ROCKWATCH

GEOLOGICAL TALES

MY FRIEND DISCOVERED A DINOSAUR & NOW IT'S NAMED AFTER HIM!

ROBERT CHANDLER
NATURAL HISTORY MUSEUM
LONDON

NEVER THINK THAT ITS ONLY GEOLOGISTS WHO MAKE IMPORTANT DISCOVERIES

In the 1980s I used to run a geology club in London. One of our pupils was a man named William (Bill) Walker. Bill, his daughter and her husband all enjoyed fossil collecting and were very knowledgeable about fossil sharks teeth.

Bill and family at Westerham

Bill would often go to local sites near London to look for fossils.

Bill visited a quarry near Dorking. He noticed a rugby ball like stone in a gully. Inside was a giant claw. Bill immediately recognised its importance.

Question: What age might fossils you find near London be and what sort of fossils could you find? If you live in other areas. Look up what the rocks in your area are and what you could find there.

The fossil was shown to Bill's son-in-law who instantly said it should be shown to a museum. It was taken to the Natural History Museum in London.

The fossil had to be extracted from the rock and glued back together. This is what Bill had found!

Question: Look up the word palaeontology and make a note of what it means.

You may also wish to look up the sorts of modern tools used to extract and clean fossils.

The picture on the right is the claw after cleaning. The picture on the left is a cast kindly given to me by Bill.

Palaeontologists at the museum were very excited and eager to visit the quarry in case other bones could be found.

The quarry produced special bricks . Digging out the rock happened periodically and luckily the quarry was more or less as Bill had left it. Soon it was found out that most of the animal was encased in large sandstone blocks.

Question: What minerals do we find in sandstone ?
Where is sandstone formed?

Question: Here is a slab of sandstone.
Why do you think it was deposited in water?

Bill's discovery was very important. He had found the almost complete skeleton of a large meat eating dinosaur. Not only that, it was something new. The dinosaur lived about 145 million years ago in the early part of the Cretaceous Period.

This is what Bill had found.

In fact the dinosaur had big feet and the claw is only the base of the toe nail. It could be as much as 30cm with the full toe nail added on.

Look at the semi-circles on your finger nails. That's what the claw is!

The claw is enormous. When palaeontologists first saw it, they thought it must be the biggest meat eating dinosaur ever!

Many of the fossils that we find are shells or single bones.

Question. Why was it so unusual for Bill to find an entire dinosaur? Here's a clue.

This is a *Tyrannosaurus*.

The picture below is a dog attacking the *Tyrannosaurus*.

Two questions. Why would a dog not be able to attack a Tyrannosaurus?

What might happen to pieces of the *Tyrannosaurus* if the dog carries on?

This is what the world probably looked like when Bill's dinosaur lived.

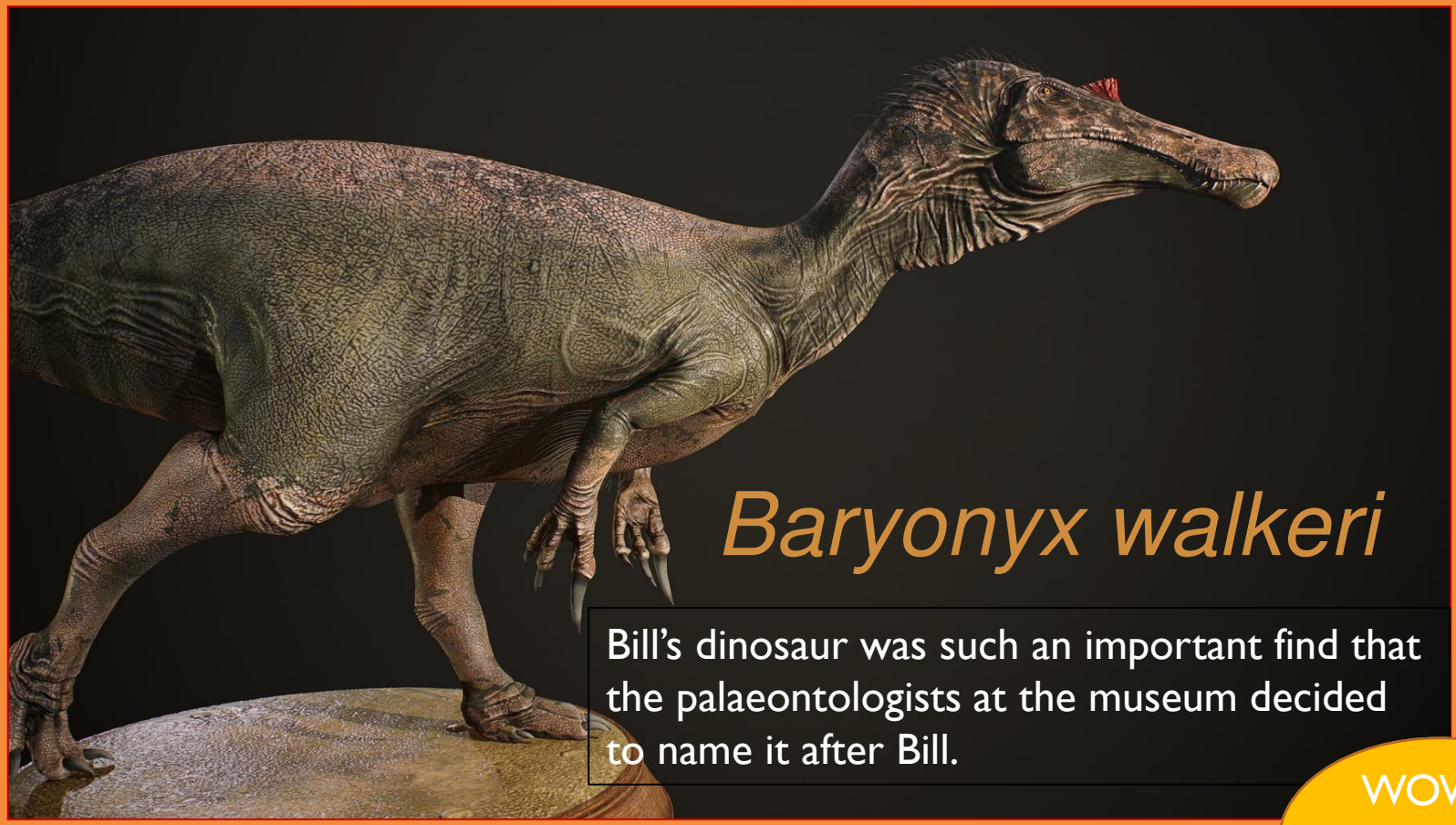
The yellow areas are land.

Bill's dinosaur lived in southern Britain in an area with rivers.

In the same quarry as the one where the dinosaur was found we have also found fossil plants, fresh water fish and insects.

The rocks where the dinosaur was found belong to a formation of beds called the Wealden.

Question. See what you can find out about Wealden Britain.



Baryonyx walkeri

Bill's dinosaur was such an important find that the palaeontologists at the museum decided to name it after Bill.

Baryonyx is the official name of the dinosaur, it means 'heavy claw' *and* *walkeri* is in honour of Bill Walker.

WOW – that's very cool!

ROCKWATCH

BILL WALKER IS NOW IN HIS 90S

It took many years to prepare the bones of Bill's dinosaur. It is now on display in the Natural History Museum

Bill lives in Surrey. He is now over 90 years old. He no longer is able to collect fossils but his name will always be remembered.

ANSWERS TO QUESTIONS

- The London area has rocks that belong to the Mesozoic and Caenozoic eras. The Cretaceous and later rocks are exposed in the home counties. You can look up Chalk, Gault Clay, London Clay, Thanet Beds etc.
- Palaeontology is the study of ancient life.
- Modern fossil preparation is done with air tools including scribes and air abrasive equipment. Model knives (used with supervision) and small chisels are also useful.
- The main mineral in sandstone is called *quartz*. Sandstone laid down in a river often has lots of other rock particles. It is *poorly sorted*. Also the grains may be angular. In sea water sandstone the grains are glassy and round and often of similar size. We call this *maturity* with *well sorted grains*.
- *Sandstone may have ripple marks*. This often indicates deposition in water. We also get ripples in sand dunes, but in deserts the grains are often frosted.
- Animals and plants with lots of parts (bones, leaves etc.) are unlikely to be buried so fast that they remain intact.
- A dog and a *Tyrannosaurus* would never have met. The dinosaurs died out long before dogs (mammals) came into existence.
- If an animal or plant is eaten or partly eaten by something else, parts of it will be missing when we find fossils. Also parts of the organism may be carried away to different places.
- Wealden Britain was mostly land. We were further south than at present. It was swampy in parts with a mountain range to the north of London. Many rolled dinosaur bones are found on the Isle of Wight carried there by rivers. Dinosaurs have also been found around Crawley. In fact if you ever visit Tilgate Park you can see a lake that was once a quarry where the famous dinosaur finder Gideon Mantell collected.

ABOUT THE AUTHOR ROBERT CHANDLER

Robert's interest in fossils started when at 6 years old, he listened to a BBC broadcast called '*How things began.*

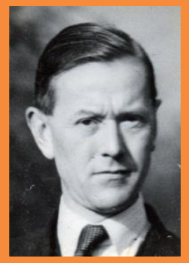
From then, he began to collect ammonites and sharks' teeth with his parents in Folkestone and the Isle of Sheppey in Kent, and in Robert's own words,

> *"spent many days at the Natural History Museum in the holidays, irritating the palaeontology staff who identified fossils for me!"*

Robert says his serious involvement in geology was a matter of luck. It was at the age of 12, that a passionate teacher by the name of John Hanson helped Robert to develop his lifelong interest in geology and to start a school geology club.

In 1967 he organized a club visit to Bridport in Dorset, and after that his interest was firmly set on the Jurassic of that area.

Robert Chandler



J. Hanson, geologist, Spencer Park School, Wandsworth

Chandler & Callomon 2003

Robert still works with the same school friends today.

Another key moment for Robert was he attended a talk in the 1970s given by a chemist named John Callomon, who was an expert on Jurassic ammonites.

Robert and John met and formed a great friendship, which continued until John died in 2010. Although neither of them ever worked as a professional geologist, they were both science teachers. John – a Professor of Chemistry and Robert - Head of Science in a Croydon school. They formed a geology club named the Wessex Cephalopod Club which still lives on today.

Together with others, John and Robert have produced a number of papers on Jurassic ammonites and the rocks of Dorset. Robert is also a fantastic Rockwatch Ambassador and enjoys passing on his passion for geology to young people, as Mr Hanson once did to him.

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