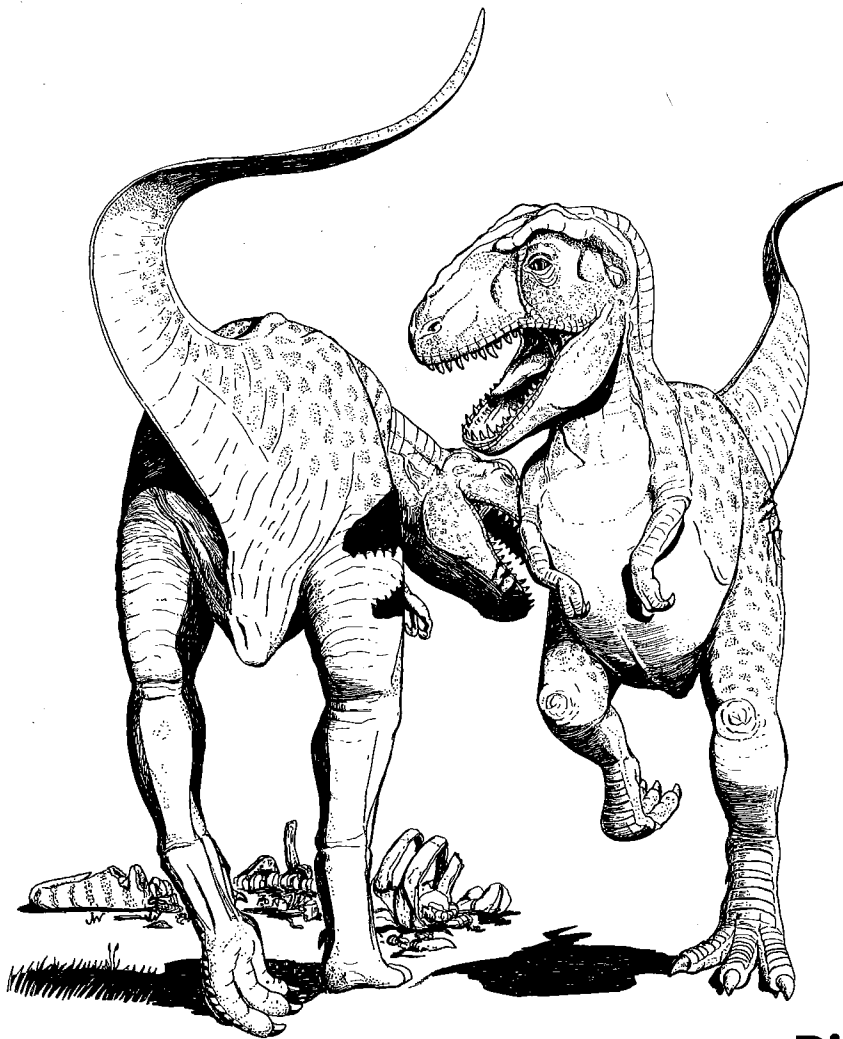


An illustration of two dinosaurs in a forest. On the left is a brown Tyrannosaurus Rex with its mouth open, showing sharp teeth. On the right is a long-necked dinosaur, possibly a sauropod, with its head tilted upwards. The background features tall, dark green trees under a blue sky with light clouds. The title 'THE Complete DINOSAUR' is overlaid on the scene.

THE
Complete
DINOSAUR

Edited by James O. Farlow and M. K. Brett-Surman



Dinosaurs and the Media

Why Are Dinosaurs So Popular?

For more than a century (since the publication by O. C. Marsh in the 1880s of his skeletal restoration of "*Brontosaurus*"), dinosaurs have been the most famous of all the animals. No other creatures have so captured the imaginations of both children and adults. Adults are often amazed (and bewildered) when children know the names of dinosaurs before they know the names of the streets on which they live. Not infrequently, those children can also spell those names. Even the word *dinosaur* evokes visions of an age long ago when "monsters" were real. Certainly that is one of the keys to their popularity: Dinosaurs were "real monsters," yet they are harmless to us today. Equally significant, perhaps, dinosaurs are fun. There is no single aspect about them that does not appeal to someone. Today these animals, extinct for 65 million years, are among the greatest of educational tools, especially in schools where "science phobia" runs rampant. Where else can a student combine hard facts from such diverse sciences as geology, biology, history, physics, and ecology and not be bored? With adults, the

Donald F. Glut
and
M. K. Brett-Surman

43

popularity of dinosaurs can be explained quite simply: Dinosaurs represent everything we loved as children—adventure, power, time travel, science, mystery, lost worlds, and even a certain (and somehow pleasing) “inner chill.”

The Science Fiction Dinosaur

Dinosaurs have often appeared in science fiction stories, one of the earliest important examples being the novel *The Lost World* (1912) by Sherlock Holmes creator Sir Arthur Conan Doyle (a lavishly illustrated, annotated version of which was recently published [Pilot and Rodin 1996]), with its lost plateau nestled away in the jungles of South America (Fig. 43.1). Edgar Rice Burroughs, the creator of Tarzan and other “pulp” magazine features, used dinosaurs in a number of his imaginative tales, most notably in the Pellucidar series (beginning with *At the Earth's Core* in 1914, in which the “lost world” scenario was transported to a hollow-earth environment); the Caspak series (starting off with *The Land That Time Forgot* in 1918); and *Tarzan the Terrible* (1921), set in a lost land in Africa. Regrettably, dinosaurs have most often been used in these stories in much the same way that Hollywood has used them: as vicious monsters that kill or must be killed. The most egregious use of dinosaurs as monsters was in the coarse pages of the mass-produced science fiction and fantasy “pulp” magazines of the 1930s and 1940s, often lurid “potboilers” churned out for a usually indiscriminating readership. Only in the last ten years have dinosaurs appeared in science fiction tales as animals instead of crazed killers. Once just a background foil, dinosaurs now appear as main characters (Sawyer 1992, 1993) in stories. They even have their own anthologies (Resnick and Greenberg 1993; Dann and Dozois 1995; see also Box 43.1 at the end of this chapter and Figs. 43.1, 43.2).

The Hollywood Dinosaur

Most people's first encounter with a dinosaur is in a motion picture. Unfortunately, Hollywood's portrayal of dinosaurs has rarely introduced them as they really were (*The Lost World* [1925] and *Jurassic Park* [1993] being notable exceptions); see below. One of the earliest dinosaur films was a silent animated cartoon entitled *Gertie the Dinosaur* (1912). In this short subject (which runs about ten minutes), an *Apatosaurus* was portrayed as the comical and quite lovable pet of Winsor McCay, the famous cartoonist who drew and shot the film. Gertie amazed audiences with such stunts as drinking dry a lake, leaving behind a dry Grand Canyon-sized hole.

Silent movies about prehistoric life, mostly featuring “cavemen” in Stone Age settings, were popular from 1913 to 1919, inspired in part by some early science fiction stories. Dinosaurs were first portrayed as villains in one of these pictures, *Brute Force* (1913), a “Stone Age” epic made by motion picture pioneer D. W. Griffith. The film was a sequel to *Man's Genesis*, which Griffith had made the previous year with cavemen but no dinosaurs. The dinosaur in *Brute Force*, portrayed by a life-sized mock-up of a *Ceratosaurus*, menaced cavemen in front of their caves, and was introduced on the screen by a title card reading “One of the perils of prehistoric apartment life.”

The animal's appearance as a threat to early man reinforced the common misconception (persistent to this day among the unenlightened) that dino-

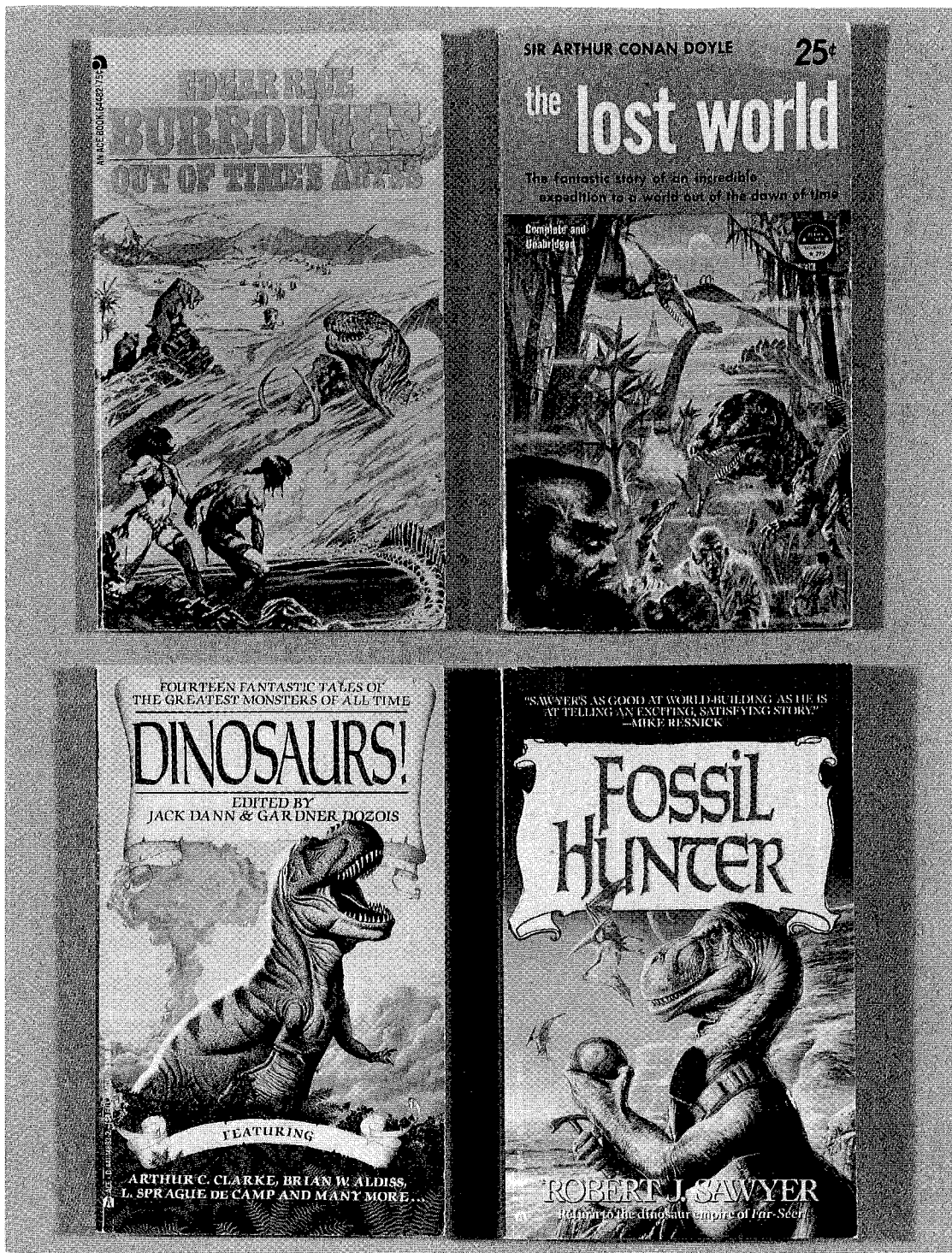


Figure 43.1. Dinosaur paperback covers courtesy of Ace Books, New York, except *The Lost World*, which is courtesy of Doubleday Books, New York.



Figure 43.2. Dinosaur pulp magazine covers. Upper left courtesy of *Weird Tales*; upper right courtesy of *Amazing Stories*; bottom row courtesy of Warren Magazines Inc.

saur and "cavemen" coexisted, perhaps in some generalized "prehistoric world" (cf. Rudwick 1992). *Brute Force* established the movie formula according to which dinosaurs attacked and/or killed anyone or anything that moved. In later films, dinosaurs would also be depicted as monsters spending most of their time doing little more than walking into view, only to become locked "in mortal combat" with some other prehistoric animal.

The first feature-length motion picture to include dinosaurs was *The Lost World* (1925), based on the popular novel by Sir Arthur Conan Doyle (not to be confused with the more recent film based on the identically titled novel by Michael Crichton). *The Lost World* is a pivotal film of this genre for several reasons, including its attempt to portray dinosaurs as real animals (rather than monsters) going about their everyday, mundane lives. For example, rather than featuring just one individual of a species (the norm in most dinosaur films to this day), the film sometimes showed dinosaurs in small groups or entire herds.

Another important feature of this movie was the way that dinosaurs were brought to life. The dinosaur models used in *The Lost World* were animated one frame at a time by Willis O'Brien, who perfected this process (Archer 1993), which is known today as "stop motion" or "dimensional animation." O'Brien had already made a number of earlier dinosaur films, most notably a series of slapstick comedy shorts produced for Thomas Edison's Motion Picture Company a decade earlier, and also *The Ghost of Slumber Mountain* (1919), the first movie featuring "realistic" dinosaurs, designed under supervision of American Museum of Natural History paleontologist Barnum Brown.

Among the Mesozoic menagerie created for *The Lost World*, the most menacing dinosaur was the theropod *Allosaurus*, its appearance based directly on a watercolor painting done for the American Museum by the great paleontological artist Charles R. Knight (Czerkas and Glut 1982). At one point in the film, an *Allosaurus* fights a losing battle with an "*Agathaumas*" (a mostly imaginary reconstruction based on an old Knight painting, which in turn was based on scrappy fossil remains), after which this horned dinosaur is killed by the considerably larger and stockier theropod *Tyrannosaurus* (its only appearance in the film; Fig. 43.3).

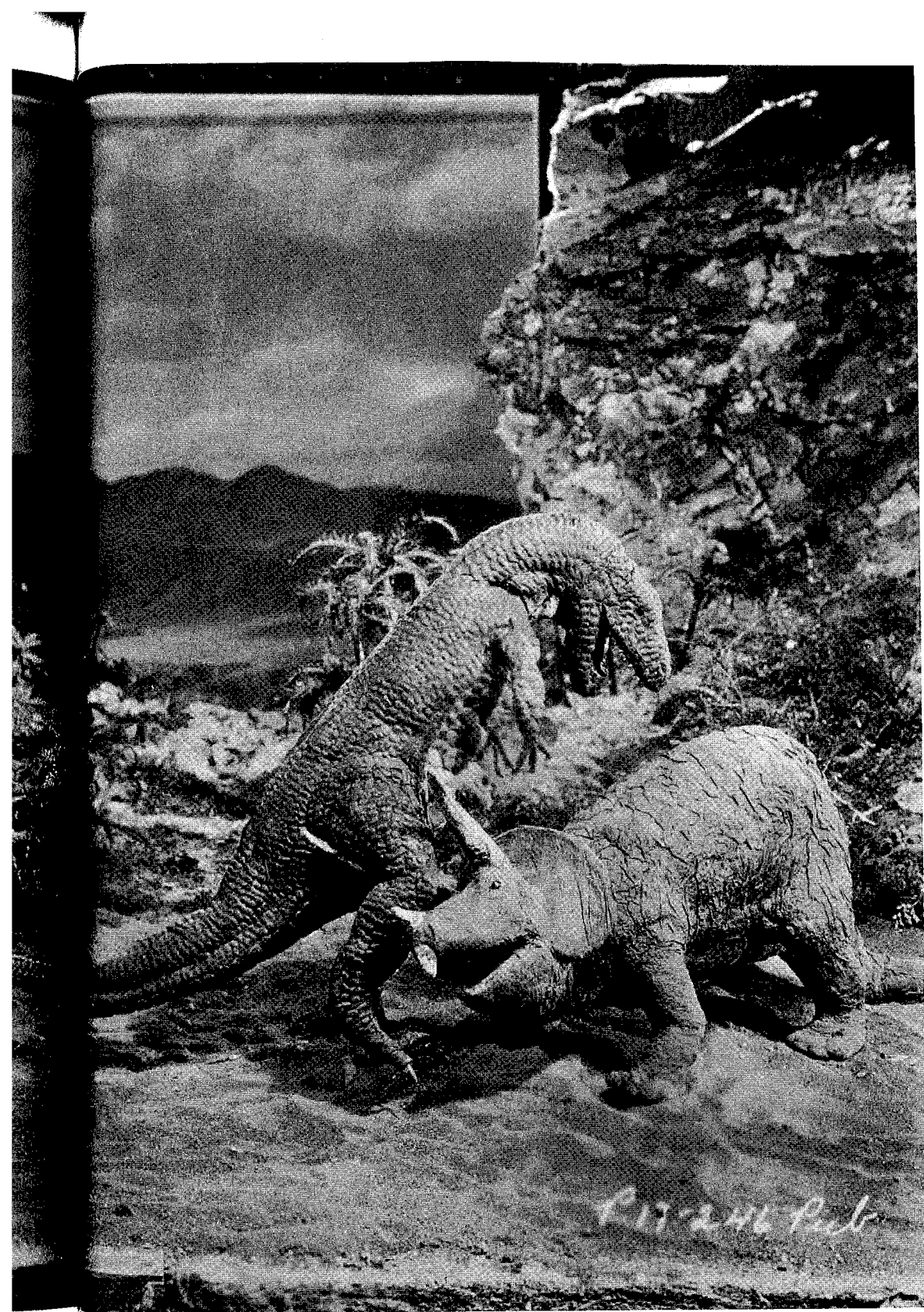
The *Lost World* models, sculpted by Marcel Delgado, were all based on paintings and sculptures by Knight, who worked directly with scientists in creating his prehistoric images, basing them on what was considered to be paleontologically accurate at the time. In this context, given the information known in the 1920s, *The Lost World* remains one of the most (if not the most) accurate and influential dinosaur films ever made (Fig. 43.4).

In the early 1930s, the public was made "dinosaur-aware" by the advertising campaign utilizing dinosaurs launched by the Sinclair Refining Company. (Barnum Brown cleverly capitalized on this campaign by obtaining funds from Sinclair to finance his dinosaur-collecting expeditions.) During this period, dinosaurs were popular attractions at service stations, as World's Fair exhibits, in stamp albums, and at the United States' first "Dinosaur Park" (atop a hill overlooking Rapid City, South Dakota), and also in films.

Emerging from this period was one of the most influential dinosaur-related movies of all, *King Kong* (1933; Fig. 43.5). In some ways a successor to *The Lost World* (with a number of story parallels), it was also a film that would inspire many imitators over the succeeding years. Although *King Kong* was primarily about the discovery and capture of a giant "prehistoric" gorilla on the lost Skull Island, it was the island's Mesozoic reptiles (again, one of each species) that left the longest-lasting

Figure 43.3. *Tyrannosaurus* and
"Agathaumas" from *The Lost
World* (First National, 1925).





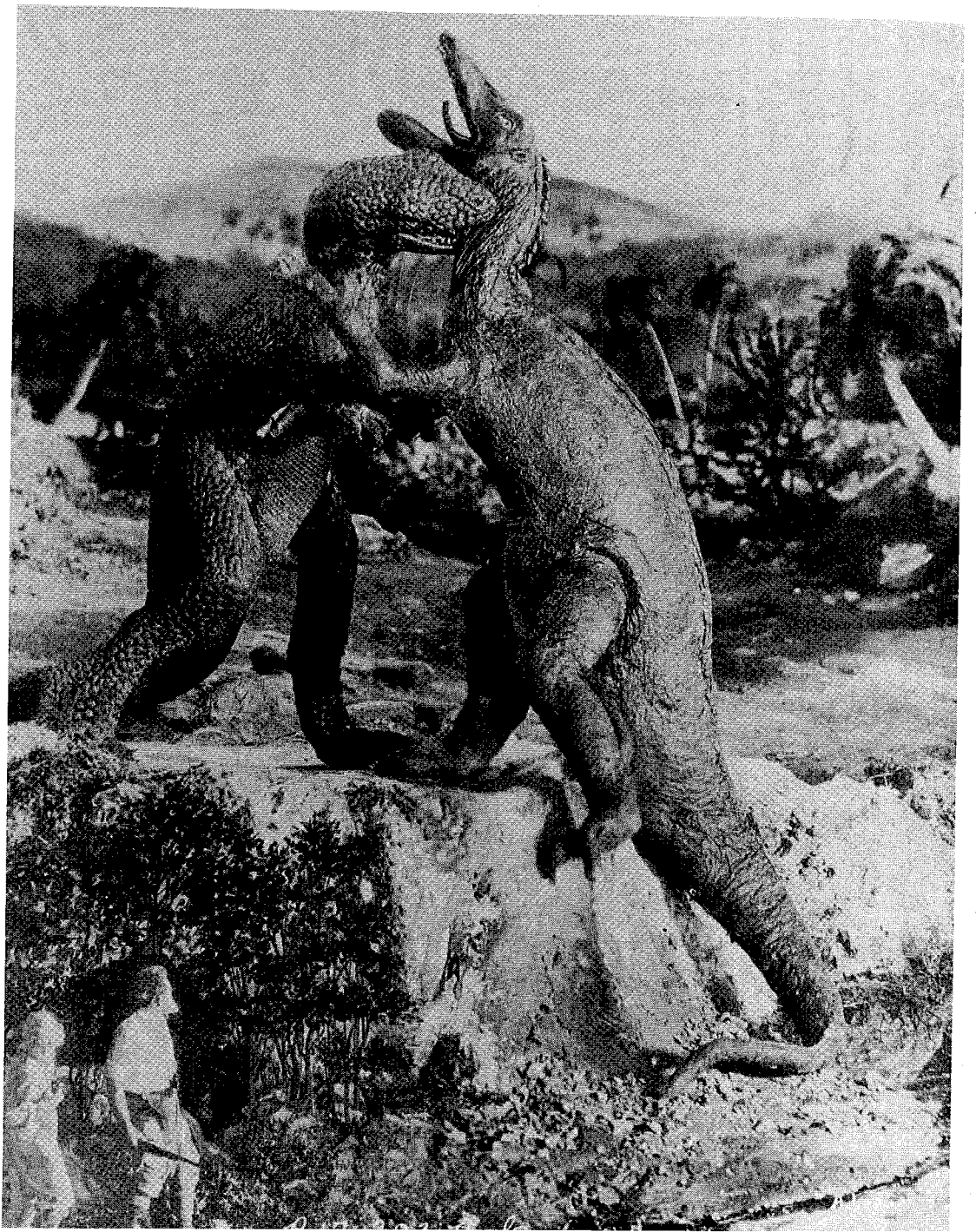


Figure 43.4. *Allosaurus* and
"Trachodon" from *The Lost World*
(First National, 1925).



Figure 43.5. King Kong confronts *Stegosaurus* in a publicity shot from a scene left out of the final cut (*King Kong*, 1933, photo courtesy of Turner Broadcasting Corporation).

impression on many people who saw it. Again, the team of Delgado and O'Brien, who had both greatly improved their techniques, created a Mesozoic menagerie based on the works of Knight. In a sequence that to this day remains one of the most dramatic of its kind ever committed to film, Kong, the King of Skull Island, battles to the death the "King of Dinosaurs," *Tyrannosaurus*. (Although O'Brien reportedly called this dinosaur an *Allosaurus*, the model was clearly based directly on a famous watercolor of *Tyrannosaurus* painted by Knight in the early 1900s, complete with the incorrectly depicted three-fingered hand and misplaced eye socket. The *King Kong* shooting script and the novelization by Delos W. Lovelace simply refer to this creature as a large carnivorous dinosaur.) However, although the Jurassic and Cretaceous animals in this film were extremely lifelike, and were portrayed in environments somewhat close to their original habitats, they were all—because of demands by producer Merian C. Cooper—depicted as at least twice their true size.

Dinosaurs continued to be popular in Hollywood movies into the 1940s. The original *One Million B.C.* (1940) was another "Stone Age" epic influenced in some ways by Griffith, who was originally slated to direct it. The film carried into the forties the popular myth that cavemen

and dinosaurs lived at the same time. Save for a *Triceratops* (a pig decorated with rubber ceratopsian enhancements) and a *Tyrannosaurus* (stuntman Paul Stader in a rubber dinosaur costume), most of the “dinosaurs” in this film were portrayed by live modern-day reptiles. That same year, Walt Disney’s animation masterpiece *Fantasia*, although a cartoon, presented dinosaurs with reasonable accuracy, comparatively speaking, but there were some glaring errors. Most notably, dinosaurs from different Mesozoic periods and different places (as well as animals that were extinct before the first dinosaur appeared) were shown living at the same time and in the same place, again perpetuating the popular notion of some generalized “prehistoric world.” Also, the *Tyrannosaurus*, like most movie representations of this dinosaur (including those in *King Kong* and *One Million B.C.*), was depicted as having three—not the correct two—claws on each hand.

More motion pictures featuring dinosaurs and other extinct creatures were filmed during the late 1940s and early 1950s, but the one with the biggest impact on the public was *The Beast from 20,000 Fathoms* (1953; Fig. 43.6). The movie was made to capitalize on an early 1950s reissue of *King Kong*, its major plot focus having been inspired by the last acts of both *The Lost World* and *King Kong* (i.e., a giant prehistoric creature running amouck in a modern-day city). It also played upon the public’s growing Cold War fears, as the so-called “Beast” was awakened from suspended animation when an atomic-bomb test melted the iceberg imprisoning it since Mesozoic times. The film’s stop-motion special effects were created by former Willis O’Brien protégé Ray Harryhausen (Fig. 43.7). In a conscious attempt not to duplicate the ending of *The Lost World*, Harryhausen “invented” his own impossibly huge dinosaur-like reptile, which was named “Rhedosaurus,” a quadrupedal, spike-backed creature superficially resembling an enormous tuatara. Clearly, *The Beast from 20,000 Fathoms* firmly established the type of “dinosaur” movie whose main purpose was to show gigantic “prehistoric monsters” engaged in spectacular (or as spectacular as the special-effects budgets would allow) scenes of downtown metropolitan destruction. Indeed, Harryhausen’s “Rhedosaurus” constituted the template for countless later films, including two British efforts, *The Giant Behemoth* (1959; British title *Behemoth, the Sea Monster*) and *Gorgo* (1960), both of which were helmed by Eugene Lourie, the director of *The Beast from 20,000 Fathoms*.

In 1954 Karel Zeman directed the first stop-action dinosaur movie to use a traveling matte during the special-effects process—a cinematic first (Robert Walters, personal communication). *Journey to the Beginning of Time* was a Czech film with an opening sequence filmed at the American Museum of Natural History in New York. After a visit to the museum, several children rent a rowboat in Central Park to spend some time on the “lake” pondering their visit. As they drift around a bend in the lake, they find themselves on a river. The farther they travel downstream, the further back in time they travel. This movie was fairly accurate for its day, and was one of the first to place the prehistoric “actors” in their correct geologic time intervals.

Most popular of all movie successors of the “Rhedosaurus” was *Godzilla, King of the Monsters* (1954; U.S. release 1956), known in its native Japan as *Gojira* (after the nickname of an employee of the Toho studio where the film was made). This movie took the basic concept—an impossibly huge dinosaur-like monster is revived by an atomic blast and then attacks humankind—a giant step further. *Godzilla* was no mere dinosaur. He was a monster mutated by H-bomb testing. Now possessing deadly incendiary breath in addition to size and strength, *Godzilla* became

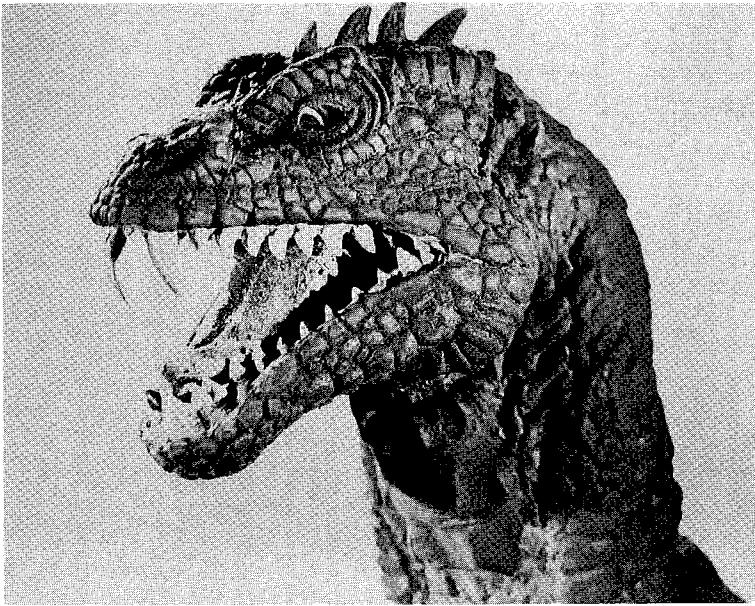


Figure 43.6. The original model of the "Rhedosaurus" by Ray Harryhausen, from the movie *The Beast from 20,000 Fathoms*. Photograph courtesy of Ray Harryhausen and Warner Brothers Studio.

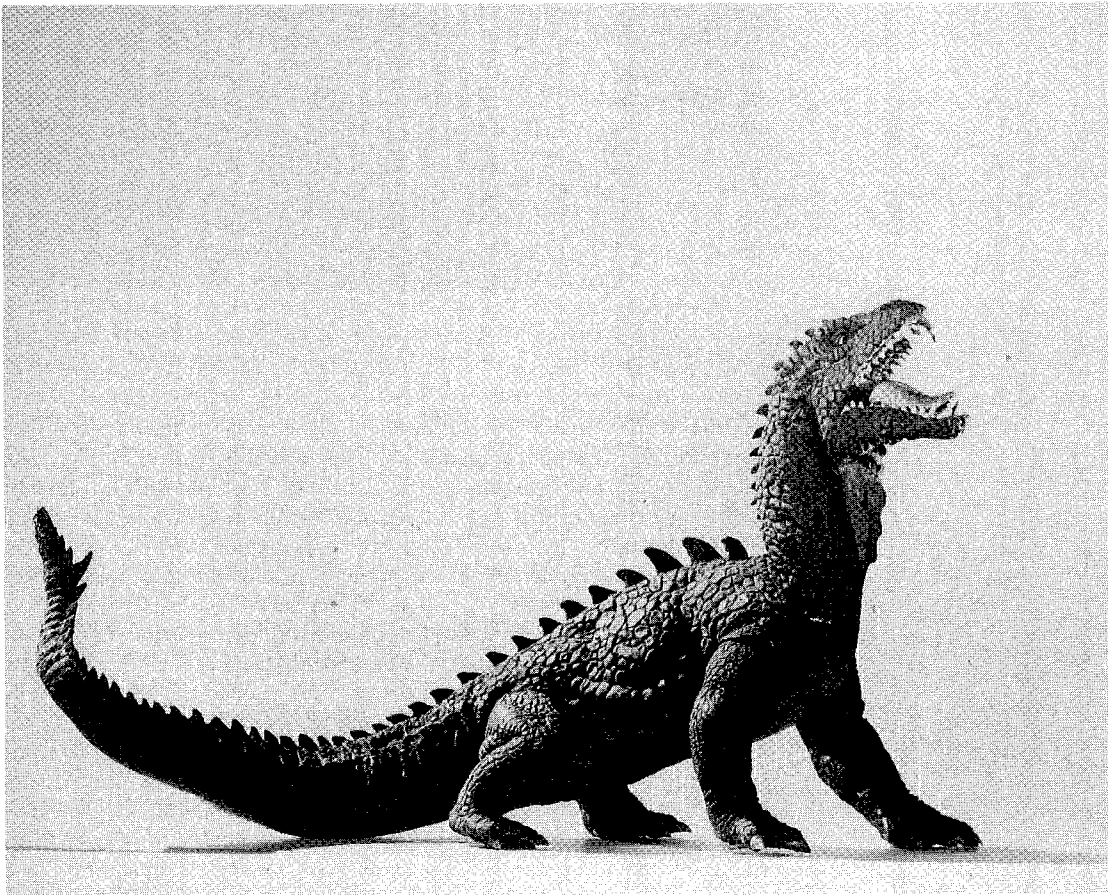
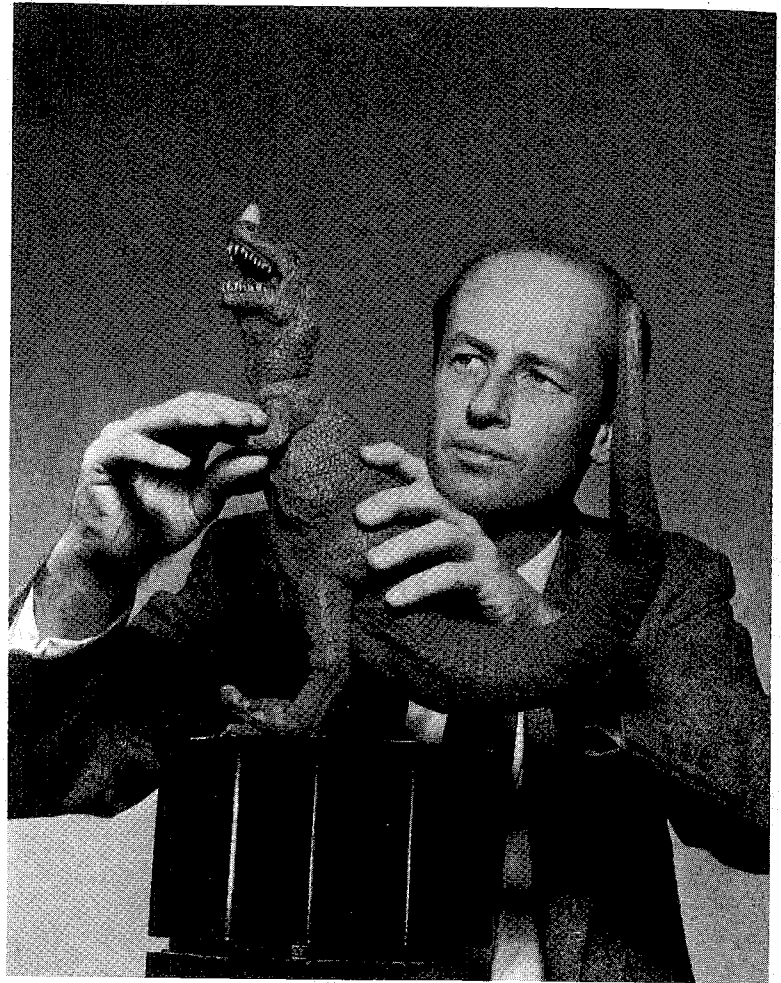


Figure 43.7. Special-effects legend Ray Harryhausen and his model of *Ceratosaurus* from *The Animal World*. Photograph courtesy of Ray Harryhausen.



a virtually unstoppable force of nature gone wild. Godzilla was, in fact, a metaphor for the Japanese people, who knew well the horrors inflicted by nuclear bombs. However, unlike the “Rhedosaurus” and the dinosaurs of the *Lost World* and *Skull Island*, Godzilla was not portrayed by animated models, but rather by human actor Harua Nakajima wearing a stifflingly hot rubber suit. *Godzilla* proved popular enough to spur a seemingly endless stream of sequels.

Dinosaurs have continued to be popular staples in motion pictures. In 1993, the film *Jurassic Park*, adapted from the best-selling novel by Michael Crichton, attempted to portray dinosaurs as marvelous animals (as well as terrifying monsters), bringing them “to life” through a combination of state-of-the-art special-effects techniques (including computer graphics imagery, or CGI). The film proved to be the top-grossing motion picture of all time, making more than a billion dollars at the box office, and further establishing the dinosaur as an ageless movie star with seemingly unending appeal. (For a selective listing of dinosaurs in the movies, see Box 43.2 at the end of this chapter and also Glut 1980; Bleiler 1990; Senn and Johnson 1992; and Warren 1982.)

The Electronic Dinosaur

With the advent of the home-video market, and with a VCR in almost every home, a number of documentary-style programs about dinosaurs have been made. Many of these are first broadcast on television, usually over the Public Broadcasting Service (PBS). Not all of them make it to the video market. Unfortunately, the scripts for these programs are usually not reviewed by professional paleontologists, and many factual errors and outdated concepts are presented as the latest facts. The best of these educational programs are, so far, *Dinosaurs* (hosted by David Susuki of the Canadian National Broadcasting Company as part of the series *Nature of Things*), *Lost Worlds, Vanished Lives* (hosted by David Attenborough), and *Dinosaurs and DNA* (hosted by Jeff Goldblum as part of the PBS series *Nova*). So many new productions are in progress that it is impossible to keep up with them. Caveat emptor!

Dinosaurs are now appearing on CD-ROM at a rapid rate. As of the summer of 1996, there were more than ten titles, with prices from \$25 to \$60. Unlike videos, these computer programs are updated and re-released, sometimes within the same year. It is impossible to recommend any one of them over another, simply because they all change in quality and content with each new release. Dinosaurs also appear on CD-ROM clip-art packages, but this market lags far behind the text-oriented programs. Outdated and illogical copyright laws have so far prevented most professional artists from being able to market their museum-quality restorations on CD-ROM.

The fastest-growing area for the "e-dinosaur" is on the World Wide Web (WWW). See Box 43.3 at the end of the chapter for a partial list of some of the first sites.

Dinosaurs as Marketing Devices: Dinosaurs Sell!

This axiom has been used (and misused) by Madison Avenue and elsewhere to sell virtually everything and anything, whether it has any relationship to dinosaurs or not. As already noted, the Sinclair Refining Company realized the value of exploiting dinosaurs to sell oil and gasoline as far back as the early 1930s. Unfortunately, because so many inferior products have been targeted at very young children, dinosaurs are often incorrectly thought of as for kids only, and/or as something cheap and outdated. In reality, adults do purchase (and often collect) dinosaur-related products. However, the travesty that "only children are interested in dinosaurs" has been perpetuated by poor marketing strategies, usually instigated by naive company executives.

Given the vast amount of dinosaur "product" that has been released up to the present day, it is unfortunate that the bulk of this product has been of inferior quality and geared to the youngest and least discriminating of dinosaur-item consumers. Ironically, museum gift shops, which, one might assume, should reflect the integrity of the sciences represented by the museum, are notorious for selling scientifically inaccurate or cheaply made products simply because they cost less and will sell more readily to shop visitors than the more expensive better-quality items. Accurate museum-quality models are often passed over by shop managers and buyers in favor of cheaply made, mass-produced dinosaur models whose blatant inaccuracies make the paleontologist cringe. A parent may be more prone to buy a