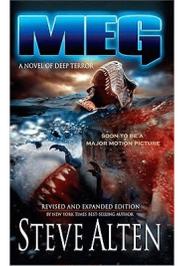


MEG: A Novel of Deep Terror PREP TESTS for State Boards



The following has been developed for teachers utilizing MEG; A Novel of Deep Terror as part of their classroom curriculum.

Alten novels have a natural progression in reading levels MEG is suitable for grades 8-12. **The TRENCH** (part 2 of Meg series) is the next step up and works well as extra credit after the unit to keep students' interests burning. For more advanced readers and grades 11-12, I suggest using **DOMAIN** or **GOLIATH**.

The purpose of these PREP TESTS:

1. Help students improve reading comprehension using passages of a novel they are familiar with and interested in.
2. Help students develop their writing skills.
3. Serve as a useful tool in prepping students to take State Assessment Tests, familiarizing them with format.

Suggestions for Use:

FIVE (edited) chapters from MEG have been included, organized in the order they appear in the story. This allows teachers to sporadically test students while they are reading the novel. These chapters include:

The PROFESSOR.	page 6
SAIPAN.	page 151
ATTACK.	page 185
JAWS, MAUI.	page 203
HELL.	page 341

Note: The page numbers and following chapters relate to the revised paperback version of MEG that was released in 2005 and 2008.

Answer Keys:

Because students also have access to this website, ANSWER KEYS will be provided ONLY to registered Adopt-An-Author teachers. To receive your answer key, e-mail Steve Alten at Meg82159@aol.com

My goal is to continue to assist teachers while encouraging students to read. I invite and encourage your feedback and suggestions. I also encourage you to spread the word about the program and novels among your fellow teachers.

–Steve Alten, Ed. D.



In this chapter, we meet Professor Jonas Taylor, a former Navy deep-sea submersible pilot.

THE PROFESSOR

November 8, 5:42 p.m.
The Scripps Institute, Anderson Auditorium
La Jolla, California

“IT WAS THE ANCIENT PREDECESSOR of our modern-day great white shark, only it was fifty to seventy-five feet in length, weighing close to seventy thousand pounds. Can you visualize that?”

Professor Jonas Taylor looked at his audience of just over six hundred and paused for effect. “I find it hard to imagine myself sometimes, but we know for a fact this incredible monster did exist. Its head alone was probably as large as a Dodge Ram pickup. Its jaws could have engulfed and swallowed a dozen grown men whole. And I haven’t even mentioned the teeth: razor-sharp, seven to eight inches long, each possessing the serrated edges of a stainless-steel steak knife.”

The thirty-nine-year-old paleontologist knew he had his audience’s attention, despite the fact that it had been years since his last public speaking engagement. Lecturing in front of a nearly-sold-out crowd was not something Jonas had anticipated. He knew his theories were controversial, that there were as many critics in the audience as there were supporters. Still . . . just to be heard, to feel important again . . .

He loosened his collar and took a slow, deep breath, forcing himself to relax.

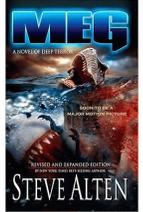
“Next slide, please? Ah, here we have an artist’s rendition of a six-foot diver as compared with a sixteen-foot great white and our sixty-foot Megalodon. I think this gives you a fairly good idea why scientists refer to

the species as the king of all predators.”

Jonas reached for his bottle of water and took a sip. “Fossilized Megalodon teeth found around the world tell us the species dominated the oceans for tens of millions of years, perhaps even longer. Who knows how old unfound Meg teeth buried in the depths might be? The big question is—why did the species die off at all? We know sharks survived the cataclysmic events that occurred about sixty-five and forty-five million years ago, events that wiped out most land animals and prehistoric species of fish. We know Megalodon’s major food source—whales— were still quite abundant. In fact, we have Megalodon teeth that date back only a hundred thousand years. From a geological perspective, that’s a tick of the clock, one that indicates our two species no doubt shared the planet at the same time, Homo sapiens dominating the land, Megalodon the sea. So what happened?”

Jonas paused for effect, casually shuffling his cheat sheets on the wooden podium. “There it is, people, one of the great mysteries of the paleo-world. Of course, theories abound. Some so-called experts believe the staple of Megalodon’s diet had once been large, slow-moving fish and that the sharks couldn’t adapt to the smaller, swifter species that exist today. Another theory is that falling ocean temperatures contributed to the creatures’ demise.”

An elderly man raised his hand emphatically from his seat in the first row, obviously wanting



Page 3

to be heard. Jonas recognized him, a former colleague at Scripps. A former critic.

“Professor Taylor, I think we’d like to hear your theory as to the disappearance of *Carcharodon megalodon*.”

Murmurs of approval followed. Jonas loosened his collar a bit more. He rarely wore suits, and this eighteen-year-old wool itched like hell.

“Those of you who know me or follow my work are aware of how my opinions often differ from those of most paleobiologists. Many in my field spend a great deal of time theorizing why a particular species no longer exists. I prefer to focus my energies on how a seemingly-extinct species might still exist.”

The elderly professor stood, readying his verbal assault. “Sir, are you saying you think *Carcharodon megalodon* may still be roaming the oceans?”

Jonas waited for quiet. “Not necessarily, Professor, I’m simply pointing out that, as scientists, we tend to take a rather short-sighted ‘if we haven’t seen it, it doesn’t exist anymore’ approach when it comes to declaring marine animals extinct. For instance, it wasn’t long ago that scientists unanimously believed the coelacanth, a species of lobe-finned fish that thrived three hundred million years ago, had gone extinct over the last seventy million years. That so-called fact held up until 1938, when a fisherman hauled a living coelacanth out of the deep ocean waters off South Africa. Now scientists routinely observe these ‘living fossils’ in their natural habitat.”

The elderly professor stood up again amid murmurs from the crowd. “Professor Taylor, we’re all familiar with the discovery of the coelacanth, but there’s a big difference between a five-foot bottom feeder and a sixty-foot predator!”

Jonas checked his watch, realizing he was running behind schedule. “Yes, I agree. My

point was simply that I prefer to investigate the possibilities of a species’ survival rather than to add to the unproven conjecture regarding extinction among marine dwellers. Somehow, the scientific world has taken an ‘it’s dead until it shows itself’ approach, and that simply doesn’t work when it comes to fish.”

“Then again, sir, I ask for your opinion regarding Megalodon.”

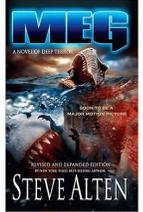
More murmurs.

Jonas wiped his brow; Maggie was going to kill him. “Okay, here it is: First, I disagree entirely with the theory regarding Megalodon being unable to catch quicker prey. We’ve learned the conical tail fin of the great white, the modern-day cousin of the Megalodon, is the most efficient design for propelling a body through water. As I’ve already stated, we know Megs existed as recently as a hundred thousand years ago. Then, as now, the predator would have had an abundant supply of slower-moving whales to feed upon.

“I do, however, agree that diminishing ocean temperatures would have affected these creatures, specifically their young, which would be more vulnerable to colder water. May I have the next slide, please? Sorry, one more.”

A slide showing a series of the changing planet over a three-hundred-million-year period appeared on the screen above his head.

“As we can see, Earth’s continental masses have shifted considerably over time.” Jonas pointed to the center diagram. “This is how our planet looked about forty million years ago, during the Eocene. As we can see, the landmass that would become Antarctica separated from South America at about this time and drifted over the South Pole. When the continents shifted, they disrupted the transport of poleward oceanic heat, essentially replacing the heat-retaining water with heat-losing land. As the cooling progressed, the land accumulated snow and ice, which further



Page 4

lowered global temperatures and sea levels. As many of you know, the most important factor controlling the geographical distribution of a marine species is ocean temperature.

“Now, as the water temperatures dropped, the warmer tropical currents became top-heavy with salt and began running much deeper. Unlike air, salinity determines which currents run deeper, not temperature. In this example, the ocean temperatures were cooler along the shallower surface waters, with a tropical current, laden with salt, running much deeper.

“Based on the locations of fossilized Megalodon teeth found in the rivers off South Carolina and other locations around the world, we know the sharks frequented shorelines, a fact most likely due to pregnant whales’ preference for birthing their young in shallow lagoons. That’s not to say the Megs didn’t hunt in the open oceans. It simply means we have a tendency to draw conclusions based upon the monsters’ behavior in the shallows.

“Now, about two million years ago, our planet’s inhabitants had to deal with the effects of Earth’s last major ice age. As you can see from this diagram, the deeper tropical currents that had provided a refuge for many marine species were suddenly cut off. As a result, a host of prehistoric fish, including generations of Megalodon young, died off in great numbers, unable to adapt to the extreme drops in oceanic temperatures.”

The elderly professor called out from his seat. “So then, Taylor, you do believe that Megalodon became extinct as a result of climatic changes.” The older man smiled, satisfied with himself.

“A decimated population doesn’t necessarily equate to extinction. Remember, I said I prefer to theorize on how a species might still exist. About fifteen years ago, I was part of a scientific team that first studied

deep-sea trenches. Deep-sea trenches form the hadal zone, an area of the Pacific Ocean about which scientists know virtually nothing. Deep-sea trenches form along the boundaries of two oceanic plates, where one plate melts back or subducts into the earth. Prior to 1977, scientists believed the abyss was actually barren; after all, how could life exist without light or photosynthesis? When we actually bothered to take a look, we discovered hydrothermal vents—miniature volcanoes of life-giving chemicals-spewing mineral-rich waters at temperatures that often exceeded seven hundred degrees Fahrenheit. At some point, these minerals level off about a half-mile or so above the sea floor, creating a layer of insulation that keeps in the heat, forming what we now call a hydrothermal plume. In essence, you have an anomaly of nature, a tropical current of water—an oasis of life, if you will—running along the very bottom of the ocean in complete darkness. And these hydrothermal vents don’t just spew hot water and minerals, they support life forms never before imagined . . . life forms whose food chain relies on chemosynthesis—chemicals in the water.”

A middle-aged woman stood and asked excitedly, “Did you discover a Megalodon down there?”

Jonas forced a smile while he waited for the crowd’s laughter to subside. “No, ma’am. “But I’ll show you something that was discovered in the abyss over one hundred years ago which might be of interest.” Jonas pulled out a glass case, roughly twice the size of a shoe box, from a shelf beneath the podium. “This is a fossilized tooth of *Carcharodon megalodon*. Scuba divers and beach-combers have turned up fossilized teeth like this by the thousands. Some are tens of millions of years old. This particular specimen is special because it’s not very old. It was recovered in 1873 by the world’s first true



Page 5

oceanic exploration vessel, the British HMS *Challenger*. Can you see these manganese nodules?” Jonas pointed to the black encrustations on the tooth. “Recent analysis of these manganese layers indicated the tooth’s owner had been alive during the late Pleistocene or early Holocene period. In other words, this tooth is a mere ten thousand years old, and it was dredged from the deepest point on our planet, the Mariana Trench’s Challenger Deep.”

The crowd erupted.

“Professor! Professor Taylor!” All eyes turned to an Asian-American woman standing in the back of the auditorium. Jonas stared at her, caught off guard by her beauty. Somehow she looked familiar.

“Yes, go ahead,” said Jonas, motioning for the audience to be quiet.

“Professor, are you saying that Megalodon may still exist in the depths of the Mariana Trench?” Silence took the room. It was the question the audience wanted answered.

“Theoretically, if members of the Megalodon species inhabited the waters of the Mariana Trench two million years ago, waters that maintain deep tropical plumes created and nourished by hydrothermal vents, then it’s not beyond the realm of possibility that a branch of the species might have survived. The existence of this ten-thousand-year-old fossil certainly justifies the possibilities.”

“What nonsense!” Mike “the Turk” Turzman, a popular local radio talk show host specializing in cryozoology stood in the aisle, shaking his head. “There are no hydrothermal vents in the Mariana Trench. None!”

Jonas shook his head. He had heard excerpts of the Turk’s recent interview with Richard Ellis, a painter and self-proclaimed expert on all things nautical who had lambasted Taylor’s research. “Just for the record, Mr. Turzman, in 2003, the Ocean Exploration Ring of Fire Expedition surveyed more than fifty

volcanoes along the Mariana Arc. Ten of these volcanoes had active hydrothermal systems. A follow-up expedition a year later found these hydrothermal systems were quite different from those found along the mid-Atlantic Ocean ridges, harboring all sorts of exotic life forms. So maybe the next time one of your guests decides to publicly critique my research over the airwaves, you’ll do some fact checking of your own!”

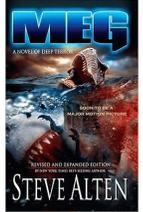
A smattering of applause escorted “the Turk” back to his seat.

“Professor!” A middle-aged man with a young son sitting next to him raised his hand. “If these monsters still exist today, why haven’t we seen them?”

“A good question,” Jonas said, pausing as a beautiful blond woman, tan and in her early thirties, strutted down the center aisle. Her classic topaz evening gown hugged a flawless figure, exposing long, athletic legs. Her male escort trailed behind, also in his thirties, his long dark hair slicked back into a tight ponytail, which contrasted with his tuxedo. The pair took the two empty seats reserved in the front row.

Jonas composed himself, waiting for his wife and friend to be seated.

“Sorry. You asked why we haven’t actually seen a Megalodon, assuming members of the species still exist. First, sharks that inhabit the mid-waters and deepest realms of the ocean have no physical need to surface and flash us a telltale dorsal fin. Second, assuming a population of Megalodon did inhabit the waters of the Mariana Trench, it would have to be hard pressed to abandon that tropical bottom layer and its only known food source. The Challenger Deep is seven miles down. The water temperature above the warm layer is near freezing. The Meg might venture into that cold layer, ascending a mile or so at the most, but at some point, it would head back down to the warm layer again.



“Last, sharks are the one species that don’t cooperate when it comes to leaving behind evidence they existed, especially those inhabiting the abyss. Unlike mammals, sharks do not float to the surface when they die, as their bodies are inherently heavier than seawater and contain no air sacs. Their skeletons are composed entirely of cartilage, so unlike dinosaurs and many species of bony fishes, there are no Megalodon bones to leave behind, only their gruesome, fossilized teeth.”

Jonas caught Maggie’s eye, her expression burning into his skull. “One . . . uh, other thing about the Mariana Trench. Man has only ventured down to the bottom twice, both expeditions occurring in 1960 and both times in bathyscaphes, essentially steel balls, hardly useful for exploration. In other words, we simply went straight down and back up again. The reality is, we’ve never come close to exploring the trench. In fact, we know more about distant galaxies than we do a 1,550-mile-long, 40-mile-wide isolated section of the Pacific Ocean, seven miles down.”

Jonas looked at Maggie and shrugged. She stood, pointing to her watch.

“You’ll have to excuse me, ladies and gentlemen. This lecture has lasted a bit longer than expected and I’m due—”

“Excuse me, Taylor, one important question.” It was the Asian woman again. She seemed perturbed. “Before you began studying these Megalodons, your career was focused entirely on piloting deep-sea submersibles. I’d like to know why, at the peak of your career, you suddenly quit.”

Jonas was taken back by the directness of the question. “First I didn’t quit, I retired. Second, my reasons are my own. Next question?” He searched the audience for another raised hand.

“Pretty young to retire, weren’t you?” She was standing now, approaching from the

center aisle. “Or maybe it was something else? You haven’t been in a submersible for what? Seven years? Did you lose your nerve, Professor? Inquiring minds want to know.”

The audience chuckled. No one was leaving, this was getting good.

Jonas felt trickles of sweat drip from his armpits. “What’s your name, miss?”

“Tanaka. Terry Tanaka. I believe you know my father, Masao, CEO of the Tanaka Oceanographic Institute.”

“Tanaka, of course. In fact, I think you and I met several years ago on a lecture circuit.”

“That’s right.”

“Well, Terry Tanaka, since your inquiring mind insists on violating my privacy, let’s just say, after a dozen years with the Navy, I felt it was time to stop risking my life piloting deep-sea submersibles and join the academic circuit, researching prehistoric species like the Megalodon.” Jonas collected his notes. “Now, if there are no other questions . . .”

“Dr. Taylor!” A balding man in his fifties, with tiny wire-rim glasses stood in the third row. He had bushy “Andy Rooney-like” elfin eyebrows and a tight, nervous grin on his face. “Please, sir, one last question if I may. As you mentioned, the two manned expeditions to the Mariana Trench occurred in 1960. But, Professor, isn’t it true that there have been more recent descents into the Challenger Deep?”

Jonas stared at the man, red warning flags fluttering in his head. “I’m sorry?”

“Come now, Professor, you made several dives there yourself.”

Jonas was silent. The audience began to murmur.

The man’s bushy eyebrows raised, lifting his glasses. “Back in 1989, Professor. While you were still doing work for the Navy?”

“I’m . . . not sure I understand.” Jonas glanced at his wife like a condemned man.



Page 7

Maggie looked away. “You are Professor Jonas Taylor, aren’t you?” The man smiled smugly as the audience broke into light laughter.

“Look, pal, I think you have your facts wrong, and I’m really running late. Drop me an e-mail or something. Oh . . . uh, thank you all for attending.”

A smattering of applause trickled out amid murmurs from the crowd as Jonas Taylor stepped down from the podium. He was quickly approached by students with questions, scientists with theories of their own, and old colleagues desperate to say hello before he left. Jonas shook as many hands as he could, signed a few books, then apologized again for having to run.

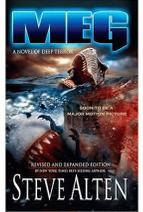
The pony-tailed man in the tuxedo squeezed his head through the swarming crowd. “Hey, J.T., the car’s parked outside. Maggie says we need to leave now, bro.”

Jonas nodded, finished signing a book for an admiring student, then hurried to the exit at the back of the auditorium where his wife was tapping her freshly pedicured toes, waiting impatiently.

As he reached the door, Jonas caught a glimpse of Terry Tanaka, looking at him from behind a sea of people. Her almond eyes seemed to burn into his as she mouthed the words, “We need to talk.”

Jonas held up his watch and shrugged. He’d enough of the verbal assaults for one night.

As if in response, his wife yelled through the exit door, “Jonas, let’s go! Now!”



- Jonas's point to his statement that "I prefer to theorize why a seemingly extinct species might exist," is meant as:
 - An excuse to justify his outrageous
 - His preference for investigating the theories about Megalodon.
 - A retort to the older critic.
 - Evidence regarding the mystery behind Megalodon's disappearance.
- The following statements are true in reference to the "hadal" zone:
 - It is a deep-sea area where trenches
 - The CHALLENGER DEEP is part of the Hadal zone.
 - Hydrothermal vents are present in the
 - All of the above.
- Jonas theorizes Megalodon could still exist, even though we've never seen them, for all BUT the following:
 - If the sharks do inhabit the trench, they
 - Daylight cannot reach into the trench, would be trapped below the cold layers.
 - Unlike dinosaurs, sharks leave little
 - There's always been an abundant supply of evidence behind.
- Jonas becomes jittery when:
 - He sees his wife, Maggie.
 - Terry Tanaka questions his "nerve."
 - The bushy eye-browed man questions
 - He has to sign books.

whether he's been to the Mariana Trench.

- Who insist upon speaking to Jonas as he hustles to leave?
 - Maggie
 - The pony-tailed man in the tuxedo.
 - The bushy eye-browed man.
 - Terry Tanaka
- Jonas Taylor's theories about the existence of Megalodon cause debate. In your opinion, why are his theories so controversial, and why does he seem so convinced he is right? Use information from the passage and your own ideas. Write in the space below.

As you write, be sure to:

- Describe theories why Megalodon is extinct

Write neatly and clearly.

- Include your own ideas

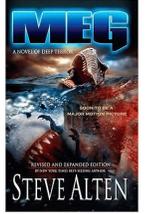
Use only the space provided.

- Describe Jonas's retort

MEG: A Novel of Deep Terror

PREP TESTS for State Boards

Page 10



MEG: A Novel of Deep Terror PREP TESTS for State Boards

