



NMSR Reports

The Newsletter of the
New Mexicans for Science and Reason

NMSR Reports, David E. Thomas, Editor, 801 Fitch Ave., Socorro, NM 87801 © 2020

JANUARY MEETING:
NEW MEXICANS FOR SCIENCE
AND REASON will hear
Peter Fawcett
on **“The Paleoclimate Records
of the Southwest and Mexico”**
7:00 PM January 8th, 2019
==>CNM MAIN CAMPUS,
Student Resource Center<==
==>Room 204<==
Bring a friend!

FUTURE MEETINGS ANNOUNCED

January 8th, 2020 NMSR Meeting:



Professor **Peter Fawcett**, UNM Earth & Planetary Sciences department chair, on “The Paleoclimate Records of the Southwest and Mexico.” Peter will discuss the significance and implications of Quaternary lacustrine paleoclimate records from the U.S. Southwest and Mexico. Quaternary records include those of the last 2.6 million years. Lacustrine deposits are sedimentary rock formations which were formed in ancient lakes. Fawcett and others have endeavored to produce a continuous, high-resolution, 400 thousand-year-long record of tropical North American environmental change using lacustrine deposits in the Southwest and

Mexico.



A drilling rig being used in the Lake Chalco, Basin of Mexico to collect paleoclimate records (MexiDrill project)

Join us at **7:00 PM January 8th, 2019**, CNM MAIN CAMPUS, Student Resource Center, Room 204.

February 12th, 2020 NMSR Meeting: **Nicholas Lamar Soutter on “The Importance of Critical Thought”**



Nicholas Lamar Soutter is a writer and philosopher, born in Cambridge, Massachusetts. He has written a “rebuttal” novel to Ayn Rand’s *Atlas Shrugged*, title *The Water Thief*, which was awarded a Kirkus Star in 2012. Nick lives in the Boston area with his wife and two daughters. He continues his Essays on Politics and the Social Sciences and The Business and Craft of Writing, and teaches a bi-weekly writer’s workshop. He will be speaking to NMSR via a live video hookup.

New Mexicans for Science & Reason (NMSR)

NMSR is a non-profit group with the goals of promoting science, the scientific method, rational thinking, and critical examination of dubious or extraordinary claims. NMSR meets at 7 PM on the second Wednesday of each month, in Albuquerque, New Mexico, at CNM's Student Resource Center, room 204 (@ Richard Barr Boardroom). NMSR Reports is its official newsletter.

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Marilyn Savitt-Kring, Science Mom

Membership: \$25/year (hardcopy newsletter), or \$15/year (downloadable PDF), make your check payable to NMSR, send to treasurer (Debbie Thomas).

NMSR Advisors:

- **Mark Boslough**,
Physicist (Impacts, Climate Change,
Global Warming). Sandia National Labs.
- **Kendrick Frazier**
Editor, Skeptical Inquirer
- **John Geissman**
Professor of Paleomagnetism
- **Alan Hale**
Southwest Institute for Space Research
- **Randy Thornhill**
Professor of Biology, UNM

Cyber-Cypher Clue: X = W, W = F.

Bonus Puzzle Clue: $N = N_0 e^{-(kt)}$

WANTED: READER ARTICLES & COMMENTARY

Got something to share with NMSR members? Send it in! ATTN: Dave Thomas, Editor, NMSR Reports.

REMEMBER, our next NMSR meeting is at 7 PM on **WEDS., JANUARY 8th, 2020**, at Student Resource Center, room 204 at CNM!

PUZZLE TIME!

[Please send solutions to Dave Thomas at: nmsrdave@swcp.com, or at 801 Fitch Ave., Socorro NM 87801.]

Cyber-Cypher: JANUARY PUZZLE

(Submitted by Dave Thomas)

The following letters are a simple substitution cypher. If R stands for L, R will stand for L everywhere. Your Cyber-Cypher Clue: Clue? Oh, well - if you must, see p. 2.

```
" Z O D O D Y O Z           J U H J           K
L Z O N K A J O N   H   B M I V   J K D O   H V M
J U H J   L Z O E K N O I J   M Y H D H   X K B B
H J J H A U           K Z H I           Y O A H C E O           M W
U K E                   K I H Y K B K J F                   J M
I O V M J K H J O   L Z M L O Z B F   -   I M J
E S K B B O N ! "   -   N M I H B N   J Z C D L ,
I M T O D Y O Z   2 0 1 3
```

SUPER SECRET WORD!

However you prefer to do the cypher itself (above or below), simply duplicate those actions on the alphabetized row of cypher letters below. You'll build an answer key, and you'll also reveal - the Super Secret Word!

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

DECEMBER CYPHER SOLUTION

"HOWEVER, SCIENTISTS ADMIT THEY CANNOT BE SURE WHETHER THE EARTH'S TEMPERATURE IS RISING DUE TO CYCLICAL PROCESSES, OR WHETHER HUMANS ARE INFLUENCING IT." - DEVIN NUNES

Esteemed December Code Crackers: Mike Arms* and Austin Moede*!

*Secret Word: "TWO FACED RUMBLINGS"

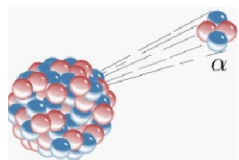
SOCORRO STUMPER

Need more Secret Word Cryptograms?

New puzzles every week at

www.nmsr.org/SocorroStumper.htm





January Bonus: “Wasting Away”

A certain radioactive element, Unobtanium, loses one percent of its mass in a year.

The January Bonus:

What is Unobtanium’s half-life?

December Bonus : “Fantastic Football Picks”

Submitted by Dave Thomas

Alissa and Greg are participating in an office NFL pool. This week, with 14 of 16 games played so far, they are tied for first place, with 12 correct picks each. For the remaining two games in the week, Greg and Alissa have chosen different teams for both games.

The December Bonus: (A)

What is the probability that Greg and Alissa will be tied at week’s end?

(B) If there were *four* games remaining, and Alissa and Greg picked different teams for all four, what is the probability that Greg and Alissa will be tied at week’s end?

(Extra Credit) If there were

n games remaining (**n** = any positive even number), and Alissa and Greg picked different teams for all **n**, what is the probability that Greg and Alissa will be tied at week’s end?

(Assume that overtimes will be used until a clear winner emerges for each football game; no ties allowed.)

Answer: (A) $\frac{1}{2}$, (B) $\frac{3}{8}$, (Extra Credit) $(nC(n/2))/2^n$.

Congrats: Keith Gilbert (NM), Paul Braterman (UK).



December 11th, 2019 NMSR Meeting:

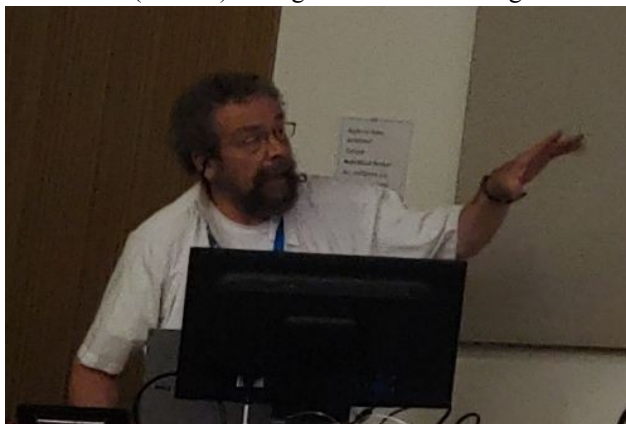
“The War of the Weasels: How an Intelligent Design Theorist was Outfoxed by a Genetic Algorithm.” by Dave Thomas



I presented the background, and more recent followups, of an article I wrote for the May/June 2010 issue of *Skeptical Inquirer* (Vol. 34, No. 3), on the creationist assault on evolutionary algorithms.

What was the “War of the Weasels” about? Briefly, “Genetic Algorithms” are computerized simulations of evolution, and are used to study evolutionary processes, and also to solve difficult

engineering or math problems. Intelligent Design (ID) Creationists often criticize these algorithms for not generating true novelty, and routinely claim that the “answer” is surreptitiously introduced into the program via the algorithm’s fitness testing functions. Creationists always cite Richard Dawkins’s “Weasel” tutorial simulation from *The Blind Watchmaker* (1986), which does include a precise description of the intended “Target,” the phrase “METHINKS IT IS LIKE A WEASEL” (Hamlet) during execution of the algorithm.



In 2001, I set about to challenge this strawman argument by developing a Genetic Algorithm that solved problems without *any* knowledge of the answers in advance. I chose “Steiner’s Problem”: given a two-dimensional set of points, what is the most compact network of straight-line segments that connects the points? (Additional “Steiner Points” besides the fixed points are allowed.)

In late summer of 2006, I posted a public “Design Challenge” on the Panda’s Thumb blog, in which readers were given a week to submit answers for a tricky six-point Steiner system. It was an open-book test. Ironically, the ID “theorist” who was loudly proclaiming that the publicly posted “fitness function” secretly contained the answer to the problem, Salvador Cordova, was unable to derive the actual answer to the problem, even after many days of effort. The actual answers (two were possible) were found by my genetic algorithm in two of hundreds of 90-second runs, and also by dozens of fans of math and evolution. I was very surprised by the answers myself; I had expected a simpler solution, but this turned out to be inefficient. That’s why I chose this particular problem for the public “Design Challenge.”

So, after almost fourteen years, how has the ID community responded? Are they still fixated on Dawkins’ “Weasel” demonstration? Do they still maintain that all genetic algorithms require detailed knowledge of their solutions, just as the phrase “METHINKS IT IS LIKE A WEASEL” was the “fixed target” in Dawkins’ 1986 exposition? In a word – Yes!



Shortest Network for the 6-Point Problem

Even though ID “theorist” Salvador Cordova got his hat handed to him by a Genetic Algorithm, the ID community has by and large ignored the point of the Steiner Challenge, which was simply that most Genetic Algorithms (Dawkins’ “Weasel” excluded) do *not* require

explicit descriptions of the answers it is hoped the algorithm will provide.

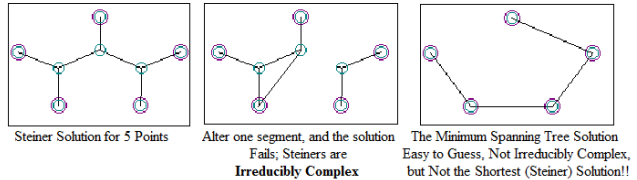
The mathematical stalwarts of the ID movement, William Dembski, Robert Marks and Winston Ewert (both still at Baylor, unlike Dembski, who was let go), have since responded to my article on the Steiner GA. Amazingly, they are all still painting all Genetic Algorithms with the "Need a Fixed Target - just like Weasel" brush, but any relevance to Dawkins or evolution science is becoming harder and harder to perceive.

In the article "Climbing the Steiner Tree—Sources of Active Information in a Genetic Algorithm for Solving the Euclidean Steiner Tree Problem" (Biocomplexity 2012:1, evoinfo.org/papers/steiner.pdf), the gist of the Ewert, Dembski and Marks response is that "active information" is being supplied by the programmer to derive the answer. They say "The Darwinist claim is that no such assistance is required. Rather, natural selection is innately capable of solving any biological problem that it faces." But that is clearly a strawman argument: have the stalwarts of ID never heard of ... extinction?

In another paper published in 2014 in Biocomplexity, "Digital Irreducible Complexity: A Survey of Irreducible Complexity in Computer Simulations", Ewert attacks several GAs, including my Steiner algorithm. Ewert makes two huge errors in this paper. He declares that the Steiner solutions are not "Irreducibly Complex", because a different method of connecting points, the much simpler Minimum Spanning Tree (MST) algorithm, can easily connect the dots. He says "A connected network can be achieved by random chance alone. The difficulty in the Steiner tree problem is in trying to minimize the amount of road used, not in getting a connected network." But the Steiner networks are not simple, and are clearly Irreducibly Complex: remove or alter any segment, and the network is no longer connected.

The second gaffe is use of the ID concept of "Specified Complex Information" (CSI). While the CSI concept is usually presented as "obvious" (the solutions must be complex, and specified as well), the mathematical

definition of CSI has been carefully crafted so as to make the success of either evolution or GAs absolutely impossible. Dembski et. al. have defined CSI as the property of having "500 bits of complexity". If the Genetic Algorithm under consideration always gets the answer to the posed problem, it thus has ZERO CSI. Even Dawkins' "Methinks it is like a Weasel" has obvious complexity, but Dembski scores it as zero CSI, because the Dawkins algorithm always converges. If, like my Steiner algorithm, the GA does get the correct answer, say, only once in about 200 trials, it has less than 8 Bits of CSI (2^8 = 256). Only if the Genetic Algorithm gets the solution rarely (literally, once in 2^500 ~ 10^150 trials), does it finally achieve the honor of possessing "500 Bits of CSI." This is as rare as tossing a fair coin 500 times, and getting heads every time. The Game is RIGGED: Neither Genetic Algorithms nor Evolution can ever create CSI!



The creationist assault on GAs is interesting, but falls far, far short of the mark.

DUES check the date on your mailing label. If it's time for you to renew, or to make a contribution, please make your check payable to NMSR, and send it to Debbie Thomas, NMSR Treasurer, 3205 Alcazar NE, Albuquerque., NM 87110
Name _____
Address _____
Membership \$25 per annum (hard copy newsletter), or \$15 per annum (online newsletter).

The NMSR e-mail list is fun! It's an e-mail list with news announcements of interest to NMSR members, discussions about news of the times, and more. To join, send a request to nmsrdave@swcp.com.

Thanks to: John Covan, Eddy Jacobs, Debbie Thomas, Keith Thomas and all our Puzzlers!

IN THIS ISSUE:

Future Meetings
Announced
New Puzzles!

December Meeting
Genetic Algorithms

Peter Fawcett
Lacustran Deposits
and Paleoclimate
Weds. Jan. 8th
7PM

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