



NMSR Reports

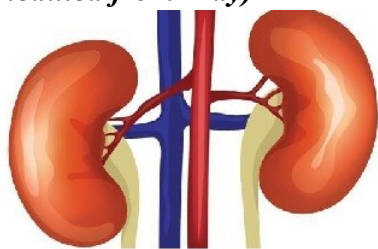
The Newsletter of the
New Mexicans for Science and Reason

NMSR Reports, David E. Thomas, Editor, 801 Fitch Ave., Socorro, NM 87801 © 2019

JUNE MEETING:
**NEW MEXICANS FOR SCIENCE
 AND REASON will hear**
Benjamin Radford, on
“Organ Theft Urban Legends”
7:00 PM June 12th, 2019
==>CNM MAIN CAMPUS,
Student Resource Center<==
==>Room 204<==
Bring a friend!

FUTURE MEETINGS ANNOUNCED

**June 12th, 2019 NMSR Meeting: Ben
 Radford on “Organ Theft Urban Legends”**
(Rescheduled from May)



New Mexicans for Science and Reason will hear Benjamin Radford, managing editor of the *Skeptical Inquirer*, speaking on “Organ Theft Urban Legends.” Join us at 7:00 PM June 12th, 2019, CNM MAIN CAMPUS, Student Resource Center, Room 204.

This meeting was originally scheduled for May, but Ben came down with the flu and had to cancel. We are pleased we’ll have another chance to hear about this interesting topic.

No NMSR Meeting in July!

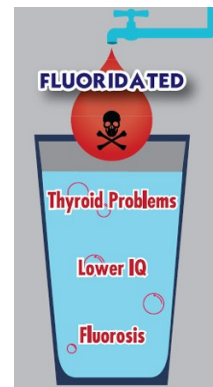
NMSR is on vacation in July, and there won’t be a meeting on the 2nd Wednesday.



**August 14th, 2019
 NMSR Meeting:
 Dr. Stewart Thompson
 on Fluoridation**

What are the downsides of too much fluoride?

Why has fluoride been banned in many European countries? With fluoride included in many dental products, what is a safe level for fluoride in public drinking water? Stewart Thompson, from the Psychology department at New Mexico Tech, will tackle this thorny topic at our August 14th meeting.



Coming later this year:

Anay Hightower on Fire Science



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.

NMSR officers:

Dave Thomas, President

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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, UNM
- **Alan Hale**
Southwest Institute for Space Research
- **Randy Thornhill**
Professor of Biology, UNM

Cyber-Cypher Clue: Y = J, V = X.

Bonus Puzzle Clue: What is the chance he *survives*?

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., JUNE 12th, 2019**, 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: JUNE 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.

" P L M Y M X A E C T B A L X A C K A
B C K O P C G N H F T B S F N X C
W L M G N C A F L G . S F N X O F T B M J ,
L K N L Z G , A L
B V J B D A C A F L G X . " -
C X A K L G C M A / J E P X F D F X A U C B
D . Y B U F X L G , L G O B C K G G H
X D F B G D B .

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

MAY CYPHER SOLUTION

"SCIENCE IS A BEAUTIFUL GIFT TO HUMANITY, WE SHOULD NOT DISTORT IT." - INDIAN PHYSICIST AVUL PAKIR JAINULABDEEN ABDUL KALAM

Esteemed May Code Crackers: Mike Arms*, Austin Moede*and Terry Lauritsen*!

*Secret Word: "COMPLY NATURES BID"

SOCORRO STUMPER

Need more Secret Word Cryptograms?

New puzzles every week at
www.nmsr.org/SocorroStumper.htm



June Bonus: “Date with Death”

Submitted by Dave Thomas

Our hero, Dr. Normal, must face seven deadly challenges in order to defeat the arch-villain Tweeter-Man. He only has one chance in seven of surviving each challenge.



The June Bonus: What is the probability that Dr. Normal will die during the ordeal?

May Bonus : “Three of a Kind”

Submitted by Dave Thomas



The probability of getting three of a kind in 5-card draw poker (52 cards, 4 suits, 13 ranks per suit) is just over 1 in 50.

The May Bonus: What is the probability of getting three of a kind in 6-card draw poker? Is it more or less than that for 5-card draw?

Answer: $13C1 \times 4C3 \times 12C3 \times 4^3 / 52C6 = .035963321$, more than for 5-card draw.

Congrats: Earl Dombroski (NM), Keith Gilbert (NM), Allen Robnett (NM), Mike Arms (NM).

May 8th, 2019 NMSR Meeting: Dave Thomas, on “A Seismology Primer”

by Dave Thomas

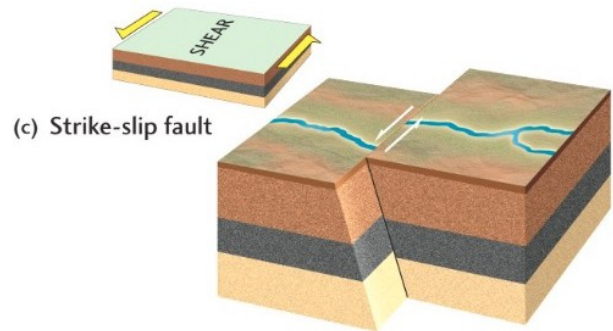
New Mexicans for Science and Reason heard president Dave Thomas at its May 8th, 2019 meeting. Our scheduled speaker, Ben Radford, came down with a flu-like virus, and had to cancel. He will be speaking in June.

I described my workplace in Socorro, IRIS/PASSCAL. PASSCAL provides university researchers all over the world with equipment for seismic data collection, and with support and training for use of this equipment. The support can be in-house, or in the

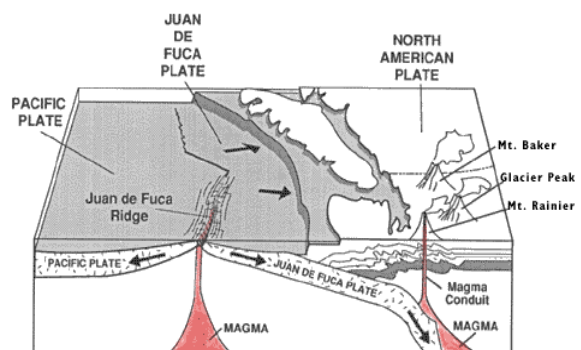
Field. While the Roswell Incident came about because of a botched attempt by the U.S. to listen to Soviet nuclear blasts with balloon-borne microphones, it turned out that seismic recorders were a much better way to detect and locate the sources of atomic explosions.

After WWII, the first worldwide networks of seismometers were deployed. In addition to pinpointing atomic tests, they revealed regions where earthquakes occur year-round. By the 60’s, these regions were recognized as the boundaries between tectonic plates actively moving around the Earth’s crust. In short, seismometers made the Plate Tectonics revolution possible.

I explained that a large tsunami, like the ones that devastated Indonesia in 2004 and Japan in 2011, were unlikely in California, because the San Andreas fault is a strike-slip fault, unlike faults in Japan and Indonesia.

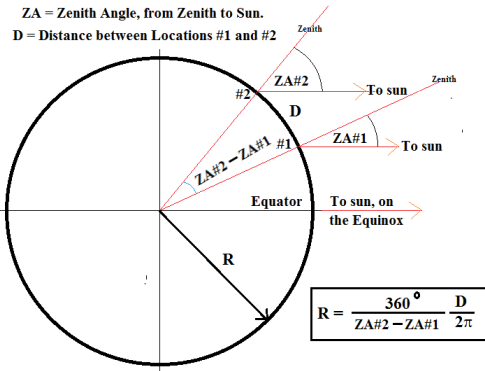


A place where tsunamis *are* possible can be found in the Pacific Northwest, home of the Cascadia Subduction Zone. As sea floor in the Juan de Fuca plate is subducted underneath the North American plate, it slowly pulls that plate lower and lower. When the stress becomes too much, hundreds of miles of coastal shoreline snaps loose, releasing a massive tsunami. The last such quake occurred on January 27th, 1700, long before Lewis and Clarke, and its tsunami reached Japan.



I showed how sensor arrays can be used to image underground, and talked about the Socorro Magma Body, a magma reservoir revealed via seismic recordings of the earthquakes it produces as it expands and contracts underground. Some physics demonstrations were included as well. More info on my workplace can be found at www.passcal.nmt.edu.

Crowd Source The Shape



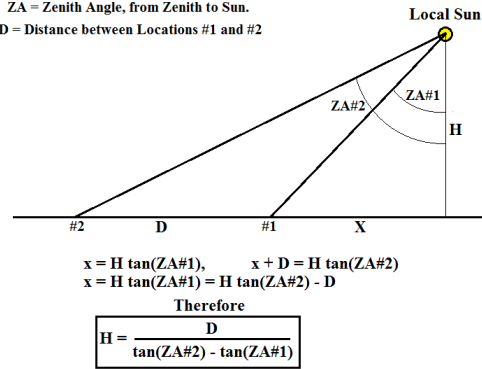
NMSR is gearing up for a world-wide crowd-sourced effort to determine, with confidence, the shape of our planet. This will be a grand experiment, on a scale never before attempted. On the next Autumnal Equinox – Monday, September 23, 2019 – people from 60 special cities will be asked to perform and record simple measurements of the height of an object above the ground, and the length of its shadow. The measurements will be taken at local solar noon, when the Sun is directly north or south of the observer. The cities are in 30 pairs; each pair has virtually the same longitude, but the cities can be up to 1000s of kilometers apart.

We will look at the results from two perspectives: Round Earth and Flat Earth. For the Round Earth model, the zenith angles for each pair of cities, along with the distance between them, can be used to estimate the Radius of the Earth. For the Flat Earth model, on the other hand, the zenith angles and separation of cities can be used to estimate the height of the sun above the plane of the Earth. When the collected estimates of the Earth’s radius are compared to the those of the Sun’s height, the correct model (the one with reasonably consistent results from all of the city pairs) can be easily distinguished from the incorrect model (which will have wildly varying, inconsistent results).

With follow-up measurements on the winter and summer solstices, we will be able to determine the distances to the tropics of Cancer and Capricorn (flat Earth model), and/or the axial tilt of Earth’s orbit (globe model).

Stay tuned for details as we approach the Autumnal Equinox!

ZA = Zenith Angle, from Zenith to Sun.
D = Distance between Locations #1 and #2



Summer Skeptiverse Haiku!—by Keith Thomas

Someplace out in space, Are some ET’s assessing Flat-earthier earthlings?	This year, from Santa Cruz to Bangor, You’ll hear talk Of doppelgangers!
Each conspiracy Seems just a few clicks away From all of the rest.	Today’s outstanding Armies must own The means to Win a Game of Drones.
What copper healing Powers might be packed inside Your single cent coins?	Unlike a scarecrow, The straw man will get set up For a hasty fall.

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, and all our Puzzlers!

IN THIS ISSUE:
Future Meetings
Announced
New Puzzles!
May meeting :
Seismology
New Project - Crowd
Source the Shape

Ben Radford
Urban Legends
Weds, June 12
7:00 PM

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