



The **BEACON**

News from

The Coalition for Excellence in Science and Math Education

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President's Message

I had not anticipated becoming CESE President until June. However, our current President, Dr. Art Edwards, submitted his resignation in December. He wrote:

"In the last few months I have not been as active as is required for the President of this organization. There is a lot of work that can and should be done, but my responsibilities at work have expanded and, as a result, I am not undertaking any of the new initiatives the Board has set out. So, with great regret, I am resigning my position so that someone can serve as President who will move things forward and who will have the appropriate title to do so. I am also resigning from the Board."

CESE will sorely miss Art's leadership, but the challenges we face continue, and even grow. Last year, CESE devoted enormous effort in developing and modifying the revised science standards, seeking state and national support, and ultimately contributing to the State Board's adoption of these outstanding standards. To convert these standards into student achievement will require extensive additional work from teachers, scientists, parents, government, and business. However, the Intelligent Design community continues to be active at the local district and school levels, and we *must* continue our vigilance.

The passage of the two education amendments has consolidated enormous power in the hands of the Governor and his appointees. The legislature is currently addressing the role of the new Public Education Commission. CESE plans to work with the administration and with the legislature to assist in improving student achievement in New Mexico.

Nationally, Intelligent Design and Biblical creationists are active in many states, at both the legislature and state board levels. In Georgia, Superintendent of Education Kathy Cox proposed that the word "evolution" be removed from the state standards along with references to the great age of the earth (shades of New Mexico in 1997!). Supt. Cox is on record as stating her support for teaching creationism through local option, and apparently believes that creationism is a "competing theory" (Dana Tofig, *Atlanta Journal-Constitution*, Oct. 1, 2003). She has told reporters that the new standards would allow students to be taught, in the reporter's words, "all legitimate theories," and specifically mentioned Intelligent Design (ID) (Mary MacDonald, *Atlanta Journal-Constitution*, Jan. 30, 2004).

"By putting the word in there, we thought people would jump to conclusions and think, 'OK, we're going to be teaching the monkeys-to-man sort of thing.' Which is not what happens in a modern biology classroom," Cox said. But the

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Email submissions (subject to edit) to Editor, Nancy Shelton nshelton10@comcast.net

Thank you

Contributions, in addition to dues, were received in December and January from the following members: (Total contributions were \$430.)

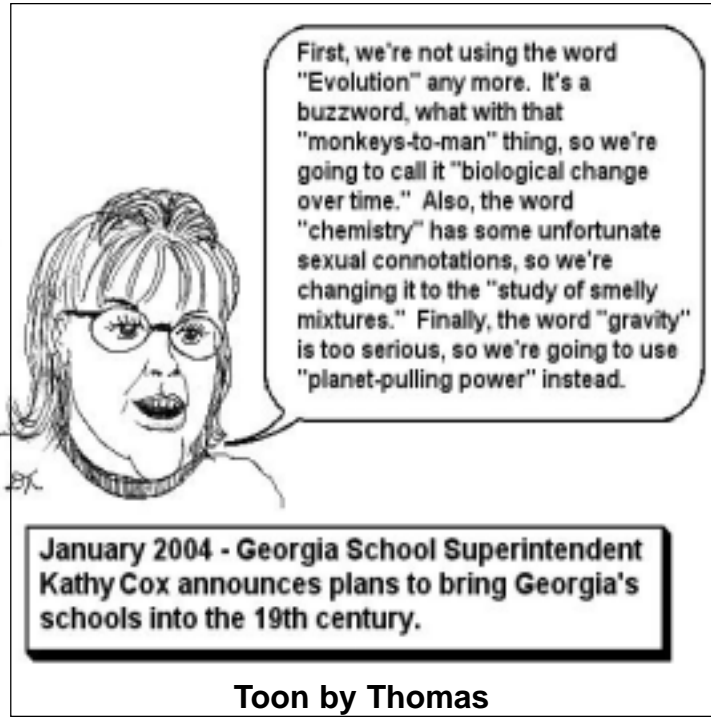
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Our financial status compels us to continue looking for ways to economize.

If you are an individual who doesn't pay dues (and are not a government or business organization) We prefer that you send us your e-mail address so we can notify you when the Beacon is on line. This will allow us to save printing and postage costs.

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Toon by Thomas

Notice: Re email addresses:

To anyone on CESE-connected lists: If your email address changes, please notify Marilyn Savitt-Kring <mmkring@juno.com> so we can keep in touch.

Msg. continued from page 1

revised curriculum does not include most of the national benchmarks that cover the evolution of living things. Omitted are the explanation of natural selection—how organisms with inherited advantages are more likely to survive and reproduce—and statements such as: “Life on Earth is thought to have begun as simple, one-celled organisms about 4 billion years ago.”

Initially, Governor Sonny Perdue declined to give a detailed comment on the issue. But in an interview shortly after his November 2002 victory, Perdue said he had “no problem” with children being exposed to creationism, evolution and other theories, but said the decision should rest with the local school districts. And recently, the governor told a reporter that using the word “evolution” was OK and even desirable, but “there ought to be a balance.” Perdue said he was concerned about teachers who go beyond teaching evolution as a “theory” and teach it as a proven fact. “I think we need to have academic freedom, but we need to have academic balance as well.”

Superintendent Cox, in the face of strong public opposition (including a statement from former President Jimmy Carter*) has just recently dropped her disingenuous proposal to remove the word “evolution.” But given her previous statements and actions, this will not end the many other problems with

Georgia’s “modified” standards.

Missoure legislators have introduced a new bill requiring that teachers discussing evolution also cover intelligent design. A textbook battle has developed in Oklahoma. Other creationist/ID fires are erupting in Ohio, Montana, Michigan, and across the country.

At APS, Superintendent Beth Everitt recently sent a memo to all principals that included the following statement: “Therefore, we encourage principals and teachers to review their school curriculum and phase out enriched classes. We know that some middle schools and most high schools have removed all enriched classes, while others are in the process. Much progress has been made.

So CESE continues to face many challenges in its ardent defense of teaching high quality science and mathematics. Please encourage others to join us, become more active, and help our cause with dues and contributions.

Also please mark your calendar for our **8th Annual Meeting on June 13, 2004.**

Marshall Berman
CESE President

*The letter in the next column was released on Jan. 30th by the Carter Center.

"As a Christian, a trained engineer and scientist, and a professor at Emory University, I am embarrassed by Superintendent Kathy Cox's attempt to censor and distort the education of Georgia's students. Her recommendation that the word 'evolution' be prohibited in textbooks will adversely effect (sic) the teaching of science and leave our high school graduates with a serious handicap as they enter college or private life where freedom of speech will be permitted.

"Nationwide ridicule of Georgia's public school system will be inevitable if this proposal is adopted, and additional and undeserved discredit will be brought on our excellent universities as our state's reputation is damaged. All high school science teachers, being college graduates, have studied evolution as a universal element of university curricula, and would be under pressure to suppress their own educated beliefs in the classroom.

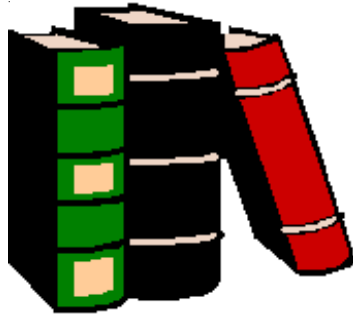
The existing and long-standing use of the word 'evolution' in our state's textbooks has not adversely affected Georgians' belief in the omnipotence of God as creator of the universe. There can be no incompatibility between Christian faith and proven facts concerning geology, biology, and astronomy. There is no need to teach that stars can fall out of the sky and land on a flat earth in order to defend our religious faith.

"Fortunately, it is the responsibility of the State Board of Education to make the final decision on the superintendent's ill-advised proposal."

Source:

http://www.11alive.com/help/search/search_article.aspx?storyid=42289

BOOK REVIEW



The Best Book I've Read in Over a Year

If you've ever cut your thumb and lost its full function for a short time, you quickly realize how often you need an intact thumb. Electricity in our daily lives is at least as useful as that nifty opposable digit. Even a short power interruption brings our electric-hungry world to a screeching halt. Jill Jonnes in ***Empires of Light: Edison, Tesla, Westinghouse, and the Race to Electrify the World*** (Random House 2003) has done a scintillating job of telling the story of just how electricity has become so much a part of our lives.

It is a tale primarily of Thomas Edison, well known for the light bulb and General Electric, but less known for his violent distrust of alternating current—and George Westinghouse, Pittsburgh engineer and financial backer—and the not-so-well-known Nikola Tesla, an immigrant from Serbia who was kicked out of high school for gambling. These three men through genius, painful hard work, and a bit of luck created not only the mechanical parts but the infrastructure to make and distribute electricity.

While there is enough intrigue, overt scheming and drama to fill a well-lighted stage, the highlight of this tale is the story of William Kemmler, the first man to be put to death in the electric chair. Jonnes recounts this story with the precision of a master storyteller. Kemmler took an ax to his wife and brutally murdered her in

front of their four-year-old daughter. He immediately confessed to the killing and said, "I'll take the rope for it." Little did he know how much more pleasant the rope would have been than his botched electrocution. He also could not know how his death would become a symbol for the great debate between direct and alternating currents.

Alternating current was chosen as the best means to kill a human; this delighted Thomas Edison whose selling point for direct current was its inherent safety. William Kemmler died on a Friday morning in 1889. It was not, however, what anyone had planned. After the initial surge of electricity, Kemmler was examined and the doctor found blood still pulsing out of a cut on his finger. The alternating current generator spun back to life to deliver a final fatal jolt of electricity. Alternating current had clearly shown how deadly it could be in the right or wrong hands.

In the end, alternating current left Edison behind because it could be transmitted over large distances. In fact, after Edison left General Electric, he invested large sums of money in an ill-fated venture to remove iron ore from rock. Tesla, the true wizard of alternating current, ended his life broke and with a mind filled with impossible dreams—including his professed love for a pigeon. Westinghouse went on to use his alternating current patents, which were basically stolen from Tesla, to build a huge empire.

This really is a first-rate history of the beginning of the electric age. Jonnes has the training and detail of a historian and the gift of a good writer. I encourage you to use your thumb and forefinger to switch on an electric light and read this fascinating account of the early years of electricity.

Steve Brugge
Past CESE President

Project R.E.A.C.H., Resources for Educational Achievement for Children in Homelessness

The Albuquerque Public Schools Title One Homeless Project has been in operation for over ten years. The program is primarily funded by Title One and McKinney-Vento Act dollars with supplementary funding for the program coming from various grants and donations. Under the federal law homelessness is defined as, "lacking a fixed, regular, and adequate nighttime residence." This includes children and youth who are sharing housing with others due to loss of housing, economic hardship, or similar reason; are living in motels, hotels, trailer parks, in the open, in shelters; or abandoned. Last year we served over 2500 students who were referred to our program and we expect to exceed 3000 this school year. Our program objective is to make sure that all children and youth who are referred have the opportunity to enroll in school, stay in school, and ultimately graduate with a high school diploma.

A highlight of our program is the philosophy that all children should be encouraged to attain the highest standards, especially in those academic subjects that provide the tools to break the cycle of poverty and homelessness. Science and math education does not take a back seat to anything in our efforts. We are expanding our program this year to seek more high school age students who have not been identified as qualified in the past. For these students we provide bus tokens to get to school, backpacks and school supplies as needed, and personal contact to ascertain what options may be most effective in keeping these students on a planned course of action to graduate. All available options, including school of origin, alternative schools, and charter schools are researched for each student involved in the program. It is important to break the stereotypes associated with homelessness. The students and families we deal with are eager to have their children graduate with high achieve-

ment and opportunities to go on to higher education. High skill, high wage job opportunities are eagerly sought, especially by young people who are already working to survive on a day-to-day basis.

While basic funding for our program comes from Federal Title One, money to supplement the program comes from donations and grants from various sources. An example of the things we are able to do for our children with the supplementary money is the purchase of advanced scientific calculators to give to high school students who are working on A.C.T and S.A.T. exams. More basic needs of students are met such as those of a high school student who carries a high grade point average but did not have shoes. The student wore a size 16 and could not afford to have boots fitted to his size. We took him to a specialty store and ordered boots. He is a highly motivated student, taking the city bus to school from the motel he lives in with his brother, mother and stepfather. We supply bus tokens. The money we raise through grants and donations makes it possible to go beyond federal requirements and see that no child is indeed left behind.

We can be reached at 256-8239 ext. 11 for Helen Fox, Program Liaison or ext. 17 for Don Whatley, Resource Teacher, for more information on the program.

Don Whatley



The Kid in the Next Desk

It is no secret that poor minority children don't do as well as middle class Anglo children. We have previously looked at poverty and English deficit as likely factors for lower performance. We have considered – admittedly without much data – the likelihood that group culture plays a role. However, let's look at something else. Let's consider the school milieu. Specifically, what do most of the students in the school look like? After all, the students themselves are the most important part of the school environment.

First, let's look at the ethnic backgrounds of the students in the school. Figure 1 shows the average score of Anglo, Hispanic, and American Indian students as a function of the fraction of Anglos in each grade in each school. Does this seem astonishing? Could your kid's success depend on the race of the kid in the next desk? Well, on an average, maybe so — this shows up for every ethnic group. All do better in a class with fewer minority students. I call this the "milieu effect."

You can see that the increase in performance in going from a very low Anglo fraction to a very high fraction is comparable to the size of the average ethnic gaps. Someone might look

at Figure 1 and say that all we need to do is homogenize the schools and the gaps between Anglo and minority students will disappear. Look again. The state Anglo fraction in 2001 was about 36%. If we could completely integrate all schools to have 36% Anglos in every class (manifestly impossible) Hispanic, Indian, and Anglo scores would be about as shown by the second symbol, leaving the overall average and the ethnic gaps about where they are today. This explains why forced integration has seldom lived up to its promise. On the other hand, the parents of a minority child would do well to try to get the child into a largely Anglo, affluent school. Although it doesn't work for the whole system, it can work for an individual. You might ask how integrated NM schools are now. The answer is: not very. The average Anglo kid was in a class with 51% Anglos, 1.42 times the overall state school average. The average Hispanic kid was in a class with 27% Anglos, and the average Indian kid was in a class with only 22% Anglos. In schools on or near reservations, it's closer to 0%.

Some researchers claim to have found that the ethnic effect almost disappears when one controls for social class on nationwide scores. Race is an absolutely taboo subject for some people,

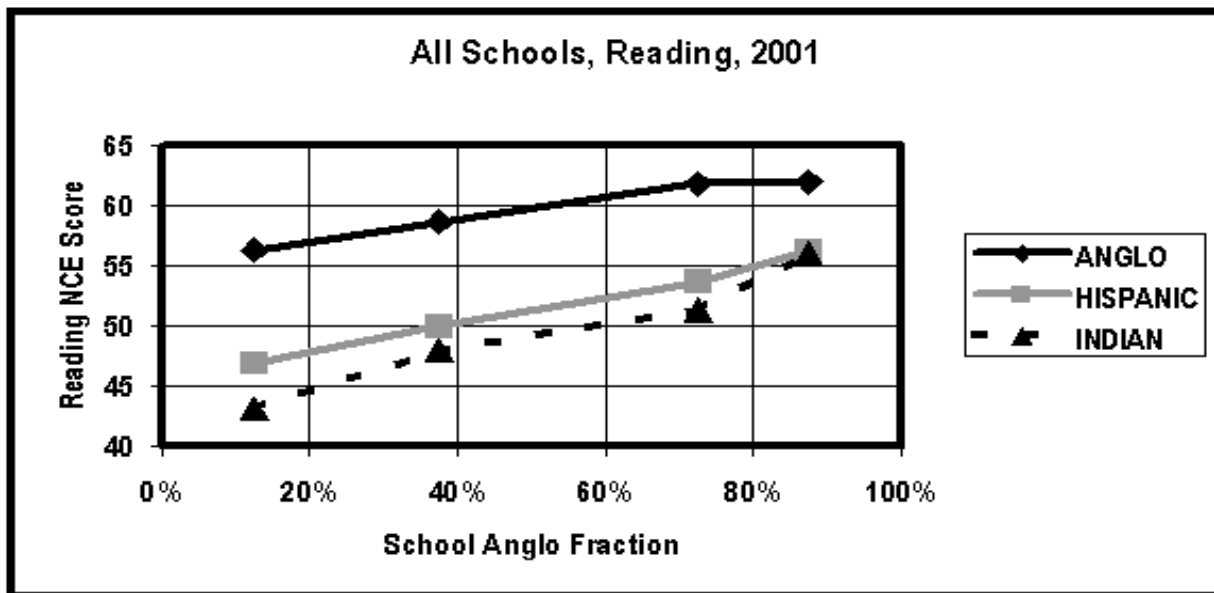


Figure 1. Reading Scores vs. School Anglo Fraction

and they will do anything to avoid having to mention it. I wanted to see if social class eliminates the milieu effect in New Mexico schools. When I controlled for poverty, I found the effect was diminished but by no means eliminated. I then developed a “demographic index” for each school based on a least squares best fit of poverty, minority fraction, and fraction of English challenged students. An index of 1.0 is the worst possible combination of demographic factors, and an index of 0.0 means no unfavorable demographics. Then I analyzed the scores for each ethnic group within broad ranges of the index: 0.0 to 0.25, 0.25 to 0.5, etc. Figure 2 shows the results. Because there are almost no Anglos in the schools with extremely high demographic index, I could not get a value for Anglos at the high end of the index. The statewide average demographic index is about 0.4.

Apparently, the milieu effect really does operate. Every ethnic group does better in schools with fewer minorities, less poverty, and less English deficit. It really does matter what most of the students in a school are like. I had no information on parents’ education, which probably has an effect. I have already found that quantitative teacher variables (degrees, expe-

rience, etc.) have only a small effect on scores. The really important teacher variables are innate ability, subject matter knowledge, motivation, enthusiasm, and perseverance. These are not readily quantifiable, so we don’t know whether they might change the picture.

Race, poverty, language deficit, parents’ education, teacher ability, and the schools themselves are so badly entangled that it’s hard to pick out the real causes of the milieu effect. We don’t know whether the schools are at fault, or whether the major cause is poverty and English deficit, or whether all the students share group expectations and attitudes. If we are serious about eliminating the racial/poverty gaps, we had better find out. Trying to reduce the gaps without understanding what causes the problems is like trying to repair your car without knowing what’s wrong with it. This is why past efforts have not panned out; they have too often been based on half-baked, intuitive, highly emotional ideas about causes. It’s going to require lots of reliable data, thorough analysis, careful planning, and *hard work*. Let’s get at it.

Walt Murfin
CESE Statistician

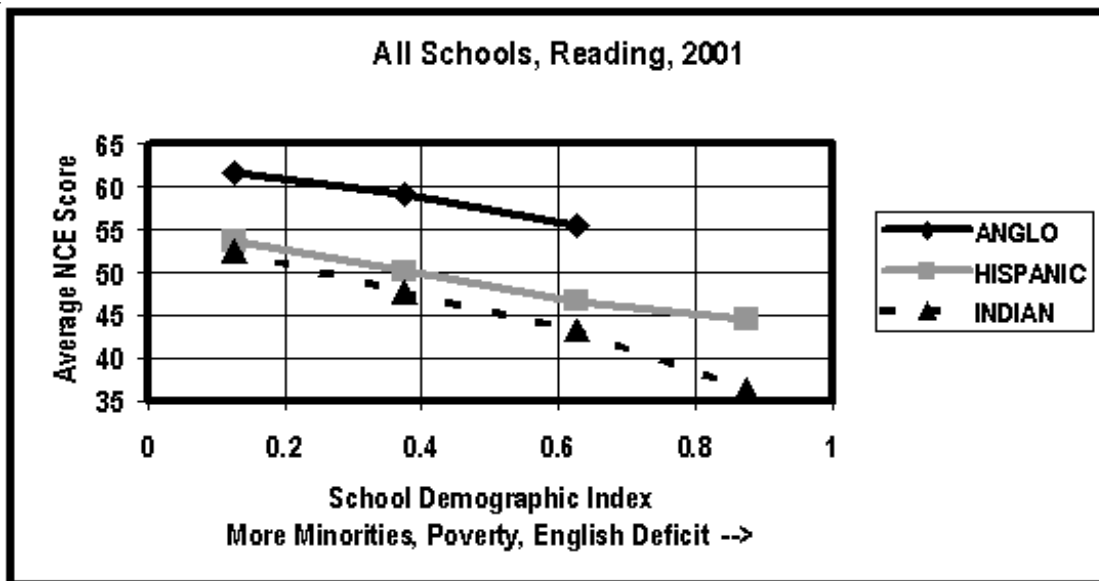


Figure 2. Reading Scores Vs. Demographic Index.

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