

**IN THE UNITED STATES COURT OF APPEALS
FOR THE ELEVENTH CIRCUIT**

**No. 05-10341-II
and
No. 05-11725-II**

**COBB COUNTY SCHOOL DISTRICT, ET AL.,
Defendants/Appellants**

v.

**JEFFREY MICHAEL SELMAN, ET AL.,
Plaintiffs/Appellees**

On Appeal from the United States District Court
for the Northern District of Georgia
Atlanta Division

**BRIEF OF GEORGIA CITIZENS FOR INTEGRITY IN
SCIENCE EDUCATION, ET AL. AS *AMICI CURIAE* IN
SUPPORT OF APPELLEES**

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Michigan Citizens for Science

Nebraska Religious Coalition for Science Education

New Mexico Academy of Science

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STATEMENT OF ISSUES

1. Whether the disclaimer stickers adopted by the Cobb County School District violate the integrity of public school science education by undermining students' understanding and comprehension of evolution, the dominant scientific theory regarding the origin of the diversity of life and a concept accepted by the majority of the scientific community?
2. Whether undermining students' understanding and comprehension of evolution abridges the adequate public education guaranteed by the Georgia Constitution by depriving students of reputable training in science?

INTRODUCTION

Proposed amici curiae are twelve grassroots, non-profit, public interest groups from eleven states, including Georgia, founded to promote science literacy and world class science teaching in the public schools of their respective home states. Their members include parents, teachers, scientists, academics, clergy and business leaders. Amici are more particularly described below.

INTEREST OF AMICI CURIAE

Amici believe that their expertise in education, science, and particularly the teaching of the biological sciences, will assist the Court in determining whether the Cobb County Board of Education disclaimer sticker regarding evolution would have a deleterious effect on science education in general and education in the biological sciences in particular as well as whether it would so compromise the integrity of scientific education as to effectively deprive Cobb County students of the adequate public education guaranteed them by the Georgia Constitution. Amici seek to clarify and underscore the broader risk to science education and education in the biological sciences should this Court overturn the District Courts decision in this case. Amici apprehend a danger of which they wish to apprise the Court that a tactic such as the use of textbook disclaimer sticker adopted in Cobb County, if legally validated, will proliferate and undermine science education elsewhere in Georgia and throughout the United States. Amici believe that an adequate scientific education requires that students accurately be informed of the theory of evolution.

COMPLETE LIST OF AMICI CURIAE

The twelve organizations comprising amici are as follows:

Georgia Citizens for Integrity in Science Education (GCISE) consists mainly of Georgia parents concerned about the negative impact of religiously motivated interference in public school science education. GCISEs Advisory Board includes biotech industry executives, teachers, university professors from fields including biology, chemistry, and physics, and 11 leaders of religious groups.

Alabama Citizens for Science Education consists of scientists, educators, parents and other concerned citizens. It contends that the *amicus curiae* brief of the State of Alabama in this matter does not speak for the citizens of the State.

Texas Citizens for Science has about 200 members, including professional scientists as well as concerned citizens. It contends that the *amicus curiae* brief of the States of Alabama and Texas does not speak for the citizens of Texas because a former Texas Attorney General found that an evolution disclaimer was unconstitutional and the States Board of Education concurred.

Colorado Citizens for Science includes a variety of citizens, including school teachers, distributed throughout the state.

Kansas Citizens for Science has a Board of Directors that includes teachers, science professors, computer specialists, businesspeople, clergy, and parents.

Michigan Citizens for Science is a group of concerned citizens, businesspeople, parents and educators. Its advisory board includes several eminent scientists, such as Professor

Robert Pennock, widely viewed as the leading philosopher of science regarding the debate over evolution, and Howard J. van Till, Professor Emeritus of Physics and Astronomy at Calvin College (an evangelical Christian institution of higher education) and a founding member of the International Society for Science and Religion.

Nebraska Religious Coalition for Science Education is a network of scientists and professors, clergy of various faiths, high school teachers and other citizens working to demonstrate that religion and serious science are fully and mutually compatible.

New Mexicans for Science and Reason has a membership consisting of scientists, engineers, and non-professionals. New Mexico is the state with the highest number of scientists per capita as compared to any other state in the nation, and the group draws on mainstream scientists to discuss and review many issues, including the issue addressed in this Brief.

The Coalition for Excellence in Science and Math Education is comprised of over 200 citizens throughout New Mexico and the nation, including scientists, engineers, educators, university faculty, members of the clergy, and parents.

Ohio Citizens for Science members include parents, educators, and the faith, business, scientific, and agricultural communities.

Oklahomans for Excellence in Science Education has a Board of Governors that includes twenty college and university professors, among them the President-Elect of the Oklahoma Academy of Science, other scientists employed in business and consulting, and three clergypersons.

TonkaFocus is an informal group of parents, educators, community members, and students working to preserve the integrity of public schools in Minnetonka, Minnesota.

SUMMARY OF ARGUMENT

If this Court reverses the District Court and permits the sticker disclaiming evolution to be returned to science textbooks in Cobb County, Georgia, science education in the county, throughout the State and all over the nation will be seriously undermined. A sound science education rests on evolution which is the linchpin of modern biology, central to other sciences, and a cornerstone of proficiency in the scientific method. A sound science education is a prerequisite to preparation for the responsibilities of citizenship, the rigors of higher education and the demands of a competitive global economy. The disclaimer sticker at issue here violates the integrity of the science education offered in Cobb County. It also violates the mandate of the Georgia Constitution that the State must provide an adequate public education that prepares students to function in modern society. And, as the District Court held, it violates the Establishment Clause of the First Amendment by crossing the permissible boundaries of discretionary accommodation and bending the core curriculum of public schools to promote sectarian goals. For all of these reasons, explained below, the ruling of the district court should be affirmed.

ARGUMENT AND CITATIONS OF AUTHORITY

I. A Sound Science Education is Essential to the Development of Responsible Citizens Who Are Adequately Prepared To Vote, To Benefit From Higher Education, And To Hold The Jobs of the Twenty-First Century.

A high quality education through secondary school is essential to achieving four of our society's primary goals: (i) producing an educated electorate, a key component of a strong, effective, and stable democracy; (ii) preparing students for higher education; (iii) preparing students for employment; and (iv) promoting economic development.

A. Preparation for citizenship. The United States Supreme Court has made clear that education is the very foundation of good citizenship. *Brown v. Board of Education* [*Brown I*], 347 U.S. 483, 493, 74 S.Ct. 686 (1954). As this Court has recognized:

[O]ne of the major objectives of public education is the inculcation of the fundamental values necessary to the maintenance of a democratic political system. *Smith v. Bd. of School Commrs of Mobile County*, 827 F.2d 684, 692 (11th Cir. 1987) (quoting *Sch. Dist. No. 403 v. Fraser*, 478 U.S. 675, 680 106 S.Ct. 3159 (1986) (quoting *Ambach v. Norwick*, 441 U.S. 68, 77, 99 S.Ct. 1589 (1979) (brackets in original)).

A quality science education provides students with a foundation for comprehending the scientific dimensions of topics that they encounter not only in a pedagogical setting but also as citizens in everyday life, including, among others, agriculture, bioethics, medicine, energy, and ecology. Only with a sound scientific education can students hope to participate in the political process as educated voters and politicians. Further, an understanding of the basics of science and scientific reasoning is essential to competent jury service in trials which increasingly involve expert testimony.

B. Higher Education. Students who have not had a competent science education are unprepared for college and may even be denied admission. If admitted, they risk being competitively disadvantaged or being required to take remedial courses in order to master college-level material. According to a national survey of science competency

conducted in 2000, 48% of Georgia's eighth graders failed to achieve even the basic level of scientific knowledge and reasoning, well below the national average. C. Solomon, L. Jerry and A. Lutkus, *The Nations Report Card: State Science 2000, Report for Georgia* (U.S. Dept of Educ., Office of Educ. Research and Improvement, Natl Ctr. for Educ. Statistics, No. NCES 2002-453 GA, 2001), *available at* <http://nces.ed.gov/nationsreportcard> (only four states have more students scoring below basic than Georgia). These students will likely fall even further behind during high school if their schools fail to provide them with a standard science education, and will likely need remedial science training if they attend college. Editorial, *Our Opinion: Science education fails states students*, Atlanta Journal Constitution, January 23, 2005 at 6E.

The spillover from inadequate secondary school preparation undermines the economic value of higher education and inhibits the ability of the State of Georgia and of the entire United States to produce quality scientists. A recent report from a task force formed by 22 leading science associations and technology firms (including, among others, the Association of American Universities, the Southeastern Universities Research Association, Microsoft, Intel, Lucent and the National Association of Manufacturers) warned that the United States economy is losing its edge in scientific discovery and innovation, in part as a result of a declining number of science majors. Task Force on the Future of American Innovation, *The Knowledge Economy: Is the United States Losing Its Competitive Edge?, Benchmarks of Our Innovation Future*, at <http://www.futureofinnovation.org> (Feb. 16, 2005). The rapid erosion of the research and

development advantage which characterized the United States during the second half of the twentieth century threatens our economy and quality of life as well as our national security. *Id.* at 2 (*quoting* the Hart-Rudman Commission on National Security, *Road Map for National Security: Imperative for Change*, available at <http://govinfo.library.unt.edu.nssg/PhaseIIIFR.pdf> (Feb. 15, 2001)). We now produce a declining proportion of published scientific papers, marketable discoveries, and Nobel laureates compared to our overseas competitors. *Id.* at 7, 13-14, Statement of Rep. Frank Wolf, Press Conference Introducing Math and Science Incentive Act of 2005, available at <http://www.house.gov/wolf/news/2005/04-12-loanforgive.html> (Apr. 12, 2005). See also American Electronics Association, *Losing the Competitive Advantage? The Challenge for Science and Technology in the United States* by Matthew Kazmierczak, Josh James and William T. Archey, at 17, available at http://www.aeanet.org/Publications/idjj_AeA_Competitiveness.asp (2005). Our educational system is simply not producing enough scientists to meet our needs.

C. Employment and Economic Growth. Quality science education is essential to the economic health of the State of Georgia and the prosperity of its citizens. For example, knowledge of biology is indispensable to modern agribusiness, which is Georgia's most important and powerful industry. Georgia Farm Bureau, *Georgia Ag Facts*, available at <http://www.gfb.org/agfacts/facts.htm> (last visited May 26, 2005).

Similarly, Georgia's students will not be able to compete in an increasingly biotech-oriented global marketplace if they do not receive a quality science education in secondary

school. The State of Georgia has made development of its bioscience industry a high priority and is currently tied for eighth in the number of biotech firms located within its borders. Erin Moriarty, Bioscience corridor in the works for Ga. 316, Atlanta Business Chronicle, January 3, 2005 (May 23, 2005), *available at* http://www.bizjournals.com/industries/health_care/biotechnology/2005/01/03/atlanta_focus_5.html. The State has announced plans to develop University Parkway (Georgia Highway 316), which connects Athens to Atlanta, into a bioscience industry corridor similar to North Carolina's successful Research Triangle Park. Assn County Commrs of Georgia, Occonee County: Raising the bar for progress, and high technology, in Georgia, *at* <http://www.accg.org/detail.asp?ID=4269> (Feb. 15, 2005). But development is already encumbered by concerns about the states inadequate educational system. In 2002, the Growing Georgia's Bioscience Industries Conference warned that:

[t]he poor reputation of Georgia's K12 system is an obstacle to recruiting bioscience companies because decision makers at these companies will not relocate to the state if they perceive there is not a proper work force pipeline, or if they perceive there to be a substandard education system for their employees children.

Atlanta Regional Consortium for Higher Education, Growing Georgias Bioscience Industries: Report on Conference Focus Group Discussions, at 4, *at* <http://www.atlantahighered.org/archereports/biosciences/biosciencenotes.pdf> (2002).

D. Promoting Economic Development. The bioscience industry needs workers who understand the principles of evolution and evolutionary processes in order to research, develop, and manufacture its products, which include medicines, pesticides, and crops. A

recent study of the factors that contributed to San Diego's success in developing its leading biotech cluster concluded that such an enterprise requires a science work force provided by the fundamental building blocks: pools of talent, human capital and their respective capacity to fulfill the technical and operational requirements. Milken Institute, *Americas Biotech and Life Science Clusters: San Diego's Position and Economic Contributions* by Ross DeVol, Perry Wond, Junghoon Ki, Aremen Bedroussian and Rob Koepp (June 2004) at 2.

Evolution education is also indispensable to the medical community, another key industry in Georgia, which is home to the Centers for Disease Control and Prevention as well as to four medical schools, three pharmacy schools and one veterinary school. Medicine relies on the principles of evolution in the quest to develop new drugs and to use those drugs safely. The evolution of new diseases and supergerms resistant to multiple antibiotics is a major public health concern, as is the increasing incidence of viruses jumping from their animal hosts to humans (e.g. bird flu, West Nile virus, Ebola virus, SARS, HIV). David M. Morens, Gregory K. Folkers and Anthony S. Fauci, *The challenge of emerging and re-emerging infectious diseases*, 430 *Nature* 242, 248 (July 8, 2004) (evolutionary conflicts underlie the emergence of rapidly evolving infectious agents). Doctors and patients aware of the risks of supergerms and mutation (because they have studied how evolutionary processes work) are essential to public health.

II. The Cobb County Disclaimer Distorts Science Education and Violates Its Integrity.

Cobb County students cannot receive a quality biology education as long as the Cobb County sticker disclaiming evolution remains on their biology textbooks. As Theodosius Dobzhansky, the father of evolutionary genetics (and a devout Christian) explained, "[n]othing in biology makes sense except in the light of evolution." Theodosius Dobzhansky, *Nothing in Biology Makes Sense Except in the Light of Evolution*, 35 *The American Biology Teacher* 125 (March 1973), available at http://www.pbs.org/wgbh/evolution/library/10/2/text_pop/l_102_01.html. The National Science Teachers Association (NSTA) asserts that without knowledge of evolution students will not achieve the level of scientific literacy they need. NSTA Position Statement: The Teaching of Evolution, at <http://nsta.org/positionstatement&psid=10> (May 23, 2005). The NSTA cites the National Research Council's *National Science Education Standards* and the American Association for the Advancement of Sciences (AAAS) *Benchmarks for Science Literacy*, for the uncontroverted proposition that scientific disciplines with a historical component, such as astronomy, geology, biology and anthropology cannot be taught with integrity if evolution is not emphasized. *Id.* See also Letter from Alan J. Leshner, CEO, AAAS, to George Griffith, Science Consultant, Kansas State Dept of Educ. (April 11, 2005), at <http://www.aaas.org/news/releases/2005/0412kansas.pdf> (the concept of evolution is well-supported by extensive evidence and accepted by virtually every scientist). The Cobb County sticker disclaiming evolution undermines the integrity of biology education because it invites students to pursue baseless challenges to the grand, unifying

concept of modern biology which is supported by overwhelming scientific evidence.

According to Professor Francisco J. Ayala, an evolutionary biologist, National Medal of Science recipient, former president of the American Association for the Advancement of Science (the worlds largest general science organization) and priest: to learn modern biology without evolution is like trying to learn mathematics without subtraction and addition. Elaine Gale, *O.C. Religion: God Welcome in Biologists Lab; Ex-priests unique perspective bridges gap between science, religion*, Los Angeles Times, Sept. 4, 1999, at B-2.

The suspicion and disbelief that the disclaimer sticker encourages about the unifying theory of modern biology is diametrically at odds with and clearly distinguishable from the productive and verifiable questioning that is at the heart of scientific analysis. NSTA Position Statement. As the District Court concluded in *McLean v. Arkansas Board of Education*, when a school mixes science with material that is simply not science, it is engaging in fallacious pedagogy. 529 F. Supp. 1255, 1267 (E.D. Ark. 1982) (Overton, J.) (permanently enjoining balanced treatment for creation-science and evolution). Based on expert testimony at trial, the judge explained that science is what is accepted by the scientific community and is what scientists do. *Id.* He continued:

[T]he essential characteristics of science are:

- (1) It is guided by natural law;
- (2) It has to be explanatory by reference to natural law;
- (3) It is testable against the empirical world;
- (4) Its conclusions are tentative, i.e. are not necessarily the final word; and
- (5) It is falsifiable.

Id.

More precisely, a concept which depends on supernatural intervention unguided by natural law, not explained or explainable by natural law, not testable, and not falsifiable, is not science and has no place in a science curriculum. *Id.* at 1269 (A theory that is by its own terms dogmatic, absolutist and never subject to revision is not a scientific theory.) See also NSTA Position Statement (Explanations that are not consistent with empirical evidence or cannot be tested empirically are not a part of science. As a result, explanations of natural phenomena that are not based on evidence but on myths, personal beliefs, religious values, and superstitions are not scientific).

Contrary to defendants/appellants assertion that the Cobb County Sticker was intended to promote critical thinking, the analysis in *McLean* makes clear that alternatives to evolution founded in theology undermine the science curriculum by disparaging the very methodology of science. As the CEO of the AAAS has explained, *“facts and faith . . . should not be pitted against one another in science classrooms.”* Letter from Alan I. Leshner to George Griffith, *supra* p. 9.

III. The Adequate Public Education Guaranteed by the Georgia Constitution Includes Reputable Training in Science.

Article VIII of the Georgia Constitution states that *“[t]he provision of an adequate public education for the citizens [is] a primary obligation of the State of Georgia.”* Ga. Const. of 1983, art. VIII, § I, Para. 1. Although the 1983 Georgia Constitution, like its 1976 predecessor, does not define the term *“adequate public education,”* the Supreme Court of Georgia has concluded that *“an adequate education”* must be designed to produce

individuals who can function in society@ *McDaniel v. Thomas*, 285 S.E.2d 156, 165, 248 Ga. 632, 644 (1981). As demonstrated above, students who have not mastered the elemental theory of modern biology and its relation to the essential characteristics of science and the scientific method cannot function adequately in contemporary society, and necessarily have been denied the adequate public education@guaranteed by the Georgia Constitution. The task of defining the specific contours of an education that is adequate to allow a student to function in contemporary society has largely been left to the discretion of school boards, but the discretion accorded to them is not unlimited. The District Court in the instant matter correctly concluded that the Board of Education of Cobb County undermines evolution education when it adopted a disclaimer with no pedagogic value, directly traceable to sectarian concerns.

IV. The Cobb County Disclaimer Exceeds Permissible Accommodation and Undermines Science Education for All of the County=s Students.

The Cobb County disclaimer sticker at issue here undermines the teaching of biology and science education by targeting evolution. The sticker is part of a coherent, nationwide strategy to subvert evolution education, as the District Court so found, *Selman v. Cobb County*, 2005 WL 83829 (N.D. Ga. 2005) at 21. See also Barbara Forrest and Paul Gross, *Creationism's Trojan Horse e.g.*, 10-13, 236-39 (2004). Like the evolution disclaimer which the Fifth Circuit Court of Appeals struck down in *Freiler v. Tangipahoa Parish Board of Education*, the Cobb County sticker is designed to imply school board approval of religious principles and disapproval of evolution. 185 F.3d 337, 348 (5th Cir.

1999), *cert. denied*, 530 U.S. 1251 (2000). The District Court correctly held that, like the disclaimer in *Freiler*, the sticker at issue here serves only to promote a religious challenge to science education. *Cobb County School Dist. v. Selman*, 2005 WL 83829 (N.D. Ga. 2005) at 15.

Even if members of the Cobb County Board of Education merely intended to accommodate religious parents or to promote tolerance and respect for religious beliefs they have gone too far. If there were a religion which objected to the notion that the earth was round, or that two plus two equals four, it would not be accommodation to invite all students to make up their own minds about the shape of the earth or about basic arithmetic. And, since there is no scientific justification for the language in the challenged disclaimer (See Brief of *Amicus Curiae* National Council for Science Education et al.), the only basis for the sticker is deference to religiously-based objections to the study of evolutionary biology.

Let there be no confusion about what is at stake in this case. This case is not about the State's discretion to decide whether or not to accommodate the religious beliefs of those who may seek exemptions from laws of general applicability. See generally *Employment Div. Dept of Human Res. of Oregon v. Smith*, 494 U.S. 872, 878, 110 S.Ct. 1595 (1990) (the state is not required to accommodate free exercise where the incidental effect of a generally applicable and otherwise valid provision is at issue); *Prince v. Massachusetts*, 321 U.S. 158, 166, 64 S.Ct. 438 (1944) (holding that the State may over-ride a religious exercise claim in the service of compulsory education laws). Instead, this case involves the State's decision to accommodate the religious preferences of a particular group by

changing the requirements for everyone, in this instance by diluting and corrupting the education available to all public school students. The disclaimer sticker was placed in the cover of every science textbook that mentions evolution given to every student in the district, not just on the textbooks of the students whose families object to the teaching of evolution.

A comparison of the facts at issue here with those before the United States Supreme Court in *Wisconsin v. Yoder*, 406 U.S. 205, 92 S.Ct. 1526 (1972) is instructive. In *Yoder*, the Supreme Court held that Amish parents could not be required to comply with compulsory school laws after their children completed the eighth grade because their fundamental religious exercise claim combined with the unique circumstance that Amish children were preparing for life in the separated agrarian community that is the keystone of the Amish faith created a claim requiring accommodation. *Id.* at 222. Unlike the students in Cobb County, the Amish children were never expected to compete in the modern workplace. Cobb County's decision to impose the sticker on all students is the equivalent of Wisconsin responding to the *Yoder* decision by closing all public high schools rather than exempting only Amish children from compulsory attendance, a patently absurd and unconstitutional outcome.

The adoption of the sticker does not simply accommodate religion, as appellants would have it, but bends the core curriculum of public education to aid sectarian interests. The doctrine that a school board has the discretion to craft an individual accommodation to religious beliefs does not give it the latitude to tailor the education of all students to the preferences of a particular religious sect, as the district court held happened when Cobb

County imposed the disclaimer sticker on all of its students. As this Court has noted regarding controversies over other curricular materials, given the diversity of religious views in this country, if the standard were merely inconsistency with the beliefs of a particular religion there would be very little that could be taught in the public schools. *Smith v. Bd. Of Sch. Commrs of Mobile County*, 827 F. 2d 684, 693 n.10 (11th Cir. 1987) (overturning the lower courts ban on the use of textbooks alleged to promote secular humanism) (*quoting McCollum v. Board of Education*, 333 U.S. 203, 235, 68 S.Ct. 461 (1948) (Jackson, J., concurring)

(Alf we are to eliminate everything that is objectionable to any of these warring sects or inconsistent with any of their doctrines, we will leave public education in shreds. Nothing but educational confusion and a discrediting of the public school system can result . . .@).

CONCLUSION

For the foregoing reasons, the ruling of the District Court should be affirmed.

Respectfully submitted,

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CERTIFICATE OF COMPLIANCE

Counsel certifies that this brief complies with the type-volume limitation set forth in FRAP 29(d), 32(a)(7)(B). According to the word-processing system used to prepare it, this brief contains 4050 words.

IN THE UNITED STATES COURT OF APPEALS
FOR THE ELEVENTH CIRCUIT

No. 05-10341-II
and
No. 05-11725-II

Cobb County School District, et al.,
Defendants/Appellants

v.

Jeffrey Michael Selman, et al.,
Plaintiffs/Appellees,

CERTIFICATE OF SERVICE

I hereby certify that I have this date served a copy of the foregoing upon the parties by mailing copies, with sufficient postage attached, to:

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This 7th day of June, 2005.

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