

The Lump That Was a Machine

PASSAGE · NON-FICTION

SKILLS TRAINED

Working memory

Delayed recall

Inference

HOW TO USE THIS SHEET

About 18 minutes

- 1 Read the passage twice, slowly. Take about five minutes.
- 2 Turn to the next page and cover this one. No looking back.
- 3 Write what you remember, then mark it on the last page.

In the spring of 1900 a boat of sponge divers from the island of Symi was driven off course by bad weather. They sheltered beside Antikythera, a small island between Crete and the Greek mainland, and went down to see what the seabed offered. At about forty-five metres one of them surfaced in a hurry with a strange report: the bottom was covered in arms and legs.

He was right, and he was wrong. The limbs were bronze and marble. The divers had landed on a Roman cargo ship that had gone down there some two thousand years earlier, loaded with statues, glassware and furniture bound for Italy. Over the following months they hauled up crate after crate for the museum in Athens.

Among the haul was a shapeless lump of corroded bronze and rotten wood, roughly the size of a large book. It sat in a store room for months. As it dried it cracked apart, and inside were gear wheels — dozens of them, cut by hand, with teeth the size of a grain of rice.

Nothing in the ancient world was supposed to look like that. Gearing that fine does not appear again anywhere in the record for well over a thousand years.

Eighty-two fragments survive. The largest holds about thirty gears, seized together in a stack. For most of the twentieth century nobody could see inside it, because prising the lump apart would have destroyed it. Then, in 2005, a scanner the size of a lorry was driven to Athens and the fragments were X-rayed slice by slice, the way a hospital scans a head.

The scans found writing. Thousands of tiny Greek characters, many of them buried behind layers of bronze, naming months and stars and planets. The same scans let researchers count the teeth on gears that no living person had ever seen whole.

What emerged was a calendar machine. Turn the handle on its side, and pointers crept around dials on the front and the back: the place of the sun in the sky, the place of the

moon, the phase of the moon shown by a little ball painted half black and half silver, the likely dates of eclipses, and the four-year cycle of the Greek games, Olympia among them.

One gear carries 223 teeth. That is not a decorative number. Astronomers in Babylon had worked out, centuries before, that eclipses repeat on a cycle of 223 months — and somebody had translated that discovery into bronze.

The object is called the Antikythera mechanism, and it is often called the oldest known computer, which is almost fair. It solved no new problems. It simply carried the sky in its gears. It sits today in the National Archaeological Museum in Athens, in pieces, in a glass case. Nobody knows who built it, and no second one has ever been found.

Cover the passage before you start.

Looking back turns this into a copying exercise. Getting it slightly wrong from memory is what makes it work.

PART A Tell it back

Write down everything you can remember about the Antikythera mechanism — how it was found, what was inside it, and what it could do. Order does not matter. Keep writing until you run out.

PART B 6 questions

- 1 At roughly what depth were the sponge divers working, and what had they actually found on the seabed?

- 2 Name three different things the pointers on the mechanism could show.

- 3 Why did the gear wheels inside the lump puzzle people so much?

- 4 Why was scanning the fragments the only sensible way to study them?

- 5 The writer says calling it the oldest known computer is “almost fair”. What is meant by “almost”, and what did the machine do instead?

- 6 The writer tells us one gear has 223 teeth, and that Babylonian astronomers knew eclipses repeat every 223 months. Why include both facts together?

PART C Mark your own work

Now go back to the passage. Tick every answer you got right. You do not need the same words as the answer below — if you wrote the same idea in your own words, it counts.

- ☐ 1 · About forty-five metres down. They had found a Roman cargo ship that sank around two thousand years earlier, loaded with bronze and marble statues and other goods bound for Italy.
- ☐ 2 · Any three of: the position of the sun, the position of the moon, the phase of the moon (a half-black, half-silver ball), the likely dates of eclipses, the four-year cycle of the Greek games.
- ☐ 3 · Nothing else from the ancient world had gearing anywhere near that fine, and nothing like it appears again for over a thousand years. It did not fit what people believed ancient workshops could do.
- ☐ 4 · The gears were fused into a corroded stack, and taking it apart would have wrecked it. Scanning let researchers read the hidden writing and count teeth without touching the inside at all.
- ☐ 5 · “Almost” means nearly but not quite right. It did not work anything out for itself or solve new problems — the answers were already built into the sizes of its gears, so it displayed the sky rather than calculating it.
- ☐ 6 · To show the number is not a coincidence or a guess. It proves the maker knew the real eclipse cycle and had turned somebody else's astronomy into metal, which is more impressive than fine gear-cutting on its own.

FACTS RECALLED IN PART A

—

QUESTIONS CORRECT

— / 6

DATE

THE STRATEGY Predict the questions

Before you turn the page, stop and ask yourself what you would be asked about if you had written this. Pick two things — a number, a sequence, an odd detail — and turn each into a question in your head. Guessing what matters forces you to decide what matters, and the fact you questioned is the fact you keep.

WHERE YOU ALREADY DO THIS

Think of the last time you watched a film with someone who had already seen it. What sort of things did they ask you afterwards, and how did you know those were coming?

FOR THE PARENT OR TEACHER · This sheet trains delayed recall, not reading speed. Let your child read the passage once, then cover it completely before Part A — no glancing back, and no prompting, because the struggle to haul a half-remembered fact out of memory is what fixes it there. At this level, reward the reasoning in the inference and purpose answers rather than the exact wording.