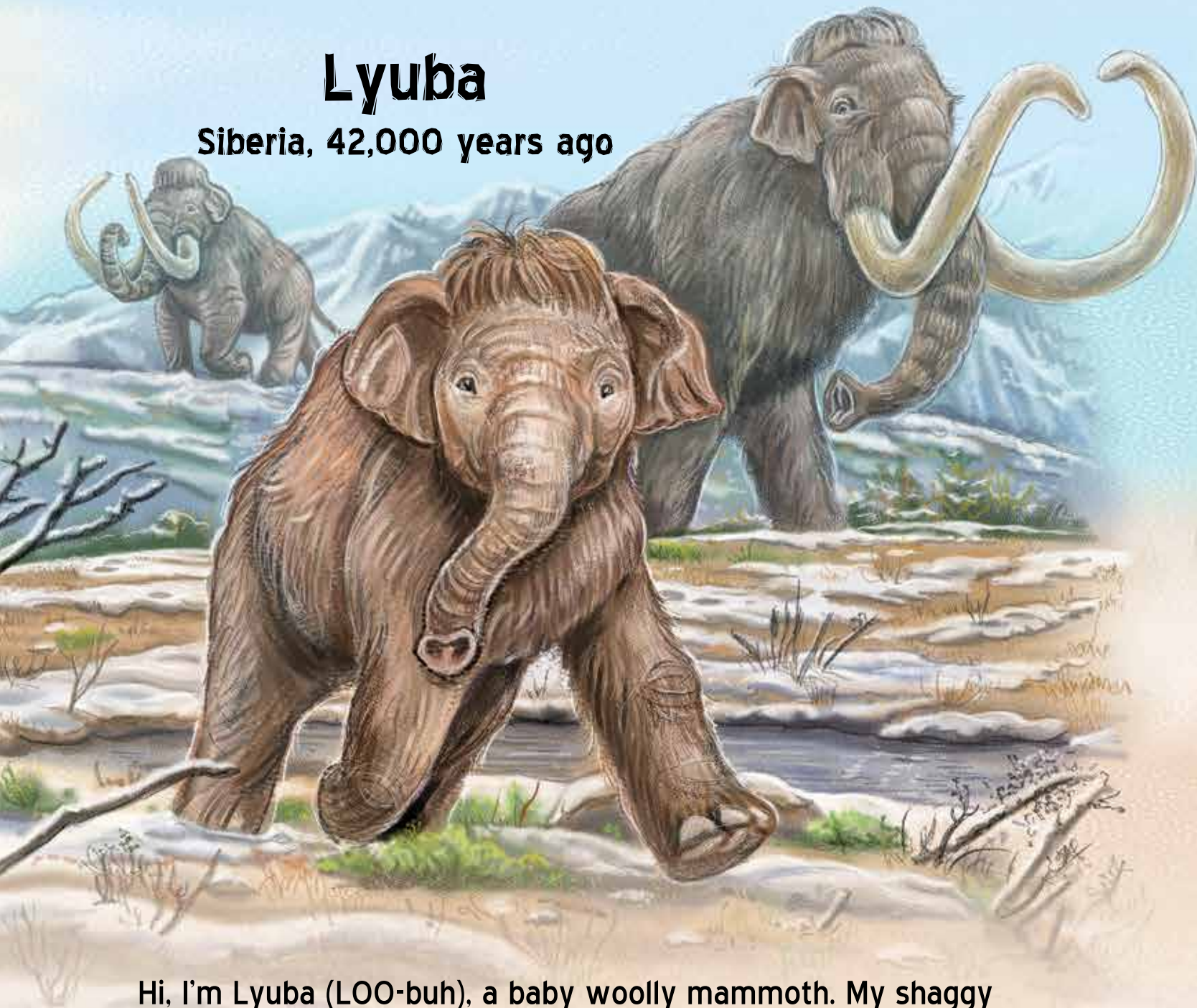
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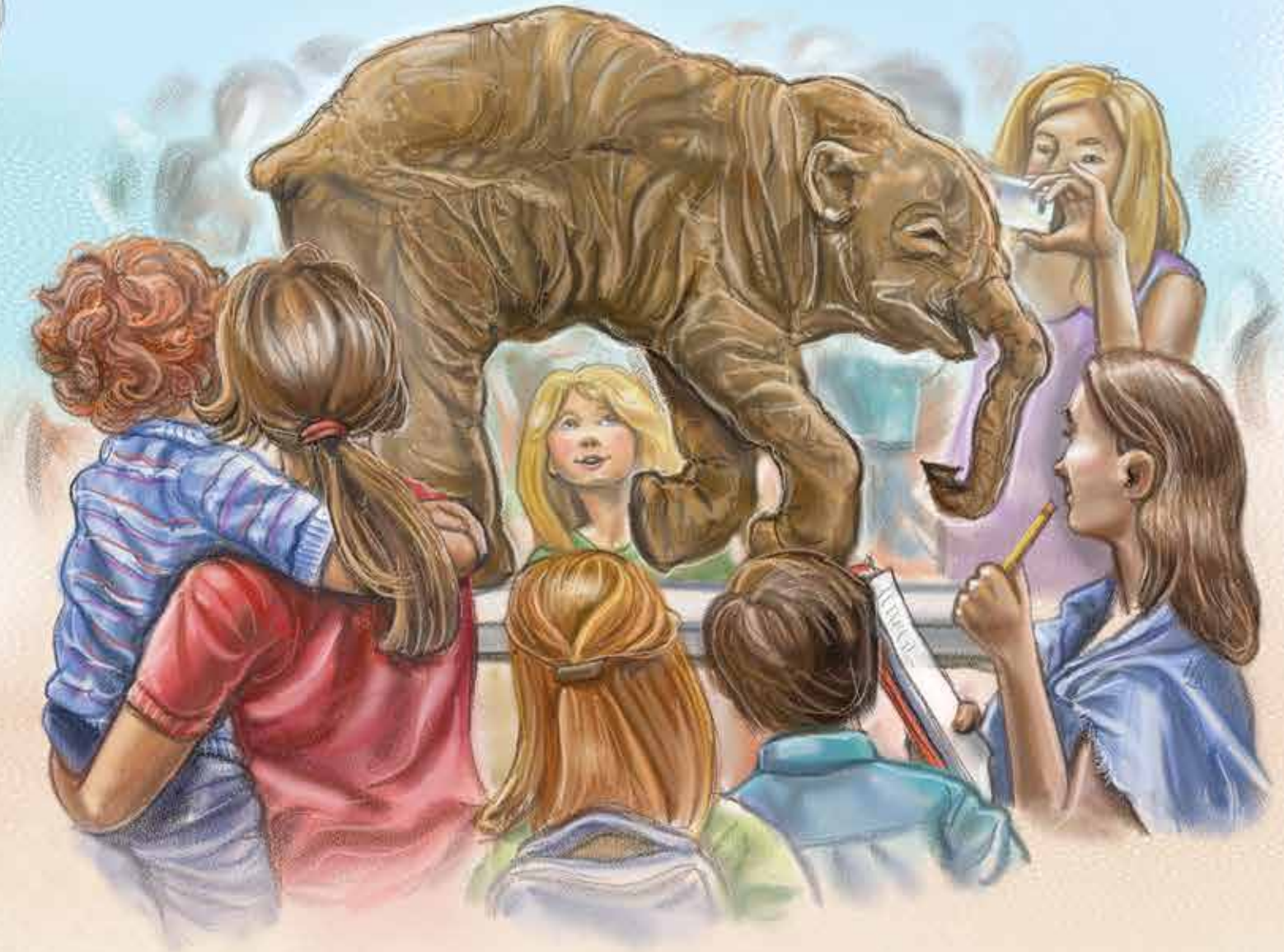
Lyuba

Siberia, 42,000 years ago



Hi, I'm Lyuba (LOO-buh), a baby woolly mammoth. My shaggy fur coat keeps me warm here in the Arctic. One day, I'll grow to be as big as Momma. But I'm only one month old now. It's spring, and ice is melting all over. Momma just fed me a nice milk meal. Now we're going exploring along the riverbank. Come on. Let's go!

Facts about Lyuba from Dr. Daniel Fisher



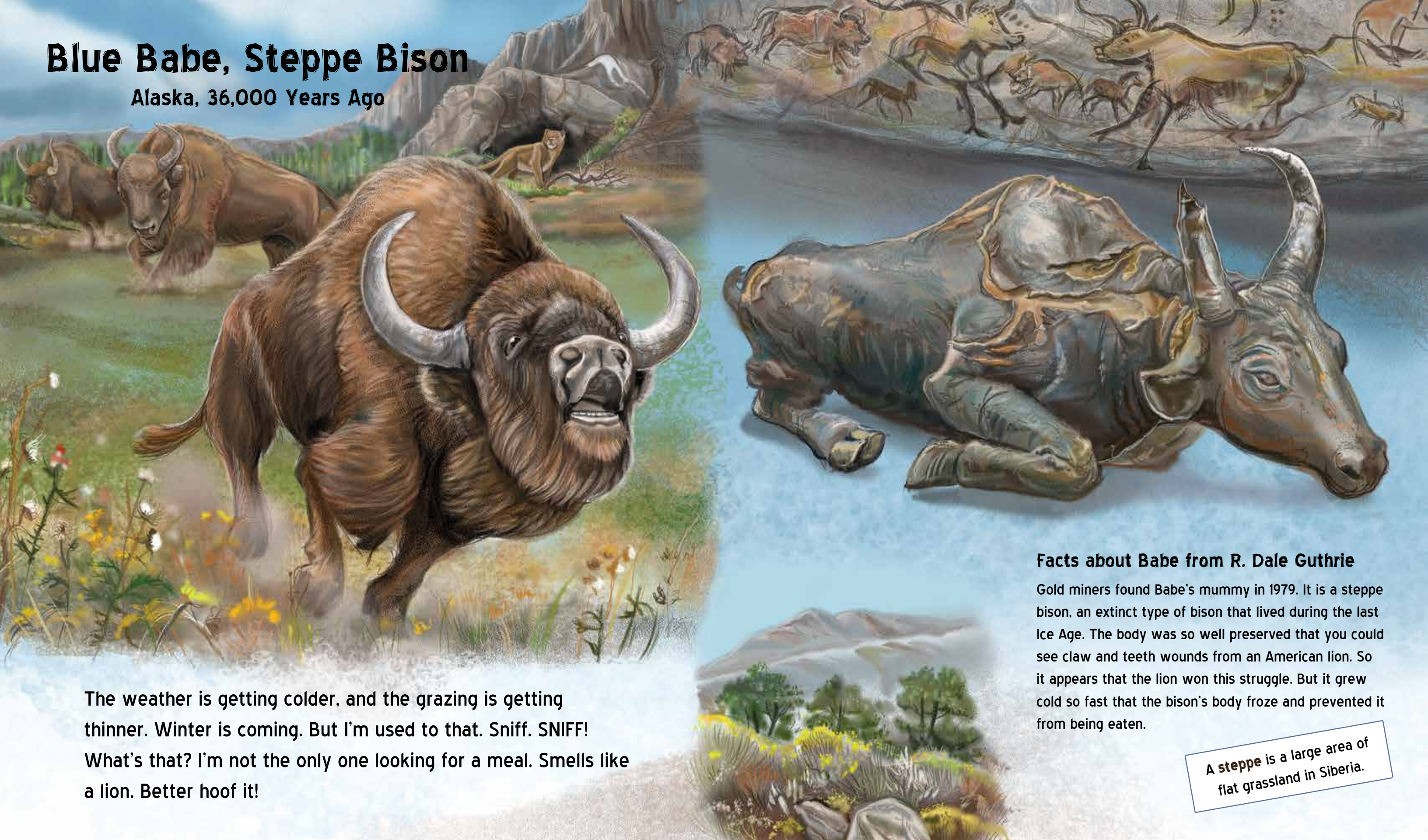
Lyuba is the size of a large dog. In her tummy were the remains of milk from her last meal. Besides the milk was plant pollen.

Sadly, little Lyuba's life ended when she fell through the ice over a lake and sank to the bottom. Her trunk, mouth, and lungs were filled with mud that choked the baby. A reindeer herder and his sons found her body, still frozen, in 2007

Lyuba is a Russian word for love.

Blue Babe, Steppe Bison

Alaska, 36,000 Years Ago



The weather is getting colder, and the grazing is getting thinner. Winter is coming. But I'm used to that. Sniff. SNIFF!
What's that? I'm not the only one looking for a meal. Smells like a lion. Better hoof it!

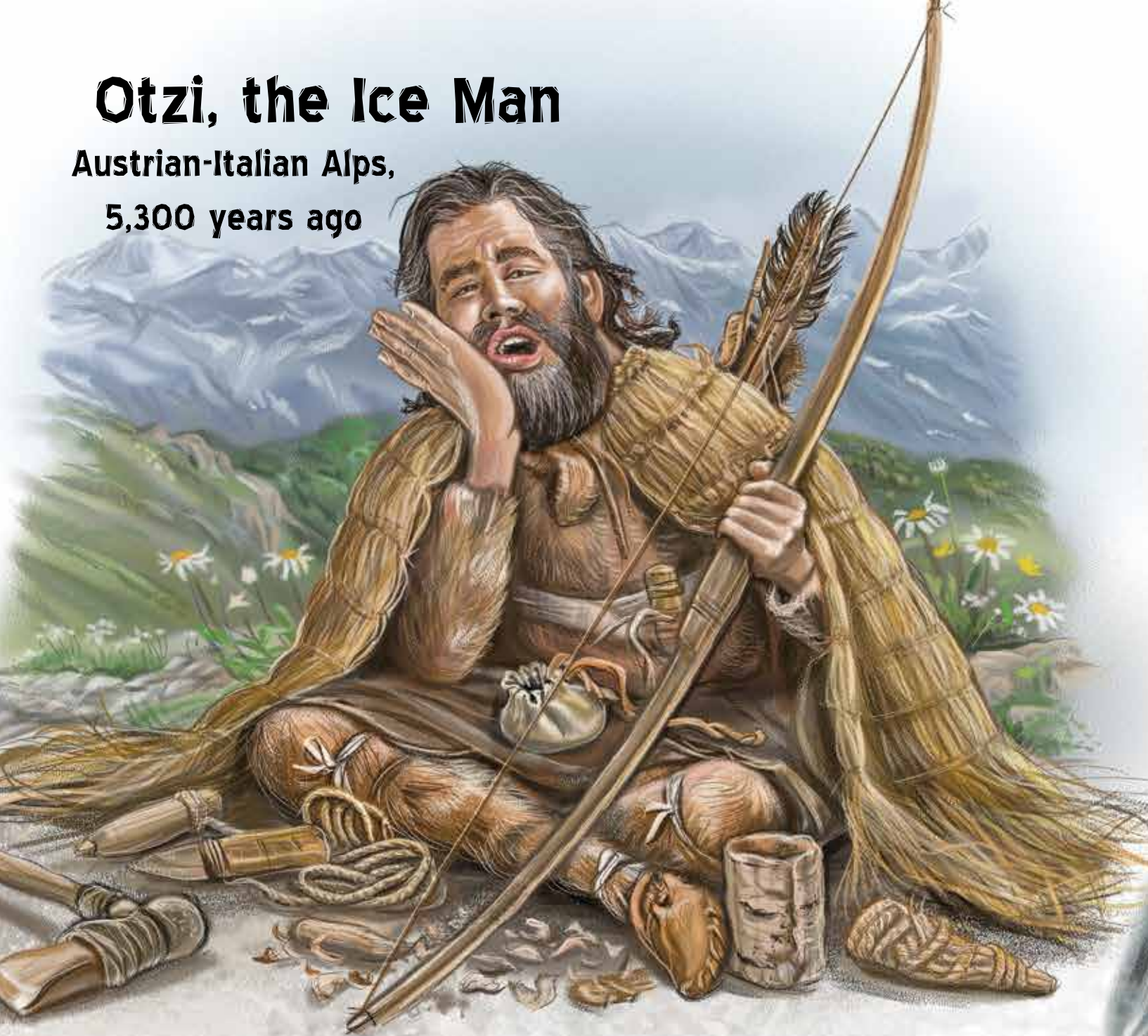
Facts about Babe from R. Dale Guthrie

Gold miners found Babe's mummy in 1979. It is a steppe bison, an extinct type of bison that lived during the last Ice Age. The body was so well preserved that you could see claw and teeth wounds from an American lion. So it appears that the lion won this struggle. But it grew cold so fast that the bison's body froze and prevented it from being eaten.

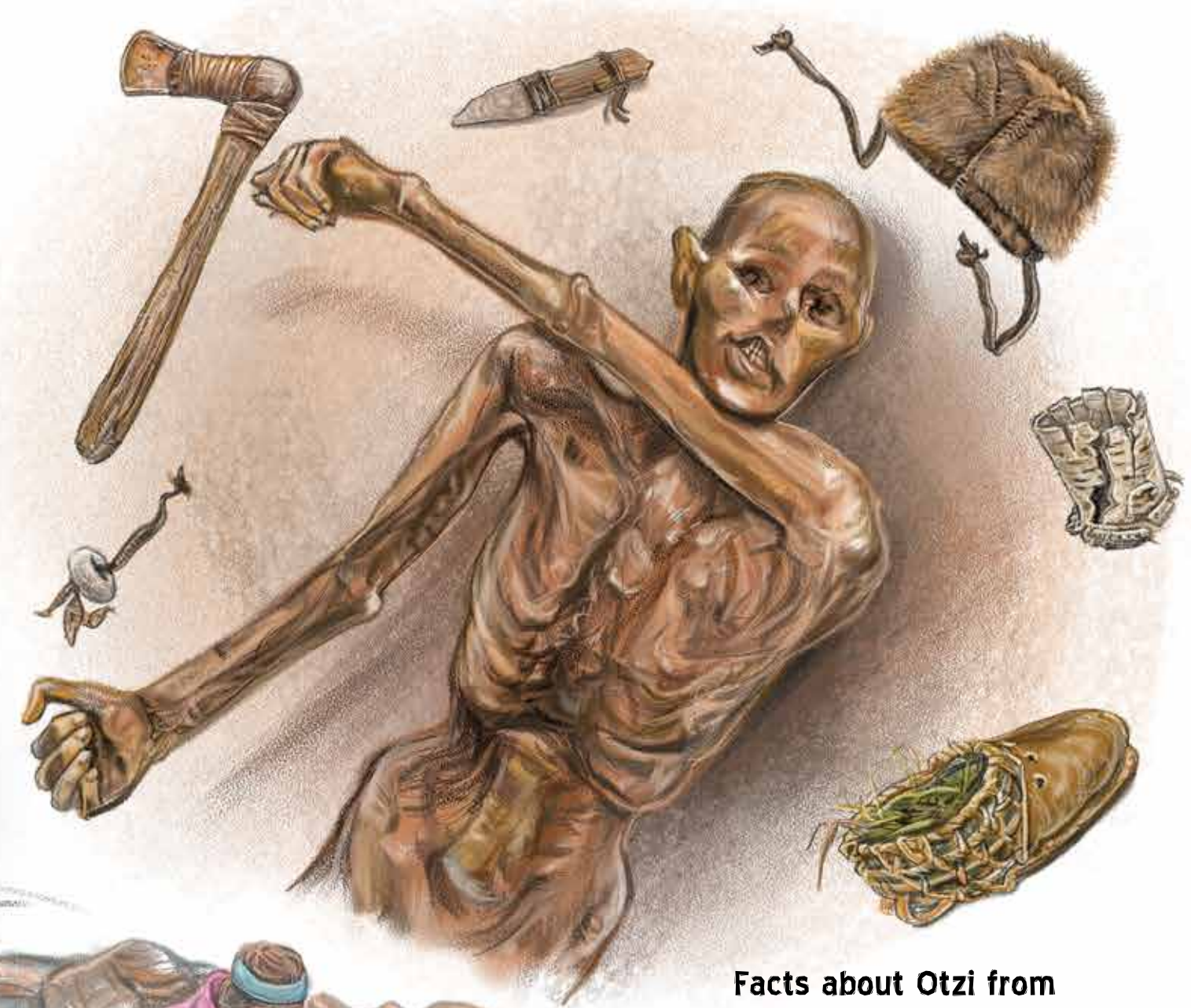
A steppe is a large area of flat grassland in Siberia.

Otzi, the Ice Man

Austrian-Italian Alps,
5,300 years ago



Ouch! My teeth are giving me fits. Plus I've got plenty of other aches and pains. No wonder after that fight the other day. I'm laying low up here in the hills. It's spring, and there's plenty to eat. Think I'll work on my bow some. It's not yet finished. Might need it if those fellas come back.



Facts about Otzi from Dr. Albert Zink

Otzi is the victim of a very old murder mystery. He was shot with an arrow minutes before his death. A day or two before, he may have been in a fight and suffered wounds to the hand and head. Otzi had clothing, tools, and a copper ax. Tattoos on his arms, legs, and back may have marked spots for acupuncture, an ancient form of medicine.



For Creative Minds

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Mummy Map

Mummy	Country	Continent
Blue Babe	USA	North America
Inca Maiden	Argentina	South America
Tamut	Egypt	Africa
Lady Dai	China	Asia
Otzi	Italy	Europe

There are mummies all over the world. Which of these mummies was found closest to where you live?

- Which ocean is closest to Blue Babe?
- Which mummy is south of Otzi?
- Which ocean is closest to Lady Dai?
- Which ocean is closest to the Inca Maiden?
- Which two mummies are in the Americas?
- Which mummy is east of Tamut?



1: Pacific. 2: Tamut. 3: Pacific. 4: Atlantic. 5: Blue Babe and Inca Maiden. 6: Lady Dai

Mummy Scientists and Their Tools

Scientists who study ancient human artifacts and remains such as the mummy of King Tut are **archaeologists**. Scientists who study the remains of ancient plants and animals like Lyuba are **paleontologists**. Both use similar methods and tools to locate sites, objects, and remains to study. By analyzing fossils, preserved remains, and the artifacts surrounding them, they can piece together something of how the person or animal lived and died.

An **artifact** is an object made by people.



Tools and Technology

Scientists use medical scanning equipment to “see” inside fossils and mummies. These are some of the tools researchers use:

DNA	DNA can show family relations (such as Ramesses III and his son) and can expose diseases the person or animal might have had.
CT Scan	A computer combines multiple x-rays in layers to make a 3-D cross-section of bones and soft tissues.
MRI	Magnetic field and radio waves produce 3-D images of organs and tissues.
X-ray	Radiation passes through the body. Denser structures such as bone show up better on an X-ray than soft tissues.
Chemical tests	Chemicals in the body can show what the mummy ate, what certain materials are made of, or the presence of disease.

Do you want to be an archaeologist or paleontologist? It takes many years of study and field experience, but if you work hard the dream can come true! Most archaeologists and paleontologists get advanced college degrees in their field of study. But you can prepare even before starting college! Read as much about the field as possible. Volunteer to help research at a museum, or work on a dig. This will help you develop the skills and experience you need to start your science career!



How to Make a Mummy

There are several ways to make a mummy. Here are the four main ways mummies get preserved.

Bogged Down

Tollund Man and other bog mummies were preserved in a wet environment. While this seems like it would rot the bodies faster, the water in a peat bog has very little oxygen. Bacteria that cause a body to decay need oxygen to survive. And bog water is acidic. It's like mild vinegar, which can help preserve canned food. Just like vinegar turns a cucumber into a pickle, the chemistry of bog water "pickles" a body.



Drying Out

The first mummies were made naturally. Dry conditions like those in a desert will naturally preserve a body. The Egyptians must have realized this in perfecting their method of mummification. But they weren't the only ones. Along the western coast of South America, the climate is dry and the soil contains salts that helped preserve bodies. Here bodies were buried in the sand to dry them before they were tied together in a seated position and wrapped in layers of cloth. Prized possessions were tucked into pouches and hung on the body.

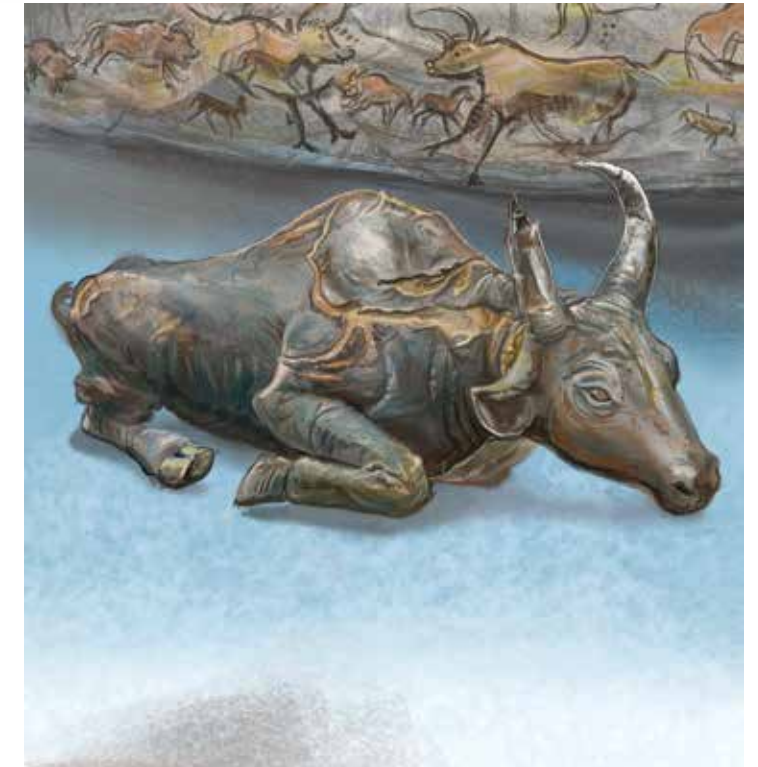


Egyptian Method

The Egyptians' elaborate process of mummification could take more than two months to complete. First the body's organs were removed, including the brain, which was sometimes pulled out through the nose with hooks. The organs were preserved in canopic jars. Sometimes the heart was left inside the body. Egyptians believed the gods would weigh a person's heart to decide whether he or she deserved eternal life. Next they used a kind of salt called natron, to dry the body out. The skin was preserved with resin, oil, and wax. The body was packed with linen or sawdust and finally wrapped in linen strips. Several nested cases held the body. Animals were preserved in the same way.

Freezing Up

Some mummies are naturally made when a body is quickly frozen. This is how Lyuba, Blue Babe, and Otzi became mummified. It's like putting a body in a freezer. Bodies that are frozen may be very well preserved, including the internal organs, blood, and other soft tissues. Once the bodies are removed from the ice, they begin to decay, so they must remain frozen.



Mummy Sequencing

Put these mummies in order from oldest to most recent to unscramble the word.

T	Tamut	2,900 years ago
I	Otzi	5,300 years ago
R	Inca Maiden	500 years ago
H	Lyuba	42,000 years ago
S	King Tut	3,300 years ago
Y	Vladimir Lenin	about 100 years ago
O	Tollund Man	2,300-2,400 years ago

Fuzzy Dates

How can the Tollund Man be dated to 2,300-2,400 years ago? Did it take a hundred years for him to die? No!

Scientists have different ways of dating mummies and other historical artifacts. Some things are written down by historians at the time. We know Lenin's exact date of death, because we have historical records that talk about him and record his death.

But there were no people writing about the Tollund Man when he died. So scientists use clues to learn when he died. They look at the soil around him, at the mummy itself, and at any artifacts found near the mummy.

If you found a mummy holding an iron sword, you might not know *exactly* when that mummy lived, but you could make an educated guess. The mummy had to live sometime after people learned how to make things out of iron.

These clues help scientists come up with a range of time. They can be confident that the mummy comes from some time within that range. The Tollund Man could be as old as 2,400 years old, or as recent as 2,300 years. But we know he's from around that time period.

Answer: HISTORY

Natural or Not?

Some mummies are formed by nature. Other mummies are preserved because people worked hard to make sure the body would be protected. Sort the following mummies based on whether they are natural or man-made.



Lyuba



Blue Babe



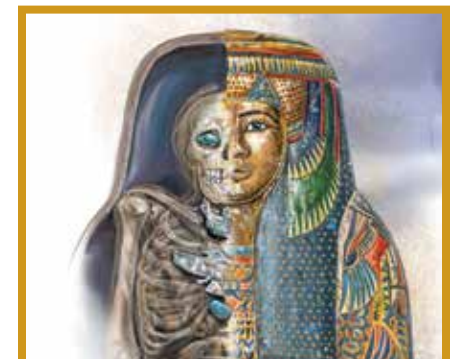
Pharaoh's Dog



King Tut



Otzi



Tamut



Tollund Man



Lady Dai



Vladimir Lenin

Natural: Lyuba, Blue Babe, Otzi, Tollund Man
 Man-made: King Tut, Pharaoh's Dog, Tamut, Lady Dai, Vladimir Lenin

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