Who's Afraid of Jurassic Park?

Jurassic Park, the book, has been on best-seller lists for countless weeks. The movie has broken box office records around the world. Why do those long extinct dinosaurs fascinate us so?

by Josephine King

Who's afraid of Jurassic Park? Not too many children are, counting the numbers who are thronging to see the movie, adult accompaniment in tow. But, apparently, director Stephen Speilberg is. The filmmaker is quoted as saying that he would not let his own children see the scary final product.

The Book of the Month Club has taken Speilberg to heart. Its September issue advertises a Jurassic Park Set (2 vols), in which "the film has been retold so the story is suitable for kids."

Perhaps Speilberg's statement was made as a defence against any claims by members of the public for payment of psychiatric bills incurred while sorting out children whose subconscious dreams happen to dredge up echoes of those ancient days—millions of years before man walked this planet—when the "terrible lizards" and other reptiles ruled and our rat-sized mammalian antecedents were scurrying around, struggling to survive.

Dinosaurs and the Human Psyche

For years, ever since the first dinosaur remains were recognized in the early 19th century, humanity's imagination has been fired by thoughts of those defunct dinosaurs, some of whom were so big as to boggle our limited minds.

Certainly, dinosaurs challenged years of western socio-religious conditioning. After centuries of condoning and propagating a one-shot explanation for creation, the discovery of complex extinct animal societies well before our advent changed the way we view the planet's history—and in the process aided Charles Darwin in the formulation of his evolutionary and natural selection theories. ("Just how did two of each of these huge dinosaurs fit into the Ark?")

It is unnerving for we humans—who think ourselves possible controllers of this planet—to find evidence that dinosaurs were not the stupid, extinct, well, *dinosaurs* that we like to think them. They were very successful land reptiles who existed on this planet for somewhere around 160 million years. In comparison, the human line only appeared in the fossil record somewhere about three million years ago. Dinosaurs, of course, did not manufacture or build anything, nor did they manipulate resources as we humans do (often to the ecological detriment of the planet). As the spectre of catastrophe hovers over humans today, could we become extinct like the dinosaurs? All very unsettling.

This fascination has led to much entertainment of all kinds. The most recent arrival is the chart-topping book *Jurassic Park* by Michael Crichton. Crichton, who showed his mastery of suspense exploring fiction on the borderline of scientific actuality with *The Andromeda Strain*, tackles the world of the dinosaurs and plugs it into a theme park environment. The vastly entertaining and well researched book has been followed by a box-office record-breaking movie of the same name as well as mass marketing of associated toys, clothes, lunch boxes and foodstuffs.

Fact and Fiction in *Jurassic Park*

The book does a good job of describing the world of the dinosaurs and explaining the palaeontologists who study their fossilized remains—certainly much better than some past fictions that ascribed highly implausible characteristics to dinosaurs, even though the reality is just as amazing. The list of consultants for both the book and the movie is highly impressive so it is depressing that there are, nevertheless, errors in both. Why, with so much excellent work, include a few crashing inaccuracies?

The movie has outstanding representations of the re-created dinosaurs, enough to make a palaeontologist drool, and great visual appeal. The special

ERA	PERIOD	SELECTED EVOLUTIONARY HAPPENINGS
3 Mill ↑	Quarternary ↑	*Man* ↑
CENOZOIC	Tertiary	*Grasses* *Mammals*
65 Million Years Ago		
		Exinction of Dinosarus
145 Million	Cretaceous	*Bony Fish* *Flowering Plants*
MESOZOIC	Jurassic	*First Birds* *Giant Dinosaurs*
200 Million		
	Triassic	*First Dinosaurs* *First Mammals*
245 Million Years Ago		
PALAEOZOIC		Wide Extinctions

Josephine King has a degree in Geography and Anthropology from London University. Her interest in palaeontology developed subsequently.

effects team should be congratulated. Without them, the film would have been little more than banal. The first shots of arriving at the island are lush in the extreme, as are the views of herds of dinosaurs wandering around a savannah-like area (one cannot say grazing because there is no evidence of grass when dinosaurs were alive). Small wonder the palaeontologist hero, Alan Grant, is almost overcome by the scene.

The plot revolves around the ability to retrieve sufficient dinosaur DNA from the stomachs of biting insects incarcerated millions of years ago in globs of tree resin which have since become amber. John Hammond, the designer of the theme park, "Jurassic Park", purchased all the amber he could in the hope of finding fossilized insects which had ingested dinosaur blood just before dying. The fossil blood might contain dinosaur DNA, the building blocks of life, and therefore the possibility of their re-creation.

The impossibility, however, of sufficient complete dinosaur DNA being preserved in fossilized insects is evident, especially when fifteen separate dinosaur species are recreated in the book (dropped to six in the movie). It is, however, a wonderful concept, and there are reports that there is now a rush on amber jewellery, especially if the piece has an included insect.

While the name "Jurassic Park" is catchy and easy to remember, it will likely mean that dinosaurs will be associated solely with the Jurassic geological period. In fact, they were around during the preceding Triassic as well as the subsequent Cretaceous periods. Those *J.P.* villains, the infamous Tyrannosaurus Rex (found in North America) and the Velociraptors (from Mongolia) both lived in Cretaceous times. The book points this discrepancy out, the movie glosses over it. There is, however, no excuse for Tim's incorrect statement in the book (when talking about his trip to the Museum of Natural History with his father) that Camptosaurus was alive in Cretaceous and not Jurassic times.

The one badly represented dinosaur, in the book, but much more graphically in the movie, is Dilophosaurus. This black-poison-spitting, frilled dinosaur does in the rather nasty computer whiz, Nedry, who is selling dino-embryos from the hatchery, secreted in specially designed shaving cream aerosol cans, to some bad guys off the island (goodness knows what they would do with them when they hatched!). Good riddance to him, of course, but what about poor Dilophosaurus?

Is this early carnivorous dinosaur to be remembered forever by our generation for things that he almost certainly did not do? There is no evidence to date of hollow teeth, which would have been necessary to spit poison in that way, nor of an erecting frill, although he certainly had a head crest made up of two boney plates (Dilophosaurus meaning "two ridged reptile").

What We Know Today

Anyone seriously involved with dinosaur restoration tends to be very careful what they say—"on the basis of the evidence to date it is possible/probable that...". Quite rightly, for what do we know about dinosaurs today?

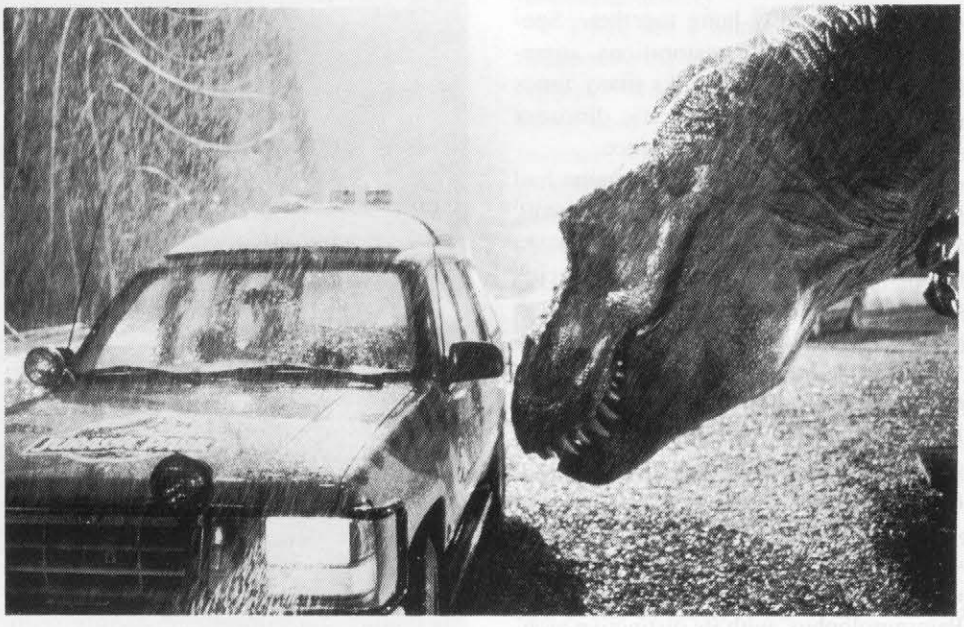
The answer is that we *know* very little, but much has been deduced from careful examination of the fossilized bones which have been found in various rock strata. Unless we happen to learn how to break the time dimension and go back to the Mesozoic era we will never know for sure. A situation which makes for very exciting speculations, some of which are less scientifically responsible than others.

According to the story told by their remains, dinosaurs (i.e. land reptiles, as opposed to swimming and flying reptiles from the same era), ranged in size from that of a chicken to the many ton (one estimate is up to 80) monster animals of popular appeal. These creatures were ascendant during the Mesozoic geological era, roughly 245 to 65 million years ago.

At the end of the Cretaceous period (65 million years ago) something happened which caused the dinosaurs to disappear from the fossil record, one of the many extinctions in the history of Planet Earth. Whatever caused the 'great extinction', whether it was an immense asteroid hitting the earth causing rapid climatic change, or some other factor, the event was selective in its victims. Not all reptiles, let alone other living things, died out at that time.

Flying reptiles completely disappeared, as did many based in the water, but not crocodilians and turtles. Members of the lizard and snake families survived on the land through to our time. Many other living creatures we recognize were also around at the time of the dinosaurs' demise—fish, sharks, arthropods and small mammals. Notably, of approximately 300 known dinosaur genera, 288 genera had already evolved, thrived and died off. There were only about 12 still around to become extinct 65 million years ago.

The body of knowledge about dinosaurs and other extinct reptiles is increasing daily. It has certainly grown dramatically since British anatomist, Dr.



Tyrannosaurus Rex triumphant.
[Universal Pictures]

Richard Owen, stated in 1841 that the bones found to date were so unlike anything he knew that they should be recognized as a separate sub-order, which he called the dinosaurs, meaning "terrible lizards." Could Dr. Owen have had any conception of what he had done?

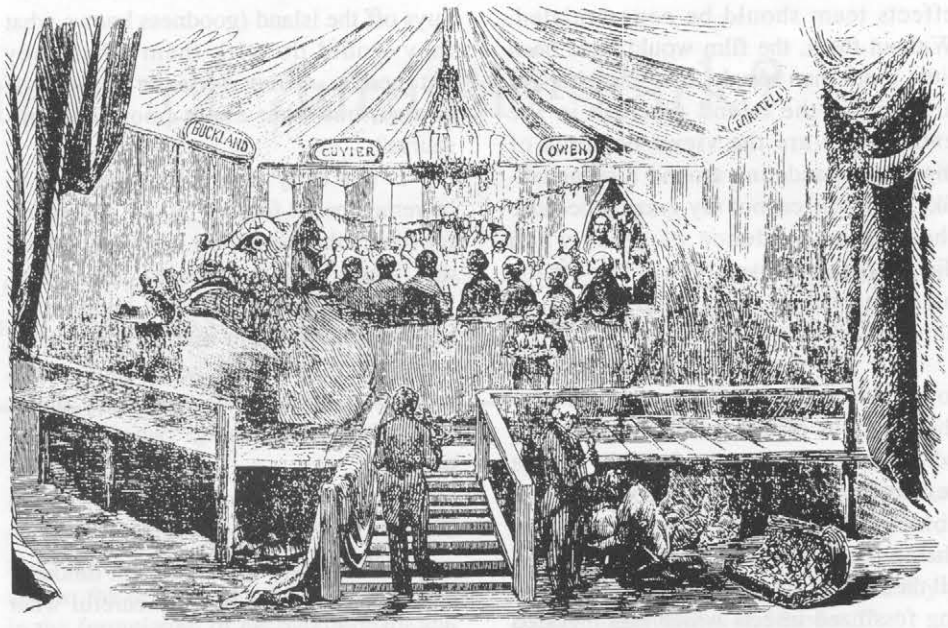
Modern palaeontologists, such as *J.P.'s* Alan Grant, as is well documented in both the book and the movie, do not sit at their desks all day. They go out into the field and search. Nowadays the search is more organized (with the use of computers and increased international cooperation) than it was in the early days, when no-one really knew where dinosaur bones might be found.

In the more casual days of 1909 John Wegener, a rancher from the Red Deer River area in Alberta, visited the American Museum of Natural History in New York, and noted that the fossil bones on show resembled some of those he was turning up on his farm. Barnum Brown, a U.S. palaeontologist, did not let this slip by and spent the next few years hunting dinosaurs in Alberta using a barge as a base which was floated down the Red Deer River, bound for the Big Apple.

Today, along with palaeontologists, many different disciplines are involved in dinosaur study. Palaeobotanists, like *J.P.'s* Ellie Sattler, endeavor to recreate the botanical environment of the dinosaur world. Geologists define the land masses of different eras. Other experts are at work studying the muscle scars on fossilized dinosaur bones to understand how dem bones actually hung together. Specialized artists paint restorations, sometimes repainting their works many times as concepts of how a specific dinosaur looked change with new evidence

The Iguanadon, whose remains had included a fossilized spike, was originally restored with the spike on its nose, rhinoceros-like. Later discoveries showed that it was in actual fact a thumb spike. Stegosaurus, a well known Jurassic dinosaur (featured in the book but not the movie), was once depicted with its fan-like plates overlapping like armor down its back, instead of standing upright along its spine.

Many authoritative restorations of dinosaurs are in fact based on very little evidence. All representations of Parasaurolophus, with its distinctive arching bony head crest, are based on the evidence of no more than five heads and no complete skeleton.



Dino Fun: In 1854, Dr. Richard Owen held a dinner party for twenty friends inside the model of an Iguanadon.

Theories abound, some of which might be proved and some of which can probably never be proved. For example, there is no method known to distinguish gender by the remains. Indeed, some palaeontologists believe that variations between some similar dinosaurs might actually represent sexual differences within the same species. Also, there is the warm/cold blooded controversy. And what about colour, smell, hearing, sight, and communication, all those intimate sensory details we humans set so much store by? These remain in our imagination.

If They Ever Broke Loose.....

So, who is afraid of *Jurassic Park*? Why do these long extinct creatures hold us in their thrall? A quotation from Timothy Findley's book *Inside Memory* seems effectively to capture our reactions.

The author describes a circus parade: the clowns, the bears, the music, the crowds, the children. And then, "after that, there was a hiatus - and an eerie, almost disturbing silence... and into this silence there came a shuffling sound - a soft padding sound.... And it was the elephants.

"We all just stood and stared.... There they were. Watched by maybe a thousand, open-mouthed people with voided minds - whose expressions slowly turned to concern, as if the elephants *worried* them.

"...And the elephants' eyes stared about...- uncertain, fearful, flicking looks out over the crowd, unaware that they were the giants among the midgets - the beasts among the men. But the men knew it....

"And the elephants looked out and saw the buildings and the hordes of people..., and they turned and lumbered around the corner and were gone. And one man said to another: *My god - if one of those creatures ever broke loose!.....*"

And that is precisely why we can be afraid of, and fascinated by, Jurassic Park. The elephants (mammals like ourselves) were well under control. If one broke loose, it would only cause a minor catastrophe. If Jurassic Park broke loose, we, despite all our cleverness, would have a real problem.

The money-making movie leaves us in no doubt, Tyrannosaurus Rex is triumphant. The Velociraptors are vanquished by brute force. What a wonderful scene it was in the Visitor Centre as the display bones came tumbling down and the two sickle-clawed Velociraptors leapt vainly into the air to attack the monster. Victorious T. Rex celebrated with a roar, ready to return for *Jurassic Park II* and a second round of box office approval!

But, what if they really?...in real life?...could they? Now such is the stuff that dreams are made on. ●