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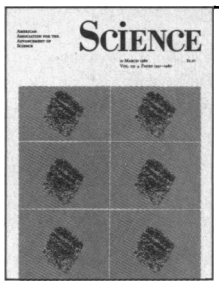
■ The American Association for the Advancement of Science was founded in 1848 and incorporated in 1874. Its objects are to further the work of scientists, to facilitate cooperation among them, to foster scientific freedom and responsibility, to improve the effectiveness of science in the promotion of human welfare, and to increase public understanding and appreciation of the importance and promise of the methods of science in human progress.



COVER Tomographic reconstruction of a planar section (0.5 millimeter) of a sample of Illinois no. 6 coal imaged on a grid of 512 by 512 pixels at a scale of 2.8 micrometers per pixel with synchrotron x-rays at 6.8 kiloelectron volts. False color highlights density fluctuations caused by features such as microscopic bedding planes and regions of enhanced iron (red) and sulfur (yellow). The image was obtained with a newly developed three-dimensional x-ray microtomography system that creates noninvasive images of the internal structure of small samples with resolution approaching 1 micrometer. See page 1439. [Corporate Research, Exxon Research and Engineering Company, Annandale, NJ 08801]

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The DNA Dragon 1

I have decided to become a movie star. It is not because I feel obliged to donate my natural good looks for the benefit of mankind. Rather, professional necessity dictates this move. In a short period of time I have read that the Los Angeles district attorney is prosecuting scientists for minor infractions of radiation safety, that a judge has suspended research at a distinguished medical school because the laboratories allegedly threaten the environment of the neighborhood, and that a state safety officer has notified a university chemistry laboratory that even trivial amounts of ordinary chemicals could not be flushed down the drains into the city sewage system. A new toxic waste law requires users to prove that a compound is "safe." It struck me that, try as we might, scientists who attempt to cure the epidemic of safety sweeping the country are doomed to fail. Obviously, the alternative in a free-enterprise society is to profit from the situation. If the tiny amounts of leaking chemicals are hazardous to the outside world, then certainly the individual living and working in a laboratory each day is subjected to enormous dangers. With space shuttles being made as safe as grandma's rocking chair, the ingenious scientist can become the well-paid daredevil of the late 1980s.

My movie will open on a family breakfast scene featuring my daughter Camille, my son Tiny Tim, and my tearful wife Portia. When Tiny Tim asks mother why she is crying, she will say, "Because Daddy is going to work where he'll be exposed to radiation, toxic chemicals, and genetically engineered organisms. We may never see him again!" Camille begs to know why I expose myself to such perils. I reply calmly, "Because I'm determined to construct an organism that converts trichloroethylene into Gatorade and methane, thus cleaning up the environment, providing energy, and improving physical activity, all in one fell swoop." As I rise, saying I must go, the children grab my trousers, plead with me to stay home, and Portia throws her arms around me weeping uncontrollably.

In the next scene, I am entering the laboratory. My assistants help me into my lead-lined laboratory coat, tie on my gas mask, and zip up my protective boots. Strapped next to my heart is the black box recorder that will reconstruct events in case tragedy strikes. The left lapel of my laboratory coat is festooned with ribbons and medals, including the Distinguished Service Medal for valor during the great Bunsen Burner Flameout of 1976 and the Oak-Leaf Cluster for heroism during the Rubber Tubing Meltdown of 1981. Concrete doors, 6 feet thick, open to allow me to enter the inner sanctum, which is arranged so that air enters but does not leave. Background music, Wagner's "Ride of the Valkyries," becomes louder and louder as I walk between shelves of ominous-looking bottles labeled "benzene," "carbon tetrachloride," and "DNA." At this point there is a projection from the microscope of a giant-sized bacterium tethered to a cover slip, flailing around viciously. I turn to my faithful servant, Sancho Panza, saying, "Quick, Sancho, the needle!" With trembling hands, loyal Sancho hands me the syringe with deadly DNA. As the music reaches a crescendo, I plunge the needle into the bacterium with the élan of St. George slaying the dragon. The movie then shows the bacterium reproducing, but this part will be cut as being too pornographic to allow the coveted PG rating. Sancho and I then wash with soap and take a shower in 6 molar hydrochloric acid, before emerging to rejoin our tense laboratory group.

The scene now shifts to the district attorney who is organizing a posse to catch the culprit whose handwashing has allowed 25 counts per minute of radioactivity, 10 milligrams of phospholipid, and a few soapsuds to escape into the city sewage system. We are arrested and indicted for releasing unsafe chemicals into the environment. We are rescued by the friendly bacterium, who has found eating trichloroethylene far more of a gourmet delight than city sewage and in gratitude gobbles up the radioactivity and phospholipids just in time to allow us to return to our rejoicing families.

Because of this film scientists will undoubtedly displace astronauts as the most idolized of modern heroes. Bills to accord scientists hazard pay will be introduced in legislatures. The television scientist-villain will disappear. My first film will initiate a series, to be followed by DNA Dragon 2, 3, 4, and on. Just as I am beginning to exult in my well-earned profits, I get a phone call from the president of Supercolossal Studios, Inc., who urges, "Since you scientists are fast becoming a threat to the movie business, let's make a deal. If you guys will stay out of films, our actors will stay out of toxic waste." Some of my myopic, unadventurous colleagues might consider that a happy outcome.—DANIEL E. KOSHLAND, JR.