

## READING PASSAGE 1

You should spend about 20 minutes on **Questions 1–13**, which are based on Reading Passage 1 below.

### Footprints in the Mud

*The dinosaurs may have risen to power in as little as 10,000 years.*

Everybody knows that the dinosaurs became extinct as a result of a large asteroid; something big hit the Earth 65 million years ago and, when the dust had fallen, so had the great reptiles. There is thus a nice, if ironic, symmetry in the idea that a similar impact brought about the dinosaurs' rise. That is the thesis proposed by Paul Olsen of Columbia University.

Dinosaurs first appear in the fossil record 230 million years ago, during the Triassic period. But they were mostly small, and they shared the Earth with lots of other sorts of reptile. It was in the subsequent Jurassic period, which began 202 million years ago, that they overran the planet and turned into the monsters realistically depicted in modern books and movies. Dr Olsen and his colleagues are not the first to suggest that the dinosaurs inherited the Earth as the result of an asteroid strike. But they are the first to show that the takeover did, indeed, happen in a geological eye-blink.

Dinosaur skeletons are rare. Dinosaur footprints are, however, surprisingly abundant. And the size of the prints is as good an indication of the size of the beasts as are the skeletons themselves. Dr Olsen and his colleagues therefore concentrated on prints, not bones. The prints in question were made in Eastern North America, a part of the world then full of rift valleys similar to those in East Africa today. Like the modern African rift valleys, the Triassic/Jurassic American ones contained lakes, and these lakes grew and shrank at regular intervals because of climatic changes. Rocks from this place and period can be dated to within a few thousand years. As a bonus, squishy lake-edge sediments are just the things for recording the tracks of passing animals.

By dividing the labour between them, the research team were able to study such tracks at 80 sites and look at 18 so-called 'ichnotaxa'. These are recognisable types of footprint that cannot be matched precisely within the species of animal that left them. But they can be matched with a general sort of animal, and thus act as an indicator of the fate of that group, even when there are no bones to tell the story.

Their findings show that five of the ichnotaxa disappear before the end of the Triassic, and four march confidently across the boundary into the Jurassic. Six, however, vanish at the boundary, or only just splutter across it; and three appear from nowhere, almost as soon as the Jurassic begins. That boundary itself is suggestive. The first geological indication of the impact that killed the dinosaurs was an unusually high level of iridium in rocks at the end of the Cretaceous period, when the beasts disappear from the fossil record. Iridium is normally rare at the Earth's surface, but it is more abundant in meteorites. When people began to believe the impact theory, they started looking for other Cretaceous-end anomalies. One that turned up was a surprising abundance of fern spores in rocks just above the boundary layer – a phenomenon known as the 'fern spike'.

That matched the theory nicely. Many modern ferns are opportunists. They cannot compete against plants with leaves, but if a piece of land is cleared by, say, a volcanic eruption, they are often the first things to set up shop there. An asteroid strike would have scoured much of the Earth of its vegetable cover, and provided a paradise for ferns. A fern spike in the rocks is thus a good indication that something terrible has happened.

The surprises are how rapidly the new ichnotaxa appeared and how quickly they increased in size. Dr Olsen and his colleagues suggest that the explanation for this may be a phenomenon called ecological release. This is seen today when reptiles (which in **modern** times tend to be small creatures) reach islands where they face no competitors. The most spectacular example is on the Indonesian island of Komodo, where local lizards have grown so large that they are often referred to as dragons. The dinosaurs, in other words, could flourish only when the competition had been knocked out.

That leaves the question of where the impact happened. No large hole in the Earth's crust seems to be 202 million years old. It may, of course, have been overlooked. Old craters are eroded and buried, and not always easy to find. Alternatively, it may have vanished. Although continental crust is more or less permanent, the ocean floor is constantly recycled by the tectonic processes that bring about continental drift. There is no ocean floor left that is more than 200 million years old, so a crater that formed in the ocean would have been swallowed up by now.

There is a third possibility, however. This is that the crater is known, but has been misdated. The Manicouagan 'structure', a crater in Quebec, is thought to be 214 million years old. It is huge – some 100 kilometres across – and seems to be the largest of between three and five craters that formed within a few hours of each other as the lumps of disintegrated comet hit the Earth one by one. Such an impact would surely have had a perceptible effect on the world, but the rocks from 214 million years ago do not record one. It is possible, therefore, that Manicouagan has been misdated. That will be the next thing to check.

Questions 1–6

Do the following statements agree with the information in Reading Passage 1?

In boxes 1–6 on your answer sheet, write:

<b>TRUE</b>	<i>if the statement agrees with the information</i>
<b>FALSE</b>	<i>if the statement contradicts the information</i>
<b>NOT GIVEN</b>	<i>if there is no information about this</i>

- 1 There is still doubt about the theory that an asteroid strike killed the dinosaurs.
- 2 Books and the cinema have exaggerated the size of dinosaurs.
- 3 Other scientists have rejected Olsen's idea of a sudden dinosaur occupation of the Earth.
- 4 Dinosaur footprints are found more frequently than dinosaur skeletons.
- 5 Ichnotaxa offer an exact identification of a dinosaur species.
- 6 There is evidence that some groups of dinosaurs survived from the Triassic period into the Jurassic period.

Questions 7–13

Complete the summary below.

Choose **NO MORE THAN THREE WORDS** from the passage for each answer.

Write your answers in boxes 7–13 on your answer sheet.

Dr Olsen's group believe that the sudden increase in the size of dinosaurs may have been due to something known as **7** \_\_\_\_\_. A current example of this can be found on Komodo Island in Indonesia, where some of the lizards are commonly called **8** \_\_\_\_\_ because of their size. Apparently, they have grown this big because they do not have any **9** \_\_\_\_\_. The asteroid strike that may have cleared the way for dinosaurs to become the dominant group probably occurred 202 million years ago.

According to the writer, there are three possible reasons why we have not found a large hole in the Earth's crust dating back 202 million years. First, it may have been **10** \_\_\_\_\_ by scientists, because craters are easily covered up. Or, it could have **11** \_\_\_\_\_; for example, if the hole had been in the ocean, it would no longer exist because of the **12** \_\_\_\_\_ that produce continental drift. Thirdly, the hole could still exist but have been **13** \_\_\_\_\_.

判断题 (1–6)

题号	答案	精确定位句 (原文)	段落	解释
1	NO	“Everybody knows that the dinosaurs became extinct as a result of a large asteroid; something big hit the Earth 65 million years ago ...”	第 1 段	原文把小行星致灭绝当作“众所周知”的事实，并未说“仍有怀疑”，所以与题干相反。
2	NO	“...turned into the monsters <b>realistically depicted</b> in modern books and movies.”	第 2 段	文字说明书籍和电影是“写实地描绘 (realistically)”，并非“夸大”，与题干矛盾。
3	NOT GIVEN	“Dr Olsen and his colleagues are <b>not the first</b> to suggest that the dinosaurs inherited the Earth as the result of an asteroid strike. But they are the first to show that the takeover ... happened in a geological eye-blink.”	第 2 段	文中只说奥尔森并非第一个提出“撞击导致统治”的人，并说他是第一个证明“发生得很快”的人；没有信息显示“其他科学家否定/拒绝他‘迅速占据地球’的观点”。故 NG。
4	YES	“Dinosaur <b>skeletons are rare</b> . Dinosaur <b>footprints are, however, surprisingly abundant</b> .”	第 3 段	明确对比：骨架稀少、足迹丰富，题干为真。
5	NO	“These [ichnotaxa] ... <b>cannot be matched precisely within the species</b> of animal that left them.”	第 4 段	明说不能精确到“物种”层级，题干“提供精确鉴定”与原文相反。
6	YES	“...five of the ichnotaxa disappear before the end of the Triassic, and <b>four march confidently across the boundary into the Jurassic</b> .”	第 5 段	有“四类足迹跨越边界进入侏罗纪”，证明有些类群从三叠纪延续到侏罗纪。

概要填空 (7–13)

空格	答案 (≤3 词)	精确定位句 (原文)	段落	解释
7	ecological release	“the explanation ... may be a phenomenon called <b>ecological release</b> .”	第 7 段	直接给出术语，解释体型骤增的原因。
8	dragons	“...Komodo, where local lizards have grown so large that they are often referred to as <b>dragons</b> .”	第 7 段	科莫多岛巨蜥“常被称为 dragons”。
9	competitors	“...reach islands where they face <b>no competitors</b> .”	第 7 段	由于缺乏竞争者而长得更大。
10	overlooked	“It may, of course, have been <b>overlooked</b> . Old craters are eroded and buried ...”	第 8 段	第一种原因：可能被忽略。
11	vanished	“Alternatively, it may have <b>vanished</b> .”	第 8 段	第二种原因：可能已经消失。
12	tectonic processes	“...the ocean floor is constantly recycled by the <b>tectonic processes</b> that bring about continental drift.”	第 8 段	海底被板块构造过程不断回收，故海洋中的陨石坑会不复存在。
13	misdated	“...the crater is known, but has been <b>misdated</b> .”	第 9 段	第三种原因：坑存在但被误定年代。