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## Hollywood Scientific Films

by Sasha Vasilyuk

Palaeontologist Jack Horner, a scientific consultant for *Jurassic Park*, concealed from the public for almost a year his discovery of tyrannosaurus rex remains in Montana. At the request of Universal Pictures, he synchronized the announcement of the discovery with the distribution of the third installment of the film series. When journalists learned about this, it was a scandal. Horner's colleagues were waiting for it: For a long time they had had a grudge against him—all those tyrannosaurs, velociraptors, and other ancient reptiles in Spielberg's films looked completely wrong. Horner answered that he sees them that way.

This ugly story and Horner's spoiled scientific reputation didn't frighten other scientists. In their free time, they keep working with scriptwriters and directors in Hollywood. The need for such consulting is growing. When computer technology, the internet, robots, bioengineering, and medical science are exposed in films, experts must be drawn to the movie production. "For example, hackers appear in almost any film," says mathematician Jonathan Farley, who is teaching at Harvard and Stanford and is a successful entrepreneur.

Business calls him to travel—in a month, Farley will move to Los Angeles to be closer to Hollywood. Jonathan is a founder of the first and still the only company that specializes in scientific consulting for scriptwriters and directors. Previously they had to call various universities to find someone who would tell them about setting up a lab for the comedy *The Nutty Professor* or about asteroids' velocity for *Armageddon* and *Deep Impact*. Now, Farley's company can render its service of scientifically accompanying all stages of film creation, from correcting mistakes in a script to writing meaningful mathematical equations on a blackboard.

Farley has six colleagues who help him. All of them are graduates from the leading universities of the USA and Great Britain. Farley decided to gather them together in 2001 after the films *Good Will Hunting* and *A Beautiful Mind*—about the difficult fate of mathematical geniuses—appeared. Jonathan recalls, "I was thinking then that a third film would appear for sure; I have to be in the right place and get acquainted with the right people." The third film about an ingenious but unhappy mathematician has not appeared yet, but Farley and his companions successfully participate in other projects with movie makers.

An example is a popular criminal serial on the CBS channel, *Numb3rs*. In its plot, a young mathematician helps his older brother, an FBI agent, to catch criminals. Farley was responsible for correctly writing mathematical equations and helped directors to find the appropriate area of mathematics in each show. Every Friday evening, millions of Americans were holding their breath trying to penetrate into the maze of mathematical analysis that was helping the main character in his dangerous service. The National Council of Teachers of Mathematics approved the scientific value of this serial as a means to raise high school students' interest in math.

The relationship between scientific consultants and movie directors is not always so easy. Sometimes studio people are concerned about scientific credibility only after a script is completed and approved, and see the role of scientific consultants as helping stage-designers. In 1995, Kathryn Peters, a stage-designer for *The Nutty Professor*, had to build a stage-lab for the main character, Sherman Klump. Kathryn asked Wayne Grody, a molecular biologist from UCLA, for help. Kathryn knew that, in his youth, he used to write papers about movies in medical journals.

The biologist liked the idea. "It was as if you construct a real laboratory, but in reality we couldn't afford this," he said. Grody showed Kathryn his lab and gave her several catalogs from which to choose the appropriate equipment. It had to be real for authenticity. Their joint work lasted for two months and resulted in realistic scenery.

Director Tom Shadyac ordered them to change everything. "I felt upset that he hung various pipes here and there," Kathryn recalls, "but nothing could be done. The director is the master."

Grody was paid only \$2,500, which he spent on his real laboratory at the department. He considers himself lucky. Very often Hollywood does not pay scientific consultants at all, or offers a choice: either a scanty honorarium or the mention of one's name in the captions.

Jonathan Farley confirms, "This is true." Once he received a letter from a large studio saying, we want to work with you, but have no money for scientific consultants in the budget. With the studios' multi-million dollar budgets, it is ridiculous. But scientific consultants understand that they must agree or they will miss the opportunity to make a little money and to socialize with famous actors and actresses—because movie people will invite another expert.

Working "for free" is not the only drawback to collaboration with directors. The most offensive is their ignoring the recommendations of the scientific consultants hired "just because." That is why audiences have the pleasure of laughing at and collecting silly mistakes in the movies. Costas Efthimiou, a physics instructor from a university in Orlando, created a course designed on movie mistakes, for example, by explaining to the students why a bus could not fly over an absent part of a bridge in *Speed*. "But this is useless," Efthimiou laments, "people get 'acquainted' with science more often from movies that do not correspond to scientific theories." Even his students prefer films in which scientific truth steps away for special effects or plots. For example, students from the department of physics considered the film *Deep Impact* boring (the consultant was astronomer Joshua Colwell from the University of Colorado), but *Armageddon*, whose plot was similar, was evaluated highly, with all its silly mistakes. Geologists, however, praised *Deep Impact*.