

## /THE LAST WORD

**The Message Behind the Movie**

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he shame of *Jurassic Park*, now about to be released as a blockbuster summer movie, is that it was almost a very good book. Michael Crichton knows the technology well, and most of the vocabulary is there, if at times ludicrously applied. The danger is that, because of the book's technical legerdemain, some people may take it as fact.

The plot is simple. Greedy scientists clone the DNA of dinosaurs from the stomach contents of blood-sucking insects that have been trapped in amber. They synthesize the whole genome of 15 types of dinosaur, insert it into crocodile eggs (patching the DNA with frog DNA when there are some bits missing, a crucial mistake as it enables the dinosaurs to change sex), and so grow themselves a dinosaur ecosystem, which they place on an isolated South Atlantic island with elaborate computer safeguards. The dinosaurs are meant to be all female, but alas a breeding population appears, the dinosaurs (which turn out to be rather more intelligent than the scientists) break out, accidentally aided by human sabotage and incompetence, and mayhem and destruction ensues. Most of the book's main characters are eaten.

The technology veers from prosaic to silly. Lee Hood would no doubt love to get hold of the fictional InGen's 24 "Hamachi-Hood" DNA sequencers, which can sequence a megabase a day each; but he does not have them now. Nor does anyone have the technology to turn three billion bases of sequence information into a dozen actual chromosomes by "splicing" pieces of PCR product together (what a wonderfully ambiguous technique, which Crichton performs by confusing sequences in a computer with those in the real world). And we have not yet got the DNA into an egg that would tolerate it. (This, we must recall, was meant to have taken place in 1989.)

But these are the pedantic pickings of someone who insists that his writers know the difference between a crocodile and a bird. More worrying is the message, and it starts before the story even begins, in an "introduction," which I can do no better than to quote:

The biotechnology revolution differs in three important ways from previous scientific transformations. Firstly, it is broadly based... Biotechnology research is now carried out in more than 2000 laboratories in America alone... Secondly, much of the research is thoughtless and frivolous. Indeed, the fact that biotechnology can be applied to the vagaries of fashion, such as cosmetics and leisure activities, heightens concern about the whimsical use of this powerful technology. Thirdly, the work is uncontrolled. No one supervises it. No federal

laws regulate it. There is no coherent government policy, in America or elsewhere in the world. And because the products of biotechnology range from drugs to farm crops to artificial snow, an intelligent policy is difficult... But most disturbing of all is the fact that no watchdogs are found among the scientists themselves. It is remarkable that nearly every scientist in genetics research is also engaged in the commerce of biotechnology. There are no detached observers. Everybody has a stake. (pp. ix-x)\*

It is difficult to list all the errors in this polemic, starting with the fact that there are four points in it, not three. Frivolousness is in the eye of the beholder—what to a middle-aged man is a frivolous piece of cosmetics marketing may to a teenager be the treatment for socially crippling acne. The lack of regulation is a straightforward lie: 59 state laws and 5 federal ones regulating biotechnology were passed last year in the U.S. alone. Lack of government policy coherence is not a criticism of biotechnology, but of government. And the charge that scientists are not involved in regulation is bizarre. The FDA, the EPA, USDA, United Nations, WHO, a vast panoply of universities and research institutes, and organizations from academic societies such as the American Chemical Society to Greenpeace have researchers in all the technologies that make up "biotechnology."

This is important because the gripping storytelling comes with a subtext. Pulsing away in the background, rising to a crescendo as the main characters are eaten alive by scientific folly, is the age-old message: "These fools are meddling with powers beyond their reach." It is directed firmly at biotechnology, and pretends that this is the biotechnology of today, and that these really are the people who are running it, unfettered by laws, regulations, common sense, or brains of any sort. Crichton hammers home his version of the biotechnologist's creed, that "there is only get-rich-quick, make-a-name-for-yourself philosophy. Cheat, falsify, lie—it does not matter" (p. 306).\* The examples of the propaganda could fill another two pages like this one, all of it presented as established truth.

This book is science fiction. So is the movie. But readers unfamiliar with the technology must not be fooled by a gilding of expertise into believing that the gold of fact lies in its technophobic stance. If we who believe that biotechnology has much to offer are not to be crushed beneath a stampede of the public misinformation that presents Crichton's viewpoint as science fact, then we must say why *Jurassic Park* is nonsense at all levels. We must say it loudly. And we must say it now.

\*Page nos. refer to the Ballantine paperback edition.