News and Comment

Academy Proposes Science Education Overhaul

A new direction for science education that places greater emphasis on "understanding" and less on "facts" has been proposed by the National Research Council, the operating arm of the National Academy of Sciences (NAS).

In a lengthy draft issued in early December of last year, the authors present ambitious standards that the document says are intended to "guide the science education system toward its goal of a scientifically literate citizenry." Included are comprehensive programs for all students—from kindergarten through twelfth grade—that call for the teaching of a broad range of key principles and concepts rather than just facts and equations.

Bruce Alberts, president of the academy, believes the traditional teaching methods of science are simply ineffective. "We fail to convey what science is, and we kill off the curiosity of kids," said Alberts.

To combat this, the document calls for greater participation of children in the learning process with less emphasis on memorization. Although this will involve a trade-off in the number of scientific "facts" a child can learn, the authors believe that this teaching approach will allow students to understand the "big ideas" of science.

The draft also proposes broadening the learning experience of the student to include what it calls "minds-on experience." This entails a shift from teachers presenting information to students learning science through inquiry-oriented investigations, interaction with peers, and active involvement in group discussions.

Richard Klausner, a senior cell biologist at the National Institutes of Health who chaired the committee responsible for the draft, said that the proposals are not an attempt to create federal standards and establish uniformity but are meant to be "grass-root standards for the people who make decisions [on education] at the local level."

The content standards in the document propose eight categories of study to be taught to all pupils of all ages. In life sciences for example, children in grades K through 4 should learn the "characteristics of organisms." Grades 5 through 8 are expected to learn about "reproduction and heredity" and "populations and ecosystems." Grades 9 through 12 should be taught about "the cell" and "biological evolution."

Other areas of study include science as inquiry, science and technology, and the history and nature of science. The standards are intended to be used in conjunction with all elements of the program and the draft warns that "the standards cannot be used effectively if only a subset of these standards is used . . . ."

Around 30,000 copies of the draft are being circulated as part of an extensive consultation process. Recipients are asked to complete a review and comment form that rates the document and its individual sections on clarity, consistency, and appropriateness. According to Angelo Collins, director of the science education standards project staff, 1,400 individual reviews and 120 group reviews had been returned as of March 3.

—Tom Genoni, Jr.

Four 'Bottom Lines' Concerning Science Education

- Science should become a core subject like reading, writing, and math in grades K through 12.
- At all levels the material taught should be interesting to both students and teachers.
- Science teaching must become attractive as a profession that is possible to do without superhuman effort.
- The scientific community must accept responsibility for achieving these three goals.

—Bruce Alberts, President, National Academy of Sciences, at American Association for the Advancement of Science annual meeting, Atlanta, Feb. 19, 1995

The Geller Case Ends: 'Psychic' Begins Court-Ordered Payment of Up to $120,000 to CSICOP

The four-year legal battle is finally over. Self-proclaimed "psychic" Uri Geller has paid the Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP) the first $40,000 of up to $120,000 as part of a settlement agreement to a court-described "frivolous complaint" made by Geller against CSICOP. CSICOP announced the court settlement and first payments by Geller March 6.

The settlement ends a lengthy battle in the Washington, D.C., courts that began with Geller filing a $15-million suit against CSICOP and magician James ("The Amazing") Randi, alleging defamation, invasion of privacy, and tortious interference with prospective advantage. Geller filed suit because Randi had stated in an April 9, 1991, interview with the *International*

Herald Tribune that Geller had "tricked even reputable scientists" with tricks that "are the kind that used to be on the back of cereal boxes when I was a kid. Apparently scientists don't eat cornflakes anymore."

CSICOP, a not-for-profit scientific and educational organization dedicated, in part, to investigating claims of psychic phenomena, such as those made by Geller, was not charged with any specific conduct. CSICOP maintained throughout that the suit was a frivolous action brought by Geller to harass the organization. On July 27, 1993, the U.S. District Court in Washington, D.C., ruled in favor of CSICOP and ordered almost $150,000 in sanctions against Geller.

In efforts to overturn the sanctions award, Geller then lost two motions for reconsideration in the District Court, followed by a 3-0 loss in the U.S. Court of Appeals on December 9, 1994 (*SI*, March-April 1995), and most recently another loss in the appeals court when his petition for rehearing was denied on January 25, 1995.

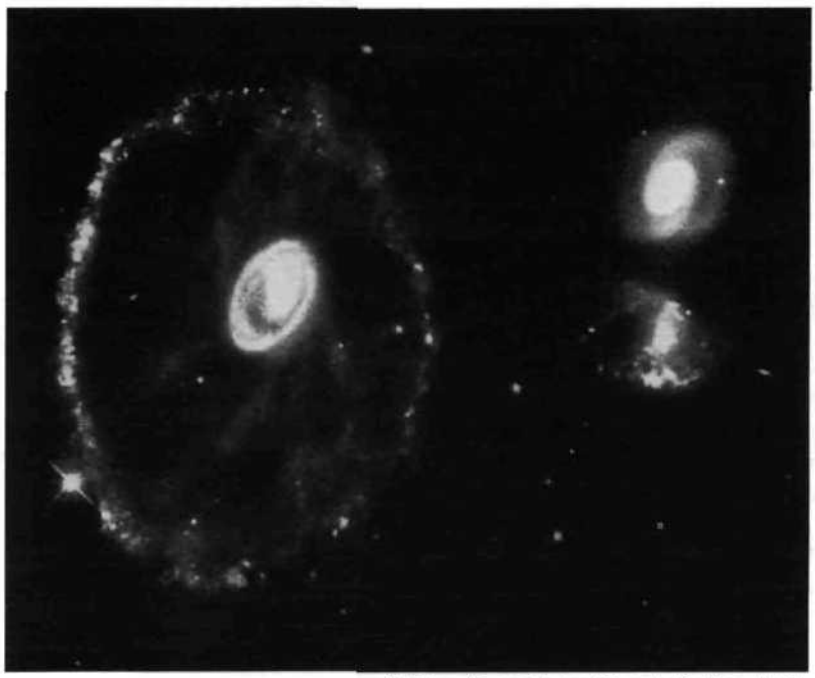
The settlement agreement calls for Geller to pay CSICOP $70,000 in cash over three years plus the first $50,000 of any sums recovered by Geller in a new action he is bringing against his former attorneys. In addition, Geller must also drop another suit against book publisher Prometheus Books and other skeptics filed in London, England.

In an earlier suit that Geller had brought against Prometheus Books, Victor Stenger, and Paul Kurtz, in Miami, Florida, Geller was compelled by the court to pay Prometheus Books an additional $20,000 in legal fees.

"Although we settled for somewhat less than the entire $150,000 awarded to us as sanctions for the frivolous suit," commented Barry Karr, CSICOP executive director, "we are very pleased with this victory. Prior to filing suit, Geller, an Israeli citizen living in England, placed his assets in trust, rendering uncertain our ability to collect. Instead of spending thousands more in legal fees to pierce the trust in London, we decided it was best to end it now."

Paul Kurtz, CSICOP chairman, said: "When the principles upon which CSICOP was founded are at stake, we are prepared to do battle all the way if it should prove necessary. We believe deeply in a free press, freedom of speech, and scientific inquiry, and the importance of dissent." He characterized the Geller suit as the "kind of suit being used as a means of silencing debate on significant scientific issues."

—Barry Karr



Kirk Borne (Space Telescope Science Institute) and NASA.

New Eye on Nature

A rare and spectacular head-on collision between two galaxies appears in this NASA Hubble Space Telescope image of the Cartwheel Galaxy, located 500 million light-years away in the constellation Sculptor. The new details of star birth resolved by Hubble provide an opportunity to study how extremely massive stars are born in large fragmented gas clouds.

The striking ringlike feature is a direct result of a smaller intruder galaxy—possibly one of two objects to the right of the ring—that careened through the core of the host galaxy. Like a rock tossed into a lake, the collision sent a ripple of energy into space, plowing gas and dust in front of it. Expanding at 200,000 miles an hour, this cosmic "tsunami" leaves in its wake a firestorm of new star creation. Hubble resolves bright knots that are gigantic clusters of newborn stars and *immense loops and bubbles blown into space by exploding stars (supernovae)* going off like a string of firecrackers.

The Cartwheel Galaxy presumably was a normal spiral galaxy like our Milky Way before the collision. This spiral structure is beginning to re-emerge, as seen in the faint arms or "spokes" between the outer ring and bull's-eye shaped nucleus. The ring contains at least several billion new stars that would not normally have been created in such a short time span and is so large (150,000 light-years across) our entire Milky Way Galaxy would fit inside.

Hubble's new view does not solve the mystery as to which of the two small galaxies at the right might have been the intruder. The lower galaxy of the two is disrupted and has new star formation, which strongly suggests it is the interloper. However, the smoother-looking companion has no gas, which is consistent with the idea that gas was stripped out of it during passage through the Cartwheel Galaxy. This image was taken October 16, 1994, and issued January 10, 1995.

Update

In the March-April issue we reprinted excerpts of the recent District of Columbia Court of Appeals decision in Uri Geller vs. James Randi and CSICOP.

On March 2, 1995, a court order was issued notifying all those involved of changes in the text:

"It is ordered, by the Court, that the opinion filed on December 9, 1994 is amended, as follows:

"*On page 5, Last line of first paragraph* Delete the word 'exposing' and substitute therefor 'attempting to expose.'"

'X-Files' Coriolis Error Leaves Viewers Wondering

Was it an honest mistake, or was it a deliberate attempt to spook viewers?

The January 27 episode of the ever-ominous series "The X-Files" (see Media Watch review, *SI*, March-April 1995) had FBI agents Fox Mulder and Dana Scully probing a ritual murder in a small New Hampshire town where the residents had the eerie feeling that a malevolent presence lurked.

At one point, a thirsty Mulder turns on a water fountain in the local school and stares at the draining water in amazement.

"The water," he says.

"What's wrong with it?" Scully asks.

"It's going down the drain counterclockwise," Mulder responds. "The Coriolis force in the Northern Hemisphere dictates that it should go down clockwise."

"That isn't possible," Scully says.

"Something is here, Scully," says Mulder, suddenly convinced that a supernatural force permeates the town. "Something is making these things possible."

There's only one problem: the supposedly brilliant Mulder and Scully (a physician with an undergraduate degree in physics) got it wrong.

All things being equal, water going down the drain in the Northern Hemisphere is *supposed* to spin counterclockwise. Under less than ideal conditions, the shape of the sink or the original flow of the water can easily overpower the Coriolis force, which is caused by the rotation of the earth.

(The water drains the way a tornado—and a hurricane—spins, which is counterclockwise north of the Equator and clockwise to the south.)

This wouldn't be the first time the show's writers have gotten their scientific facts wrong, especially involving cases of paranormal phenomena.

But in this case, were the people behind the show intentionally giving the wrong information in a mischievous attempt to spook plumbing-conscious viewers into believing that their neighborhoods are also permeated by supernatural forces?

Attempts to contact the writers through the show's publicist were unsuccessful.

If nothing else, the Coriolis reference generated some viewer interest.

On the Internet forum alt.tv.x-files.creative, a fan in Vancouver, B.C., asked if Mulder's reference was scientifically accurate.

"The reason I ask is that, as expected, out of pure curiosity, I immediately checked the two sinks in my apartment, and much to my surprise both drained counterclockwise," the viewer wrote.

It shows why Fox Mulder deserves his nickname of "Spooky."

—*C. Eugene Emery, Jr.*

Gene Emery is the science writer for the Providence Journal, *75 Fountain St., Providence, RI 02902.*

A Letter from the Editor to Ann Landers

Ann Landers
P.O. Box 11562
Chicago, IL 60611-0562

February 10, 1995

Dear Ms. Landers:

Last month you again published a letter about "eerie similarities" in the lives of assassinated Presidents Lincoln and Kennedy.

To my chagrin I realized—and one of our mutual readers, R. Thomas Myers of Kent, Ohio, reminded me—we apparently had never sent you the "Spooky Presidential Coincidences Contest" we ran in our magazine several years ago. I meant to do so because we thought it was both educational and entertaining.

Our contest was conceived specifically in response to your reprinting "for the zillionth time," according to our contest originator John Leavy of the University of Texas, those Lincoln-Kennedy coincidences.

Page C22, Saturday, January 14, 1995

Advice

Eerie similarities between Lincoln and Kennedy

The SKEPTICAL INQUIRER—now subtitled The Magazine for Science and Reason—promotes science and scientific inquiry, critical thinking, and the use of reason in examining important issues. We publish scientific evaluations of a wide variety of bizarre claims in an attempt to help educate people about how there often are perfectly normal explanations for them.

Leavy and his colleagues proposed a contest to show how easy it was to come up with equally amazing-sounding coincidences between other pairs of Presidents. In "Our Spooky Presidential Coincidences Contest" (SKEPTICAL INQUIRER, Spring 1992), they offered many such examples: McKinley/Garfield, Polk/Carter, Lincoln/Jackson, Madison/Wilson, Washington/Eisenhower, etc. We received many responses to our contest and published the offerings of the two winners in our Winter 1993 issue (published in December 1992). Here they are, again for your edification and amusement.

The point is that it is amazingly easy to come up with "amazing" coincidences. There are millions of variables in the life of every person. When we're given the latitude to select from among any of them, and then compare two people, it's almost inevitable that we can come up with a list that at first seems quite extraordinary, but in fact should be quite expected.

I hope you will enjoy our contest entries, and if you feel you have the occasion to share any of this with your readers, all the better.

Respectfully,

Kendrick Frazier, Editor
SKEPTICAL INQUIRER