

Minutes CESE Annual Meeting, June 13, 2009

Out-going president, Lisa Durkin called the 13th annual CESE meeting to order on Saturday, June 21, 2008 at 1:09 p.m. at Maxwell Museum of Anthropology at the University of New Mexico (UNM).

Lisa said she was a former teacher and is now in sales. She then asked the audience to introduce themselves.

She then reviewed the previous year's accomplishments. Senate Bill 433, "Teaching Biological Origins," sponsored by Kent Cravens, was worded the same as other creationist bills introduced in legislatures around the country. Lisa and Marshall Berman testified against this legislation before the Legislative Education Study Committee (LESC) last November. The bill was never heard before the legislature.

Lisa plans to travel throughout the state in the fall visiting teachers and administrators explaining what evolution is, and that they must teach to the state's science standards. Walter Murfin, CESE's statistician, prepared a method for evaluating teacher performance that accounts for differences in scores of lower socio-economic schools. Lisa will take this to the teachers' unions.

Creationists dominate the Texas State Board of Education. Although the creationist phrase "strengths and weaknesses" was not included in their new science standards, other objectionable amendments were. The Texas State Senate voted to reject creationist Don McLeroy as chairman of their state Board of Education. (Their creationist Governor Rick Perry has since appointed Gail Lowe, a young earth creationist, to replace McLeroy.)

Lisa then introduced our guest speaker, Dr. Michael Shermer, a science writer, historian of science, and the founder of *The Skeptics Society*, a 501 (3) (c) organization. He is the editor in chief of its magazine *Skeptic*, which is largely devoted to investigating and debunking pseudoscientific and supernatural claims.

Shermer began by telling us that he had been to New Mexico before, when he rode in an encased bicycle downhill at 70 mph. He then started his presentation:

"The Mind of the Market; Compassionate Apes, Competitive Humans, and Other Lessons from Evolutionary Economics."

Shermer has a new book out, *The Mind of the Market*. His books are extensions of the work at *Skeptics Magazine*. An electronic version of parts of this publication is available, and a sign-up sheet was passed around requesting e-mail addresses of those interesting in receiving a copy.

In his introduction, Shermer showed slides of previous *Skeptics Magazine* covers. It will always be five years away – when computers will be smarter than people will, he said. Another previous topic addressed was to those who still believe a causal connection

between mercury in vaccinations and autism exists. Mercury has been removed, and autism is still here. Another notion is that 9/11 was the result of a Bush administration conspiracy instead of al Qaeda terrorists. (Bush was a bad president and not capable of it, he added.) Another issue dealt with the psychology of Ponzi schemes and how Bernard Madoff made off with investors' money.

Shermer also mentioned a conversation overheard in a mall, that wool comes from cows, before beginning the main topic of his presentation as follows:

Humans have gone from hunter gathers to consumer-traders. The Yanomamö people in Brazil have an average annual income of \$100/year/person. For Manhattanites it is \$40,000/year/person, a difference of 400 times. Stock-keeping units, a retail measure of items stocked, is 300 for the Yanomamö and 10 billion for Manhattanites, a difference of 33 million times.

One obstacle for problem solving is that folk science intuitions are not reliable. Folk astronomy tells us that the world is flat, celestial bodies revolve around the Earth, and the planets are wandering gods that predict the future. Folk biology tells us that "*élan vital* flows through all living things and their functional design was created *ex nihilo* by an intelligent designer." In folk psychology, the mind and brain are separate. Folk economics says that excessive wealth is wrong; usury is a sin; economic systems must be designed from the top down, and we mistrust and misunderstand the invisible hand of the market.

We evolved from small groups of hunter gathers. There were no capital markets, no economic growth, no accumulation of wealth, no excessive wealth nor poverty, little division of labor, and little specialization or concentration of labor.

The reason folk science gets it wrong is that we evolved in a very different environment than we now live in. Our senses perceive the extremes of, say, ants and mountains, not distances between bacteria, atoms, and molecules on one end of the scale, and stars and galaxies on the other. We live approximately 70 years, not long enough to witness evolution, continental drift, or long-term environmental changes.

Causal inference in folk science is equally untrustworthy. We correctly assume objects such as stone tools are designed by an intelligence, and also assume incorrectly that all functional objects, such as eyes, have been similarly intelligently designed. Lacking the knowledge of how neural activity gives rise to consciousness; we imagine mental spirits floating within our heads.

We think anecdotally, not statistically. We focus on short-term trends and small-number runs. We notice a stretch of cool days and ignore the long-term global warming trend. We notice the recent downturn of housing and stock markets, forgetting the centuries-long upward trend. We focus on the short-term and ignore the overall trend.

We started from bands, numbering from tens to hundreds about 100,000 to 10,000 years ago, and then proceeded to tribes, chiefdoms, states, and empires. In this evolutionary economic transition, there is a shift from the relatively equal distribution of economic wealth among bands to the emergence of hierarchical wealth, status, and power among tribes. Egalitarianism falls apart as bands and tribes become chiefdoms and states.

A paradox arises when our selfish desire for more wealth conflicts with our social desire for equal wealth; that is, no one should be too rich or too poor. In very large modern states, we have extremes of poverty and wealth, and this translates into political policies to raise the poor and lower the rich.

Shermer quoted economics professor Daniel Klein, “Government creates common, effectively permanent institutions, such as streets and roads, utility grids, the postal service, and the school system. In doing so, it determines and enforces the encompassing shared experience – or at least the myth of such experience.” Anyone who is skeptical of a government solution to an economic or social problem is easily labeled an out-group, a rebel without a collective cause.

There is a tendency to believe that the world is controlled from the top down by intentional, invisible agents. That includes ghosts, spirits, souls, gods, demons, angels, aliens, intelligent designers, and government conspiracists – with the power to haunt and control our world and our lives.

There is an intelligent design theory of government, Shermer continues, that says X is a problem. Since we can’t think of how X can be solved privately; therefore, X should be solved publicly. This would be the “God of the Government Gaps.”

The economy is a complex adaptive system. It is a self-organizing emergent property of the evolution of complex systems, as is nature. Water is self-organized emergent of hydrogen and oxygen, as is consciousness, as billions of neurons firing in patterns. And simple life proceeds from prokaryotes to eukaryotes to multi-cellular, complex life. Life evolved from the bottom up, not top down, as did languages, writing, and markets.

Shermer discussed “neurocomputation and evolution of emotions.” When our bodies are depleted of energy, we do not compute caloric input/output ratios. We feel hungry and seek out food. When we pass our genes into the next generation, we do not calculate the genetic potential of our sexual partner; we just feel *aroused* and seek out sexual intimacy.

Evolution designed us to care more for humans vs. non-humans, kin vs. non-kin, friends vs. strangers, direct vs. indirect action because these differences impacted survival and reproduction. An individual is most likely to benefit from close relatives, less so from more distant relations.

A bio-cultural evolutionary pyramid is a model of the origin and development of ethical behavior. At the bottom of the pyramid is the individual. His basic biological needs are food, drink, safety, and sex, the main concern being survival. The next level is the

family, with the basic psychological needs of security, bonding, and socialization, the main concern being passing on genes. The next level is the extended family with the basic social needs of affiliation, acceptance and affection, the main concern being reciprocal altruism. The next level on the pyramid is advanced social needs such as status and recognition, basic concern being reciprocal altruism. There is a division at this point in the pyramid, labeled a bio-cultural transitional boundary. It is followed by a section named “the community.” The next level is society, whose concerns are social justice, security, and indirect/blind altruism. Above that, is “the species,” which deals with “belongingness and species altruism.” At the top of the pyramid is the biosphere.

Moral behavior at the bottom of the pyramid is influenced mainly by ancestral environment. At the top part of the pyramid (at the bio-cultural transitional boundary), moral behavior is influenced primarily by the modern environment. The entire pyramid starts at about 1.5 million years ago and advances to the present.

Shermer discussed an “ultimatum game.” You are given a \$100 to split between yourself and a game partner. Whatever you suggest, and if your partner accepts, you are both richer by that amount. If you suggest a \$90-\$10 split, and your game partner is a self-interested money-maximizer, he is not going to turn down a free \$10, as predicted by the standard economic model. But he generally does.

We reject such offers because they aren’t fair, according to the moral sentiment of “reciprocal altruism.” That sentiment evolved over the Paleolithic eons that demand fairness from our potential exchange partners. “I’ll scratch your back if you scratch mine” only works if the response approaches parity. Thus fairness is an evolutionary strategy for maintaining social harmony in our ancestors’ small bands, where “cooperation was reinforced and became the rule, and freeloading was punished and became the exception.”

Shermer asked if athletes are greedy for wanting to win. Are traders greedy for wanting to make a profit? The whole point in sports competition is to do the best you can to win within the rules established by the governing sports organizations. We should no more blame greedy homebuyers, loan officers, and stock traders for the current financial crisis than we should blame athletes for making so much money playing sports.

There is the “endowment effect.” The owners of an item value it roughly twice as much as potential buyers of the same item. Subjects were given a coffee mug and were told it was valued at \$6. The lowest price they would sell it for was \$5.25. Other subjects were asked how much they would pay for the same mug. The offer was \$2.75.

Loss aversion says losses hurt twice as much as gains feel good. And the result is risk aversion. On average, most people will reject the prospect of a 50/50 probability of gaining or losing money unless the amount to be gained is at least double the amount to be lost, because losses hurt twice as much as gains feel good.

Shermer quoted a *New York Times* article 9-30-1999 that wrote that Fannie Mae, the nation's biggest underwriter of home mortgages, eased credit to aid mortgage lending.

Fannie Mae began a program to encourage banks "to extend home mortgages to individuals whose credit is generally not good enough to qualify for conventional loans." This was done because of increasing pressure from the Clinton administration to expand mortgage loans to low and moderate-income people. Also, they felt pressure from stock holders to maintain their phenomenal growth in profits." In July 1999, HUD forced Fannie & Freddie to increase their portfolio of loans to lower and moderate-income borrowers from 44% to 50% by 2001.

There's nothing wrong with corporations taking higher risks—whether under political or profit pressure—as long as they adjust for it by charging more. The higher price acts as a risk signal to keep the market in balance, Shermer explained.

Under the new program, higher-risk people with lower incomes, negligible savings, and poorer credit ratings could now qualify for mortgages that were only one point above a conventional 30-year fixed rate mortgage (and that added point was dropped after two years of steady payments). In other words, the normal risk signal sent to high-risk consumers—you can have the loan but it's going to cost you a lot more—was removed.

Lower the risk signal and you lower risk aversion.

Shermer listed his solutions to the current financial crisis:

1. Allow the market to determine risk signals.
2. Markets, not the Fed, must determine price of money.
3. Losses must be linked directly to those who make financial decisions, from lenders to CEOs.
4. No more bailouts! No one is "too big to fail."
5. No more, "In profits we're capitalists, in losses we're socialists"
6. Evolution & Economics, "Extinction is the rule, survival the exception."
7. Economies must be allowed to flourish from the bottom up and cannot be controlled from top down.
8. Free Trade

Use Reagan's quote, "trust—but verify."

Paul Zak, professor of economics, has demonstrated the relationship between oxytocin (a feel-good hormone) trust, and economic prosperity. Trust is among the most powerful factors affecting economic growth, and it is directly related to neurological chemicals such as oxytocin. It is vital for national prosperity that the country maximizes social interactions among its members, as well as members of other countries. Free trade is one of the most effective means of socializing, Shermer said.

Correlation between economic freedom and trust is high, Shermer explained, but disappears when “Per Capita Gross Domestic Product” (PCGDP) is included as a control. This suggests that the same environments that produce high trust are those that also produce high economic freedom. An increase in PCGDP raises trust, and an increase in trust raises growth in PCGDP, so there is an autocatalytic feedback loop.

So how is trust created nationally? The list includes:

- Reliable infrastructure (roads, telephones)
- Clean environment
- Rule of law (jurisdiction for settling disputes)
- Freedom to move about the country
- Freedom of the press
- Freedom of association
- Education
- Protection of civil liberties
- Sound banking and monetary system
- Free trade

How best should we live? – in a free society, defined as a free-market democratic system that practices fiscal conservatism and social liberalism, leading to the greatest liberty for the greatest number. Since humans are by nature, tribal, the overall goal is to expand the concept of the tribe to include all members of our species into a global free society with no economic borders and porous political borders.

By nature, humans are naughty and nice.

Aleksandr Solzhenitsyn, in *The Gulag Archipelago*, said “If only there were evil people somewhere insidiously committing evil deeds, and it were necessary only to separate them from the rest of us and destroy them. But the line dividing good and evil cuts through the heart of every human being. And who is willing to destroy a piece of his own heart?”

Shermer referred to a Jack Nicholson movie:

Colonel Nathan R. Jessup (Jack Nicholson) to Lieutenant Daniel Kaffee (Tom Cruise):
“Son, we live in a world that has walls. And those walls have to be guarded by men with guns. You don’t want the truth. Because deep down, in places you don’t talk about at parties, you want me on that wall. You need me on that wall.”

More quotes:

Bastiat’s axiom: “Where goods do not cross frontiers, armies will.”
Bastiat’s corollary: “Where goods cross frontiers, armies do not.”

Referring again to the Yanomamö – they are sophisticated traders. The more they trade the less they fight.

In a book about the Yanomamö by Napoleon Chagnon, the author says, “Each village has one or more special products that it provides to its allies. These include items such as dogs, hallucinogenic drugs (both cultivated and collected), arrow points, arrow shafts, bows, cotton yarn, cotton and vine hammocks, baskets of several varieties, clay pots, and, in the case of contacted villages, steel tools, fishhooks, fishline, and aluminum pots.

“Without these frequent contacts with neighbors, alliances would be much slower in formation and would be even more unstable once formed. A prerequisite to stable alliance is repetitive visiting and feasting, and the trading mechanism serves to bring about these visits.”

Where goods cross Yanomamö frontiers, Yanomamö armies do not.

The Yanomamö trade not because they are innate altruists or nascent capitalists, but because they want to form political alliances with other groups, and trade is an effective means of doing so. And humans practice within-group amity and between-group enmity, Shermer explained. Free trade builds trust between strangers, making them more like within-group friends instead of between-group enemies.

There is a Starbucks’ Theory of War: Where Starbucks crosses frontiers, armies will not. Free trade of products between all peoples and open access to services across geographic borders will make political borders obsolete.

And Google Theory of Peace: Where information and knowledge cross, frontier armies will not. Free trade of information between all peoples, and open access to knowledge across geographic borders, will make political borders obsolete.

And there is “The Ndugu Effect.”

We care more about the child we know than we do of the tens of thousands we don’t know. In the modern world, it is an irrational moral calculation that rational Homo economicus should care more for the many than the one. But our brains evolved in the ancient world, where we care more for the one than the many. It is a rational choice, especially when the one is a proxy for those we evolved to care about—family, extended family, friends, community, in-group fellows.

The Suada Result of the Ndugu Effect

Shermer said he has sponsored 11-year old Suada Isaku from Tirana, Albania (World Vision). She lives with parents and a sister, goes to school, enjoys reading, ball games, and health. His modest monthly donation “will help provide Suada and her community with clean water and improved healthcare facilities. Your support will help create

educational partnerships between parents and teachers to enhance students' education. Economic forums will help the community develop plans for growth.”

A photograph and details about Suada's life reinforced his sense of attachment, Shermer said, and a subsequent search on Google Earth that flew him through cyberspace to Suada's village. It pulled on his heartstrings of oxytocin attachment & dopamine reward systems, “to connect to those near me, changing a total stranger into honorary family through the power of markets, minds, and morals.”

In conclusion, Shermer quoted Katherine Hepburn to Humphrey Bogart, in the movie *The African Queen*, “Nature, Mr. Alnutt, is what we were put in this world to rise above.”

After a break, Lisa introduced next year's slate of officers:

Jesse Johnson, president
Rebecca Reis, vice-president
Marilyn Savitt-Kring, secretary
Jerry Shelton, treasurer
Lisa Durkin, past president

Board members at large:

Marshall Berman, Steve Brugge, Cindy Chapman, Jack Jekowski, Kim Johnson, Marvin Moss, Jim Stuart, and Dave Thomas

There were no new nominations. The slate was approved, and Lisa handed the presidential gavel to Jesse.

Sundials and pencils sponsored by the New Mexico Academy of Science were available and free of charge.

Dave Thomas then performed one of his amazing magic tricks.

New president, Jesse Johnson began his presentation. We still have to worry about creationists. Creationist Rebecca Keller gave a talk at Destiny Center church in Rio Rancho about Rio Rancho policy 401, which allowed the teaching of creationism and intelligent design in biology classes. She spoke of a “world view,” a synonym for ideology. She said that science points to God as creator, and that scientific experiments depend on your worldview.

Many of the fixes for our school system are not data-based. They are “feel good” measures. When they work, it's just “dumb luck,” Jesse explained.

CESE can help with this, as we use data to find the problems and possible solutions. What quantifiable factors affect student performance? Jesse showed a graph that plotted

the school minority fraction vs. the free lunch program. (The proxy for poverty is free or reduced price lunch or FRPL.)

It is thought that poverty negatively affects school performance. Although poverty is an important indicator, it is not as important as ethnicity and culture. Recognizing this is required to improve our schools.

There are many historical factors that explain this. Although not directly applicable to New Mexico, history in the South still affects school performance. In the pre-Civil War South, slavery existed and there were no good jobs for the free African-Americans. In the post Civil War years, there were the Jim Crow laws and still no good jobs for African-Americans. Separate but (un) equal sends a message that education for African Americans is unimportant.

During World War I and II, IQ tests were given. After 1917, these tests determined school courses. These tests were more often subjective than objective. They depended heavily on antonyms, synonyms and analogies. *

A sample question was:

“TRUE OR FALSE: We seldom desire food when we are sad.” *

Another sample question was:

“TRUE OR FALSE: A large man is always braver than a small man.” *

The results of these tests placed many bright Hispanics in “vocational tracks.” *
The whole system was fundamentally calling them “stupid.” Many teachers were doing so in their classrooms. What effect do you think this kind of treatment has on a culture?

* Source: School: The Story Of American Education

New Mexico history is rich and complex. While it is not as straight forward, history has had an effect on us. The influence of the “Encomienda” affected the populations of the Acoma and the Oñate. Also influential were the Pueblo Revolt, Mexican Independence, Mexican-American War, and the Manhattan Project, etc.

What works in South Carolina or New England may not work here. We’re living in the world our ancestors created, so how do we make our own history?

A closer look at demographics: a canonical correlation is used when your data have many inputs that you are trying to relate to many outputs. It can tell you which factors are the most important. It turns the many inputs into one single input and the many outputs into one single output. Now we can work with 2D plots that simplify things.

An example of real data in NewMexico elementary schools:

“The input variables will be (1) fractions of minority students, (2) fractions of English language learners, (3) fractions of students with disabilities, (4) fractions of economically disadvantaged students, and (5) the product of the minority and economically disadvantaged fractions.

The output variables will be the fractions proficient or better in mathematics and in reading. The five input variables have been combined into a single “Demographic Index” and the two output variables have been combined into a single “Canonical Score Index.”

(The source is Walter B. Murfin, CESE statistician.)

Conclusions from the data show 63% of student performance can be accounted for by demographics. A typical school week: 30 hours in front of teachers; 80 hours with peers, family, on the computer etc.; and the rest sleeping. Now we know where to look to work towards real improvement. Ethnic minorities and poverty do not prevent kids from doing well in school.

Jesse concluded by stating the creationists will always be lurking. If we want to improve our schools, databased decision making is a must. We must not shy away from real improvement because it touches on sensitive issues. Who’s really failing here? The kids or us? CESE can help provide methods for analyzing school performance and identifying ways to improve our system of education.

We adjourned for refreshments including a celebration for CESE founder Marshall Berman’s 70th birthday.

Respectfully submitted,

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