

# Worksheet: Geological Time

## Travel through time!

**Purpose:** This participation and discussion exercise enables students to discover for themselves the events in geological time and their chronology.

**Objectives:** Students will be able to:

- > identify key events in the history of the Earth.
- > observe a timeline from the forming of the Earth to the ascent of human beings.
- > understand how recent the ascent of humans is.

**Skills:** Students can demonstrate:

- > Classifying
- > Communicating
- > Hypothesizing and predicting
- > Inferring
- > Observing
- > Posing questions

**Time Required:** 45 minutes.

**Group Size:** Complete class

**Materials/Preparation:** Includes:

- > A clear wall with sufficient space to stick 26 sheets of A4 next to each other.
- > The following summary and 52 A4 event sheets printed in colour.
- > Some Blu-tak or temporary adhesive.

**Background:** Humans have walked the Earth for 190,000 years, a mere blip in Earth's 4.5 billion year history. A lot has happened in that time. Earth formed and oxygen levels rose in the foundational years of the Precambrian. The productive Paleozoic era gave rise to hard shelled organisms, vertebrates, amphibians,

and reptiles. Dinosaurs ruled the Earth in the mighty Mesozoic. And 64 million years after dinosaurs went extinct, modern humans emerged in the Cenozoic era. The planet has seen an incredible series of changes.

**Activity:** Follow these steps:

1. Print off the 26 A4 student event sheets. (these are not numbered)
2. Print off the 26 A4 teacher event sheets. (these are numbered in the top right corner) and a summary for each student.
3. Shuffle the student event sheets until the order is completely out of sequence.
4. Now supply the class with the event sheets and ask the class to consider the correct sequence of events.
5. The students should now adhere the event sheets to the wall in the order they believe to be correct. Encourage discussion and participation.
6. Class to review the sequence of events and consider any final adjustments.
7. Now commence adhering the teacher event sheets one by one above the timeline created by the class, comparing the correct timeline versus that created by the class.
8. Use any errors to highlight the correct sequence of events.

**Closure:** Hand out the timeline summary.

**Extending the Lesson:** . Encourage students to do some research on the time periods on the Geologic Timescale.

## Events in geological time

### 4,600 million years ago

Earth forms between 4.5/4.6 billion years ago.

### 3,950 million years ago

World's oldest rocks form when molten lava rises from cracks in the sea floor.

### 2,500 million years ago

Breathable air starts to be created by microbes living in the sea.

### 545 million years ago

Hard shelled molluscs start to appear.

### 530 million years ago

Earliest vertebrates start to appear.

### 450 million years ago

Earliest cartilaginous fish evolve.

### 435 million years ago

Arachnids like spiders and scorpions evolve.

### 430 million years ago

Plants take root on land.

### 370 million years ago

Amphibians emerge from the water.

### 360 million years ago

The single supercontinent of Pangaea comes together.

### 335 million years ago

Coal forming swamp forests flourish.

### 300 million years ago

Earliest reptiles appear.

### 275 million years ago

Reptiles take over Pangaea.

### 248 million years ago

Planet suffers largest extinction ever.

### 240 million years ago

Dinosaurs take their first steps.

### 225 million years ago

Supercontinent Pangaea breaks up.

### 210 million years ago

Small, furry animals appear.

### 200 million years ago

Dinosaurs dominate the Earth.

### 150 million years ago

Birds become airborne.

### 125 million years ago

Flowering plants begin to bloom.

### 65 million years ago

Dinosaurs become extinct.

### 60 million years ago

Mammals diversify and replace dinosaurs.

### 55 million years ago

Primates appear in the trees.

### 5.8 million years ago

Hominins descend from the trees.

### 1.8 million years ago

Ice ages begin to grip the world.

### 190 thousand years ago

Modern humans are born.



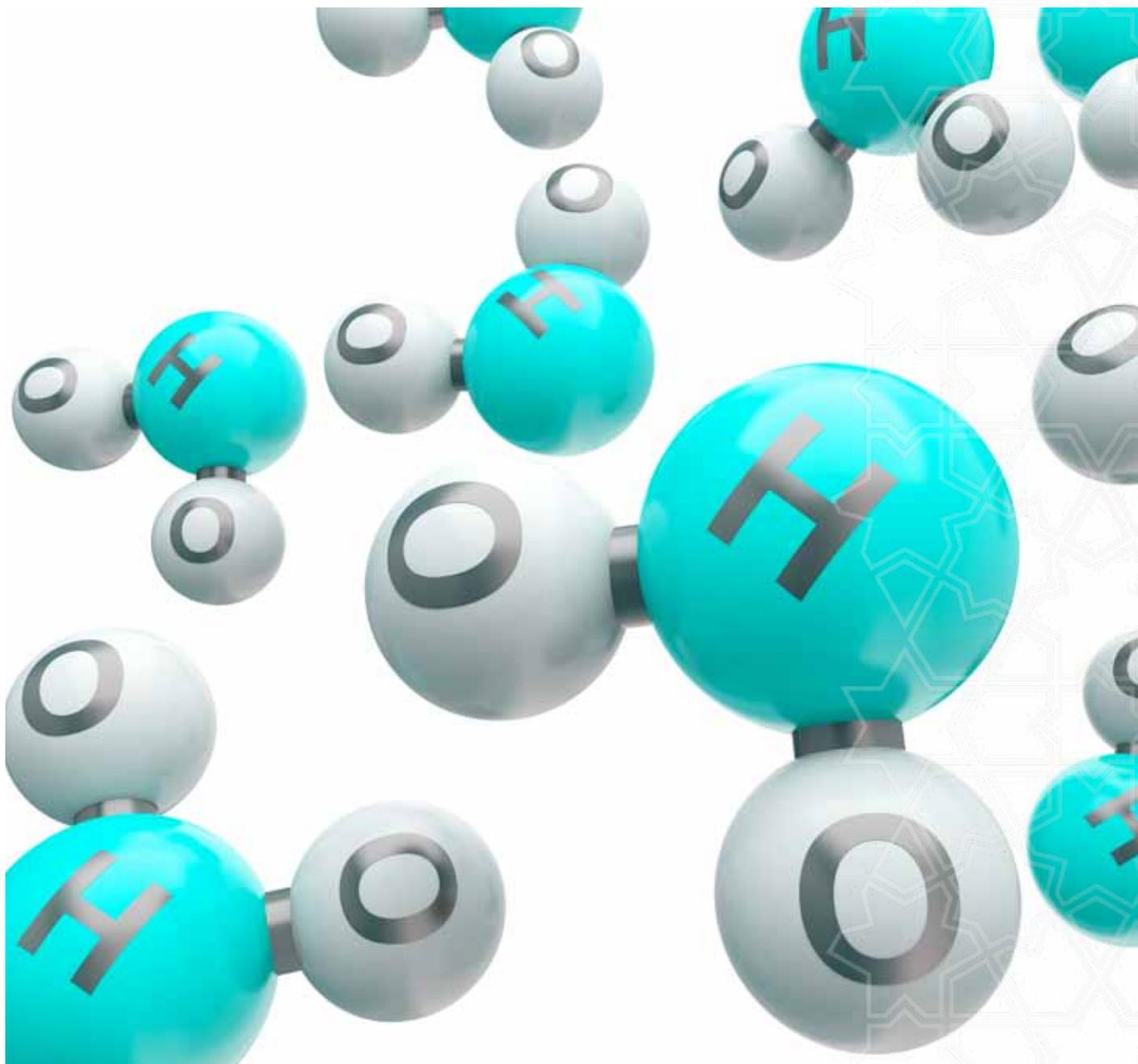
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Earth forms between 4.5  
and 4.6 billion years ago.



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Plants take root on land.



Amphibians emerge from  
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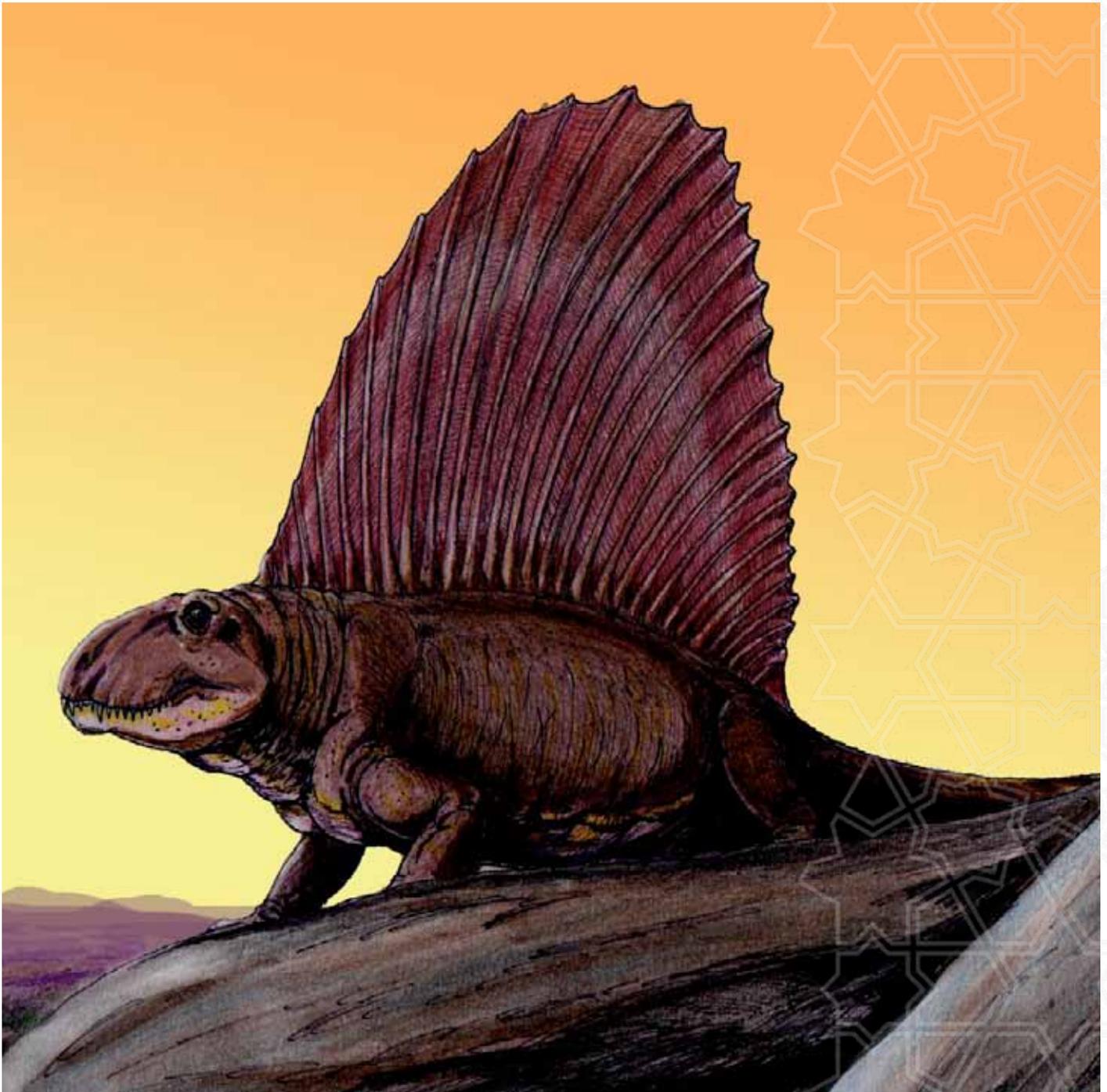


Coal forming swamp  
forests flourish.



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Earliest reptiles appear.



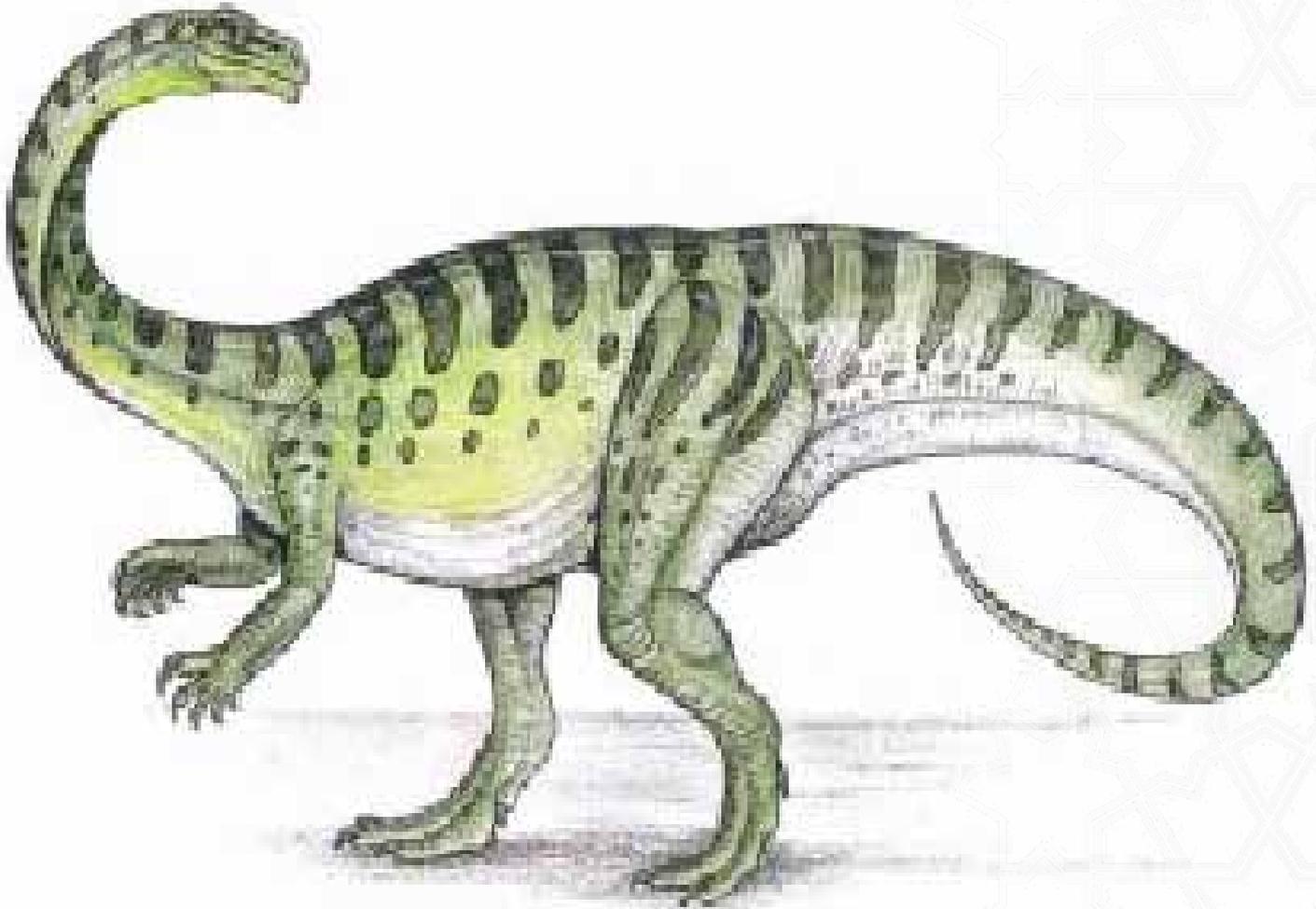
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# Reptiles take over Pangaea.



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Planet suffers largest  
extinction ever.



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Dinosaurs take their  
first steps.

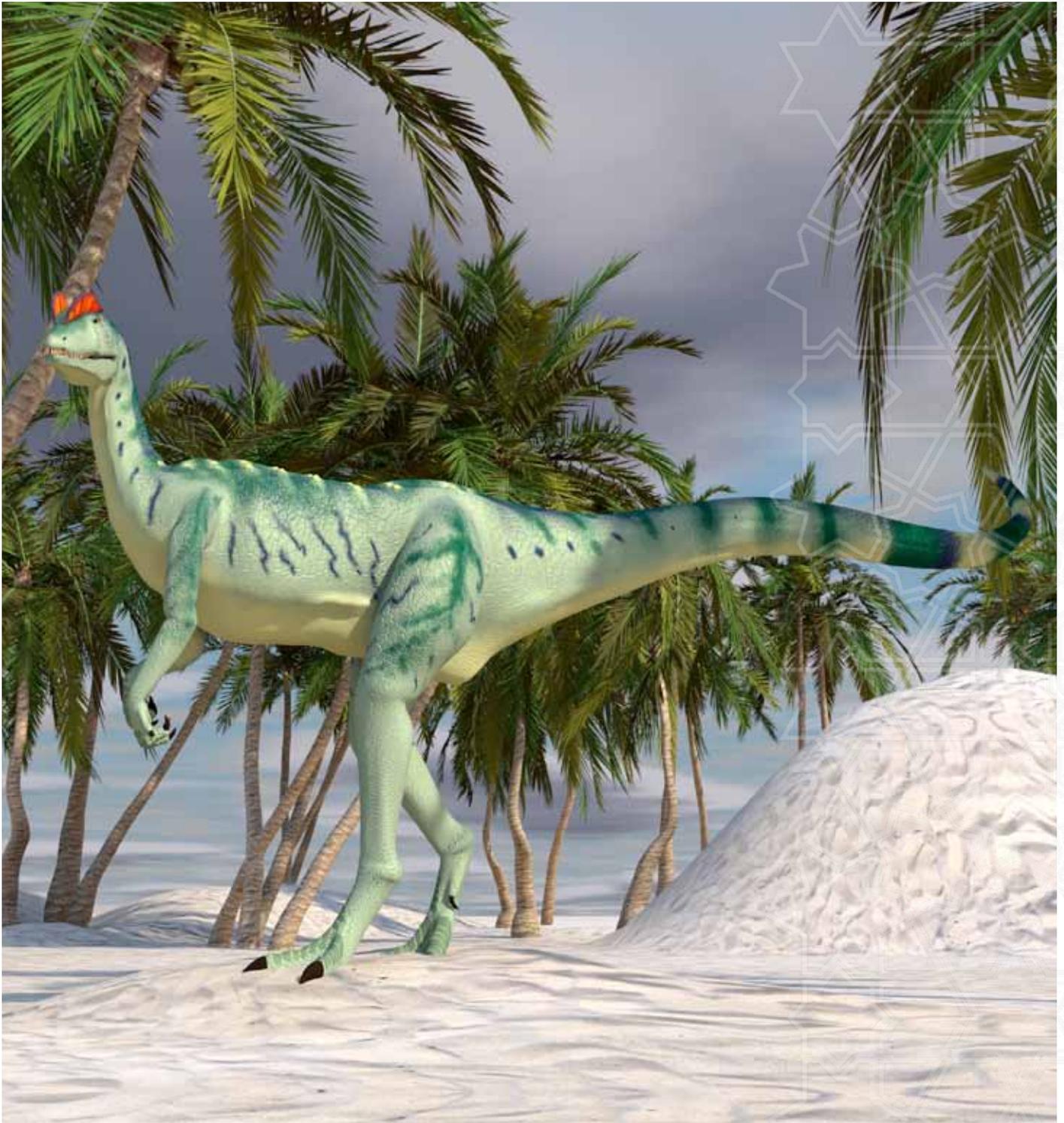


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# Supercontinent Pangaea breaks up.



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animals appear.

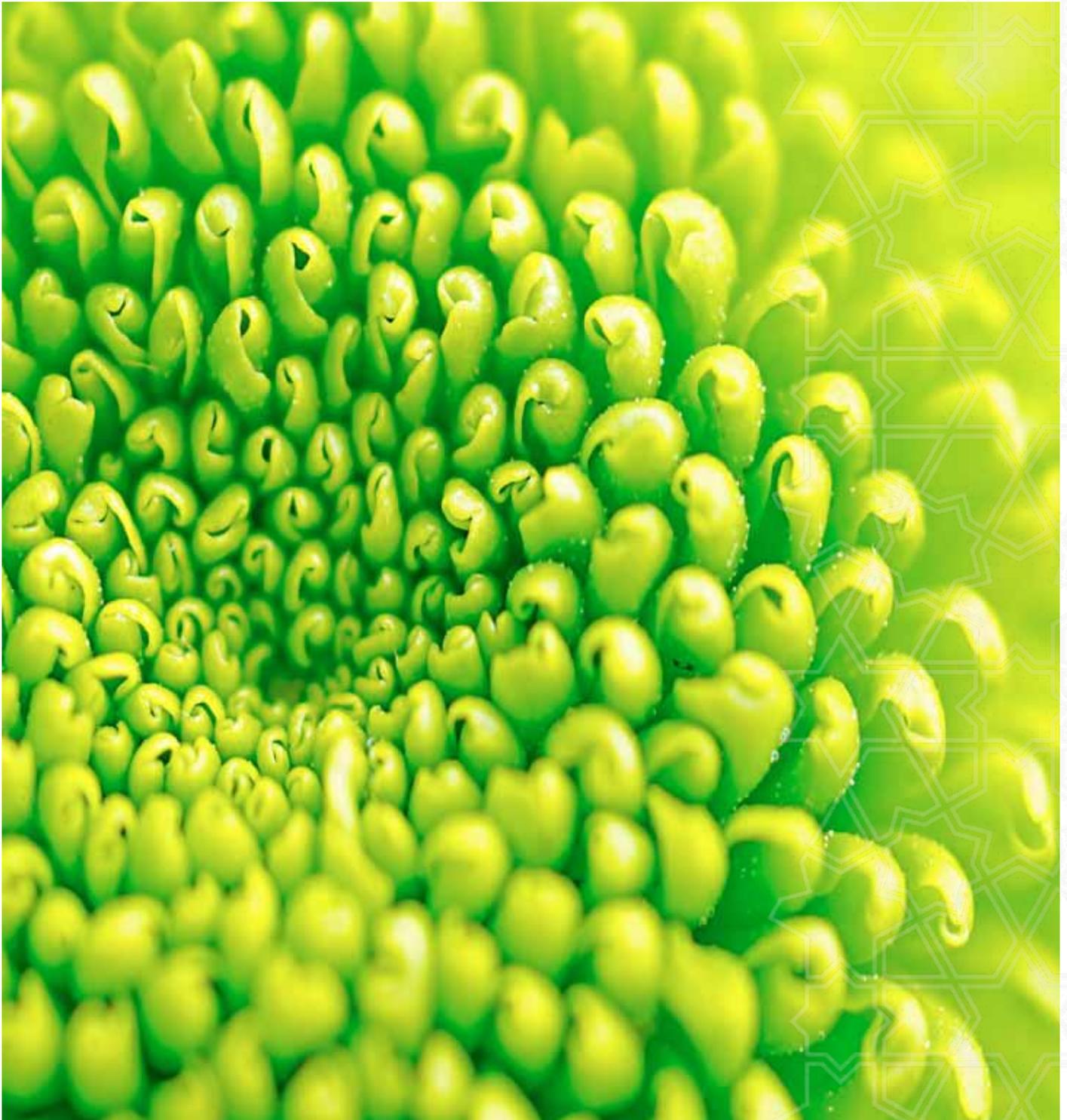


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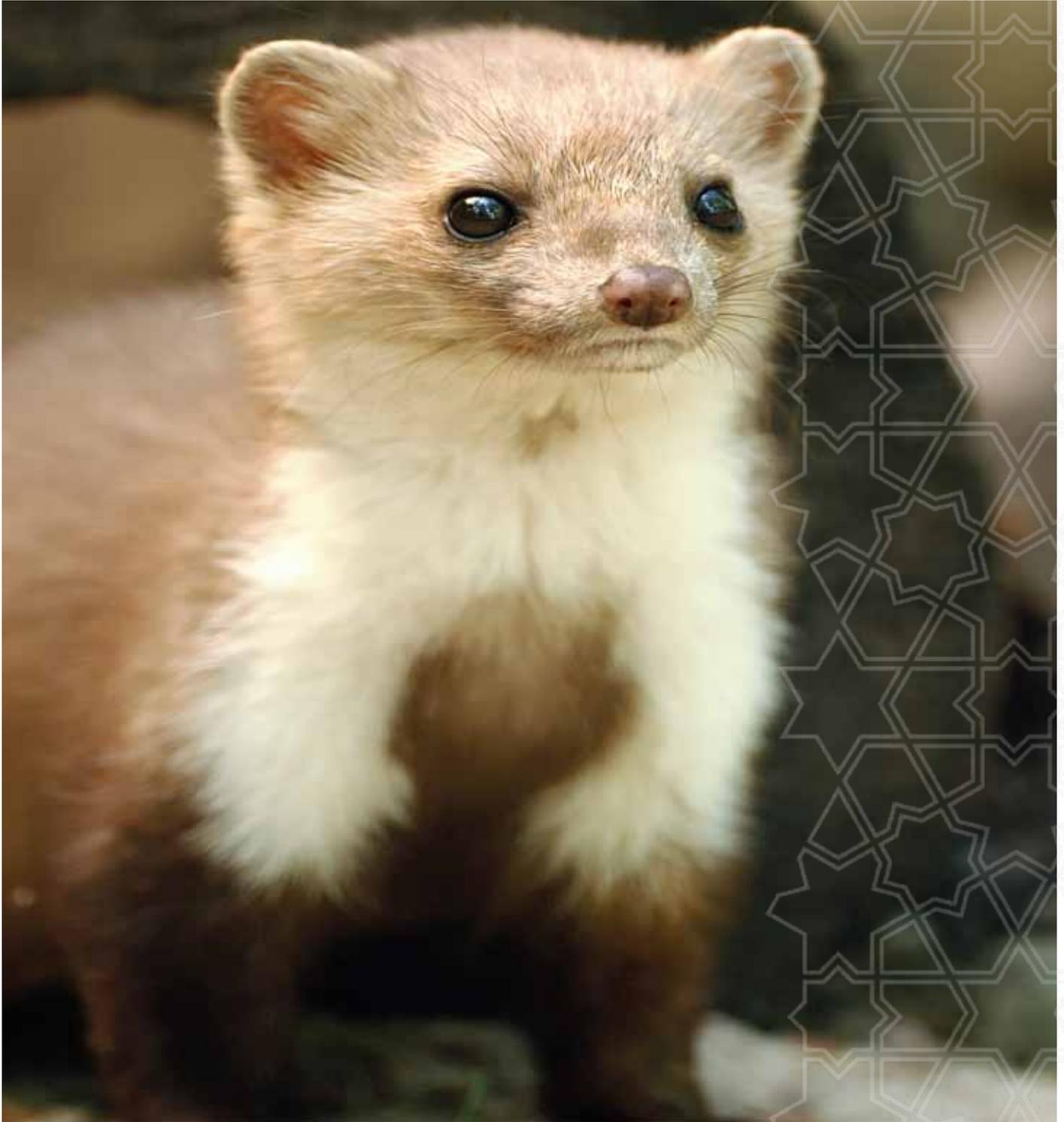
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Flowering plants begin  
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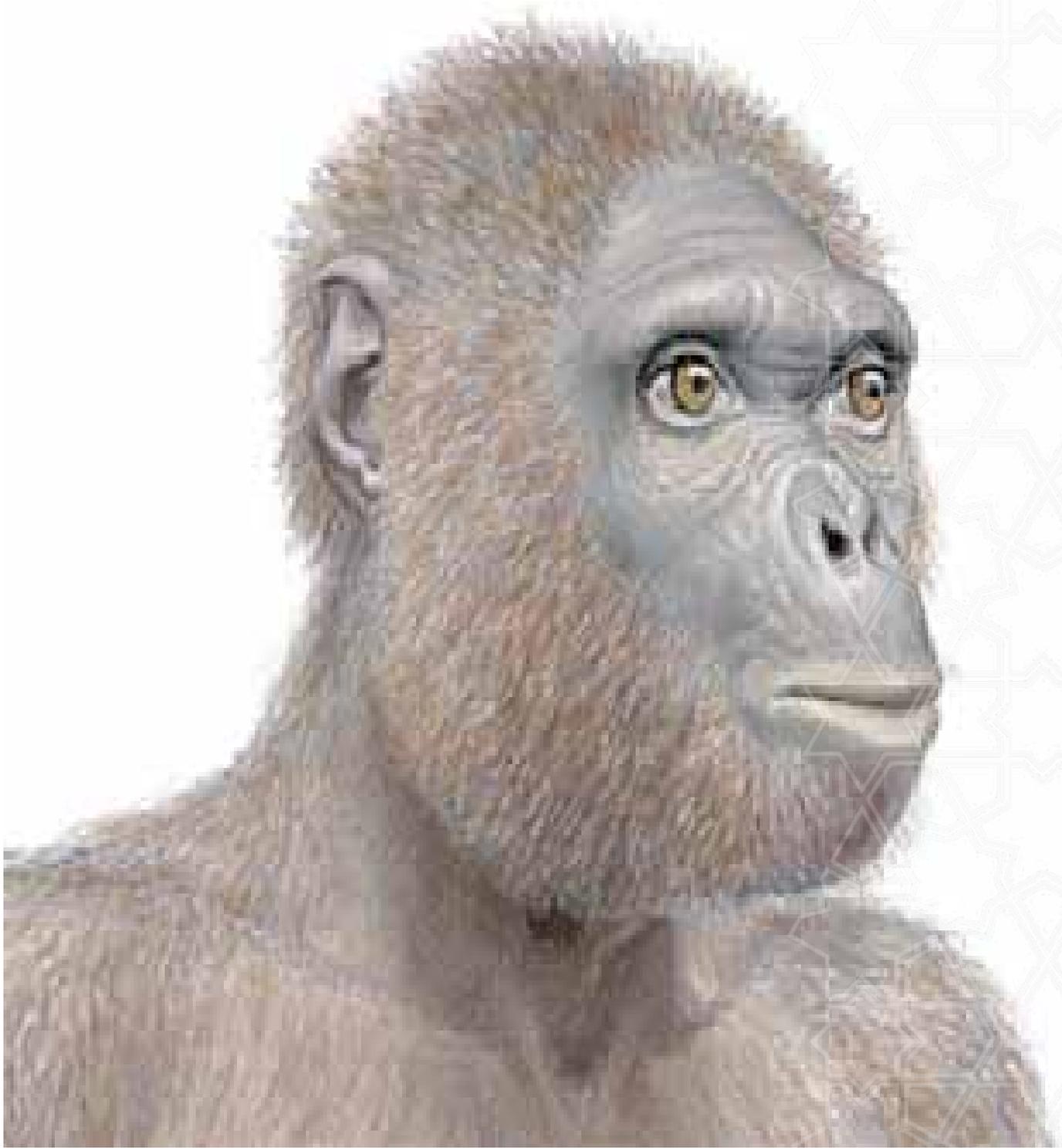


Mammals diversify and  
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Primates appear in  
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Hominins descend from  
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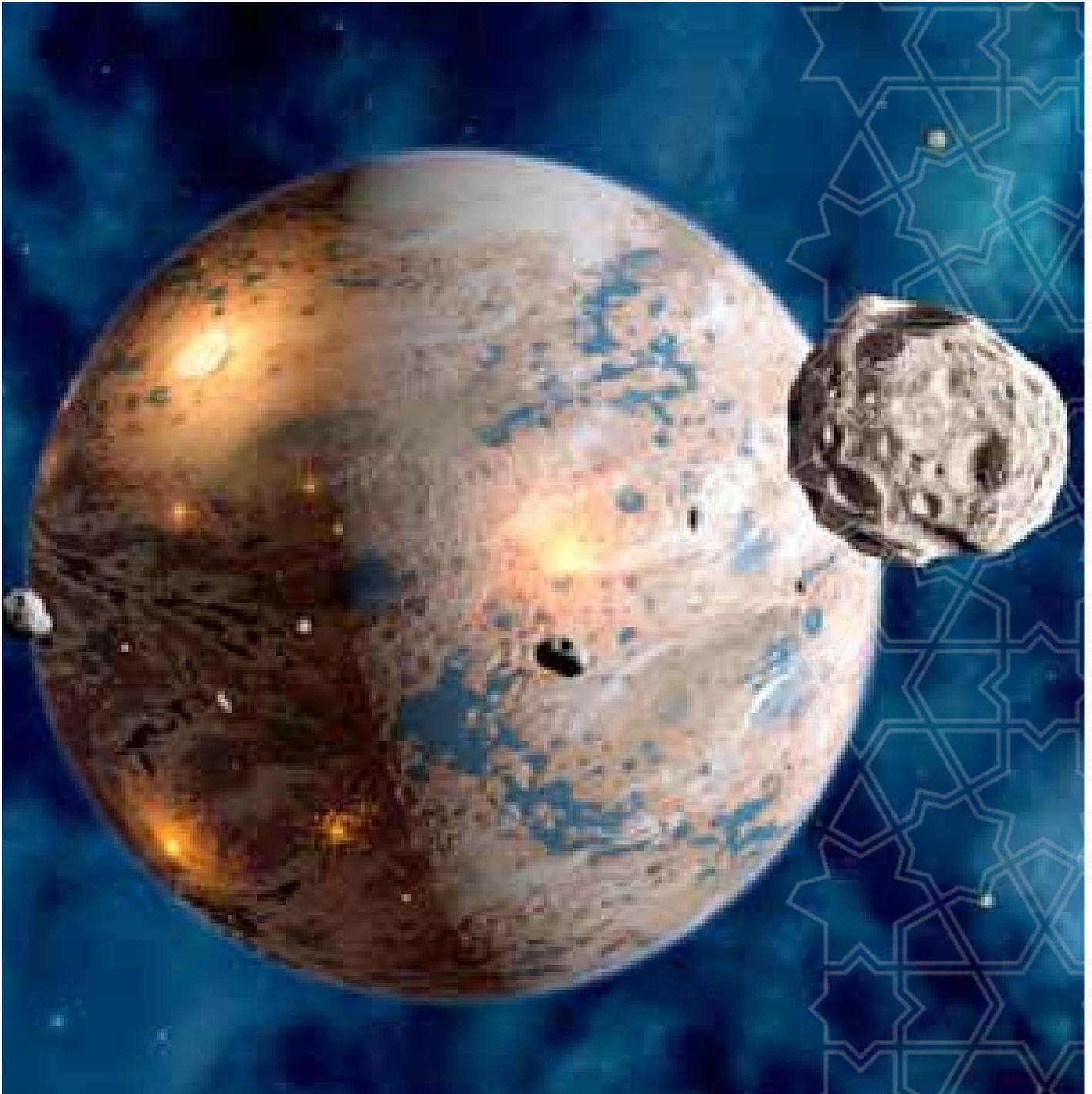


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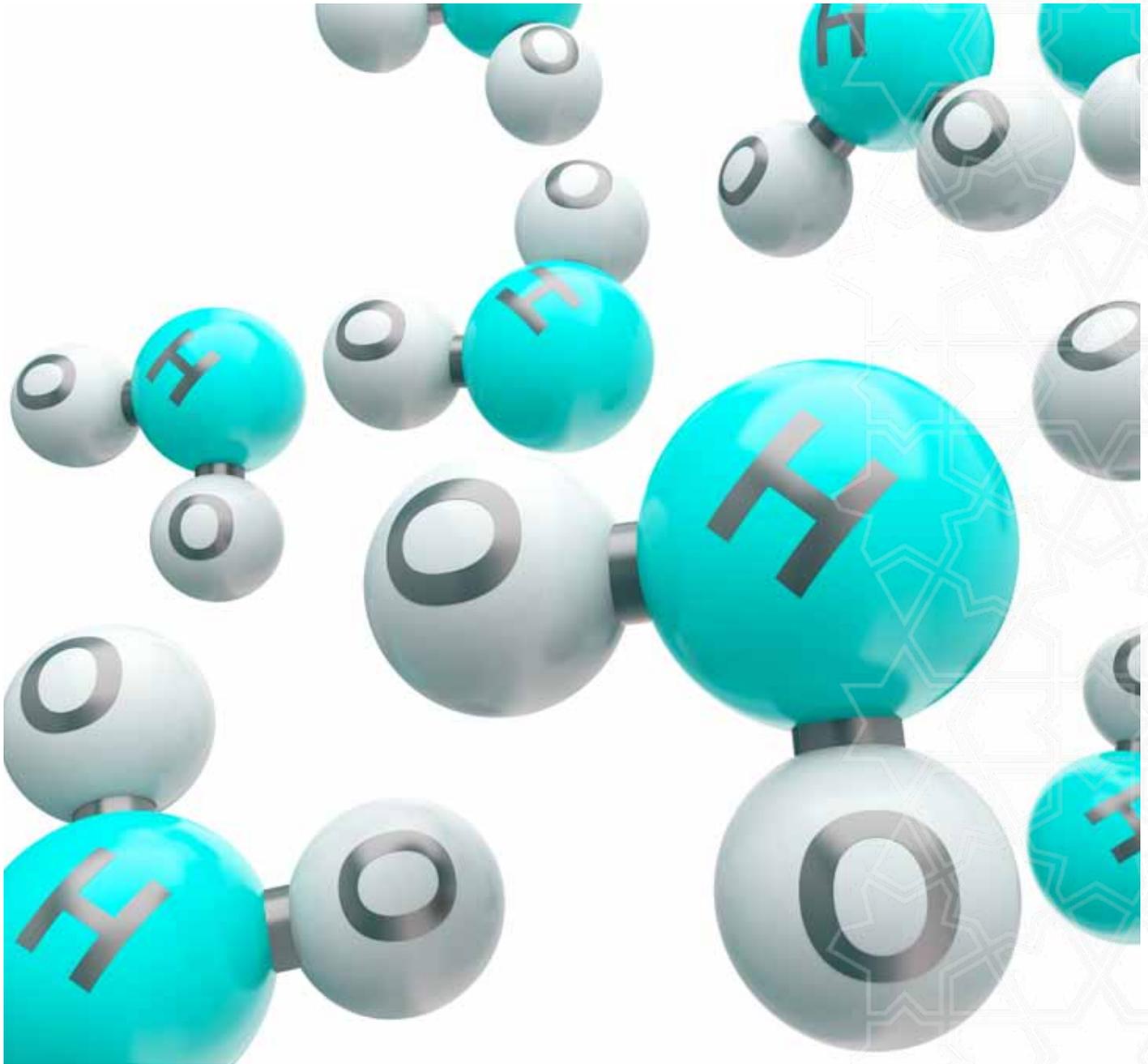
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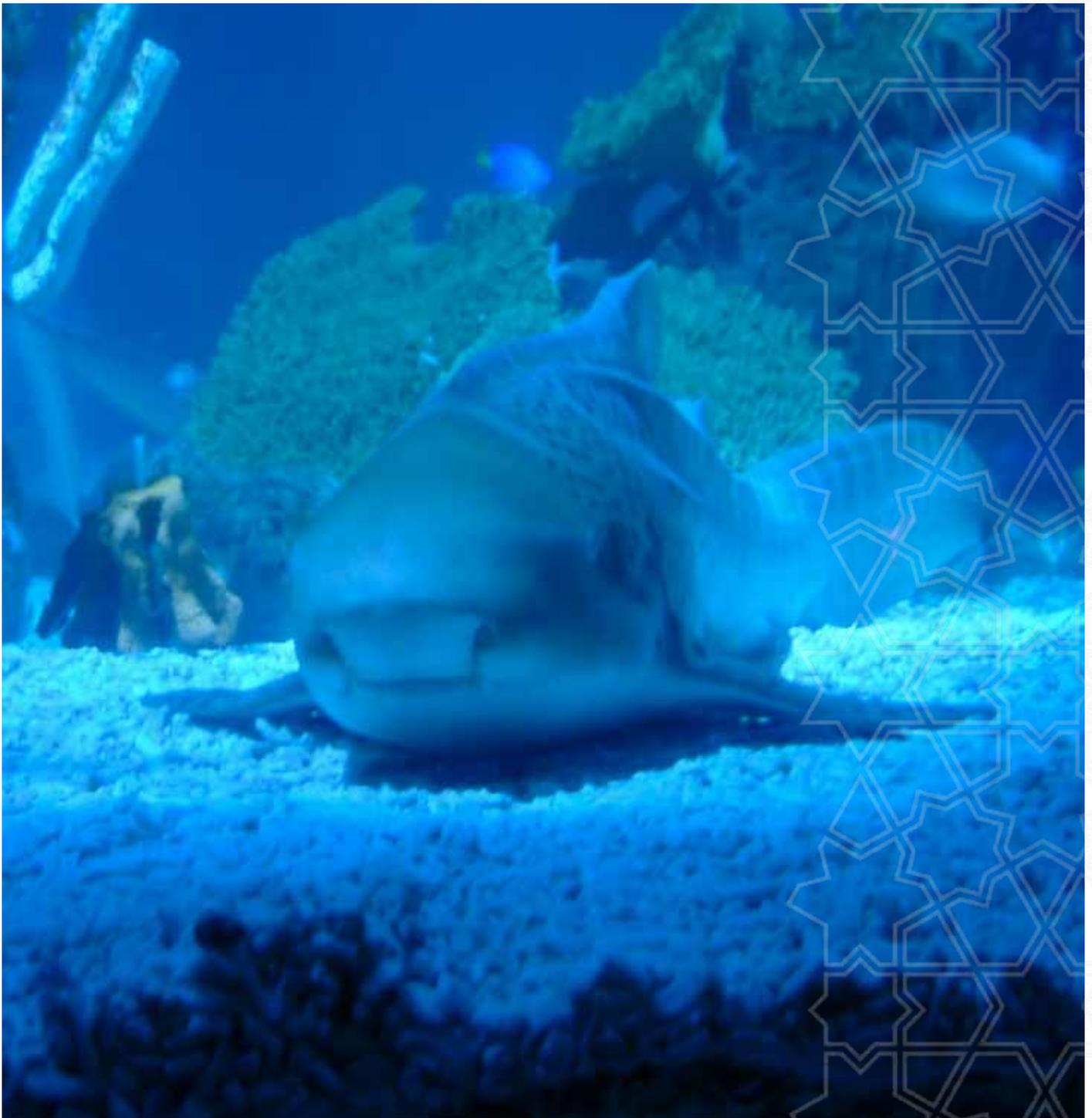
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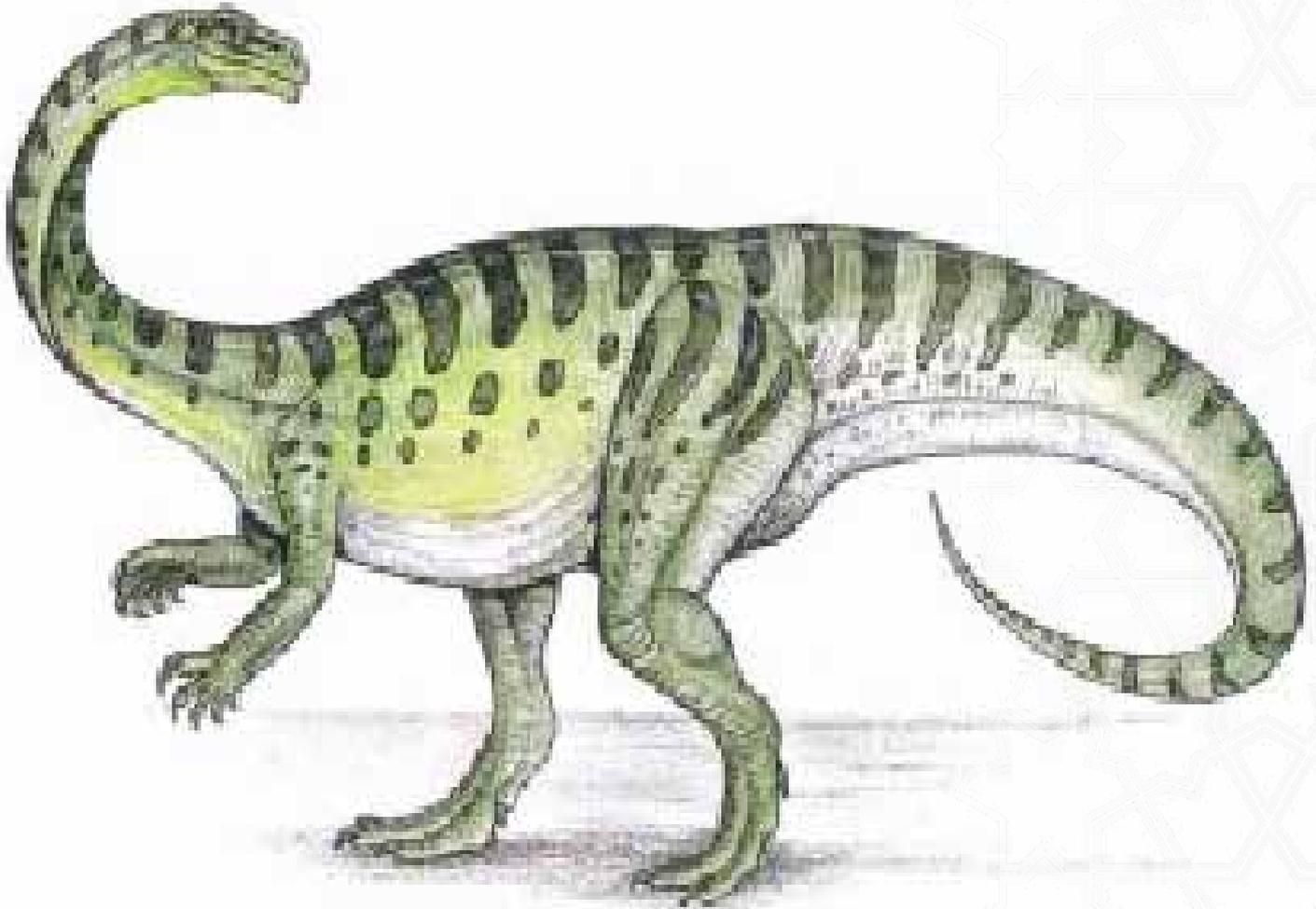
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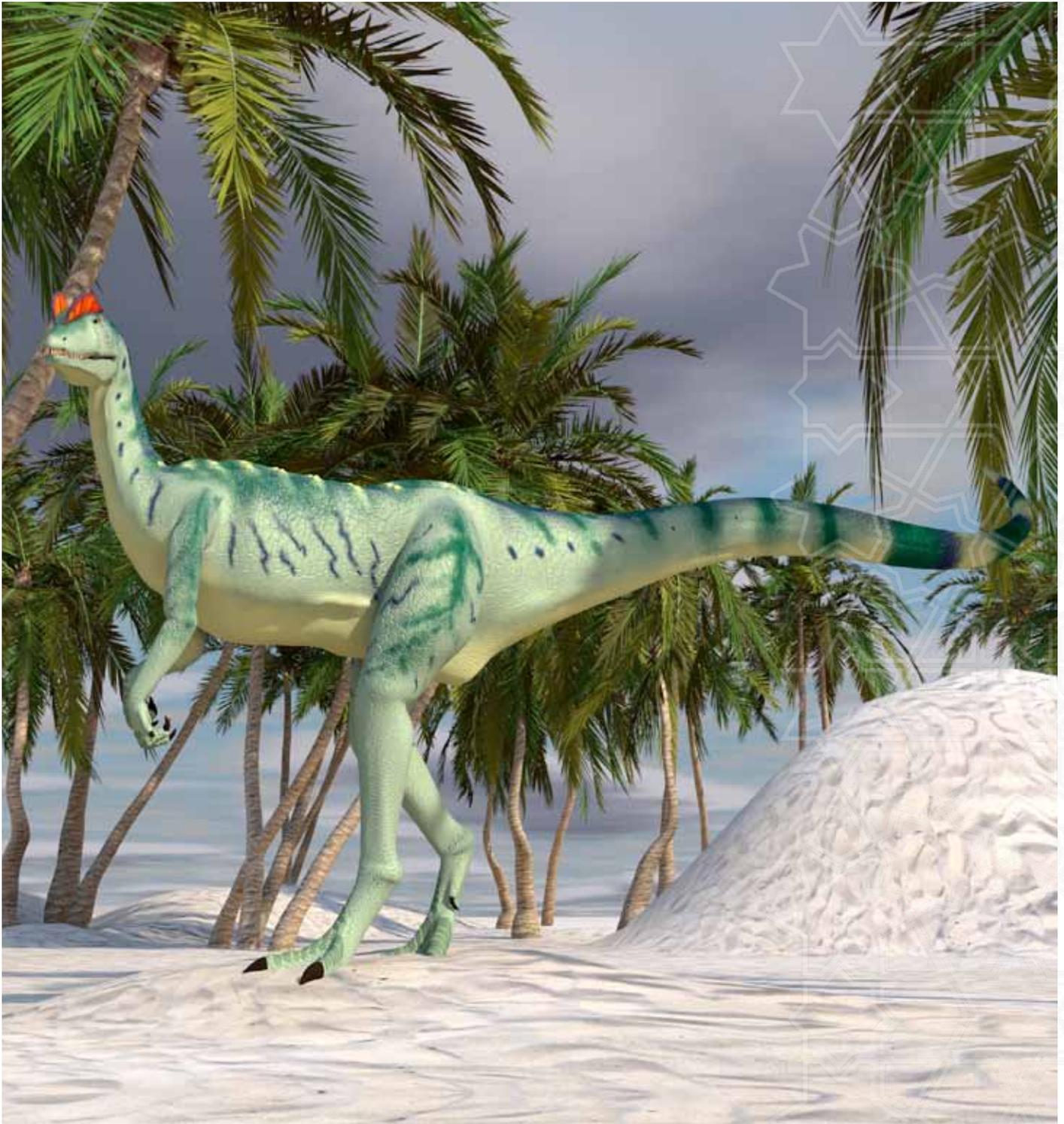
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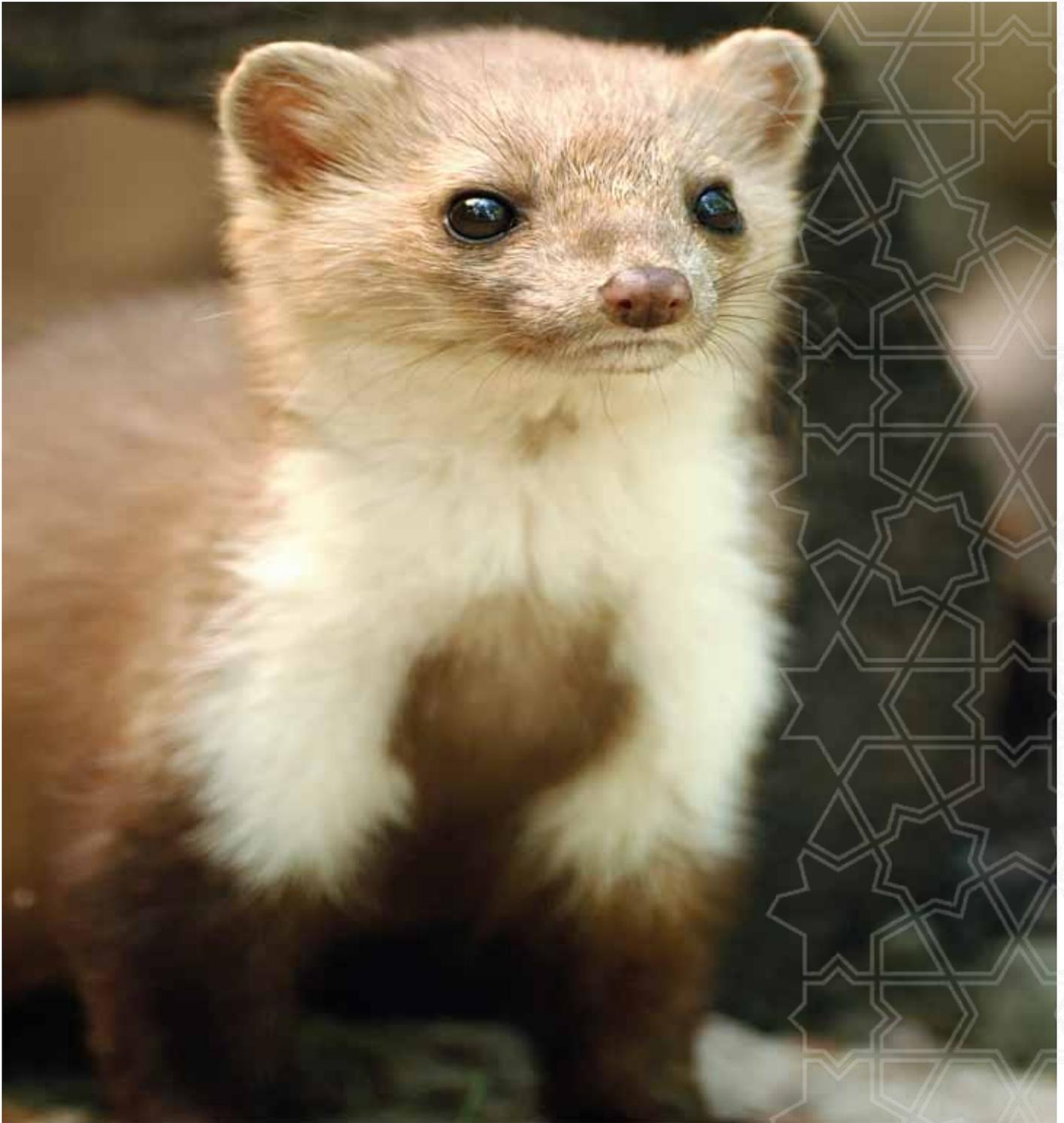
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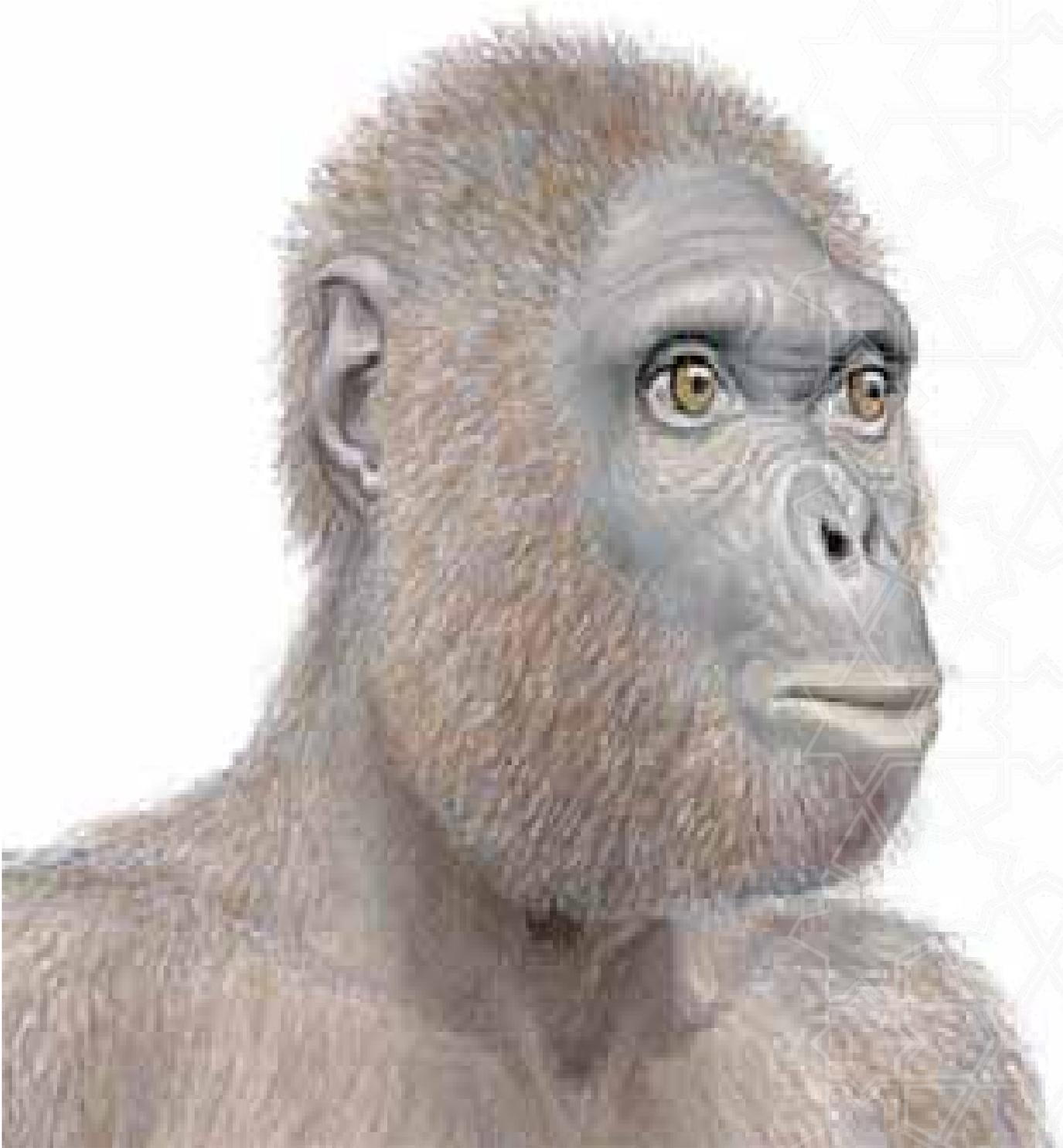
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