NMSR *Reports*
The Newsletter of the
New Mexicans for Science and Reason

SEPTEMBER MEETING:
NEW MEXICANS FOR SCIENCE AND REASON WILL HEAR
Dr. Ian Palmer on
"Fracking and Earthquakes in Shale-oil-gas"
September 14th, 2016 7PM
==>*CNM MAIN CAMPUS, Student Resource Center*<==
==>Room 204<==
Bring a friend!

FUTURE MEETINGS ANNOUNCED
September 14th, 2016 Meeting:
Dr. Ian Palmer, on Fracking and Earthquakes in Shale-oil-gas.

Does fracking cause earthquakes, or is something else responsible? Join us on September 14th for some hands-on demonstrations.

7 PM Wednesday September 14th, CNM Main Campus, Student Resource Center, room 204 (@ Richard Barr Boardroom)

NO MEETING IN OCT0BER!
There will be no NMSR meeting in October, as Dave Thomas and John Covan will both be on the road.

November 9th, 2016 NMSR Meeting: Ben Radford on "Psychic Medium John Edward." Ben will report on Edward's July 13th appearance in Albuquerque.

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*
P.O. Box 1017, Peralta, NM 87042
nmsrdave@swcp.com

John Covan, *Vice-President*
jmcovan@juno.com

Nancy Shelton, *Treasurer*
11617 Snowheights NE, Albuq., NM 87112
nshelton10@comcast.net

Eddy Jacobs, *Resident Neutron Generator*
eddyjacobs88@gmail.com

Mark Fraser *CNM Sponsor*
ippon@earthlink.net

John Geohegan, *Past President*
jgeoh@swcp.com

Kim Johnson, *Industrial Physicist*
kimber@comcast.net

Marilyn Savitt-Kring, *Science Mom*

Harry Murphy, *Physicist, Medical Quackery*

Membership: $**20**/year, includes newsletter, make your check payable to NMSR, send to treasurer (Shelton). Newsletter available in hard-copy and downloadable PDF.

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: N = Z, P = X.

Bonus Puzzle Clue: Moment of Inertia, Parallel Axis Thrm.

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 **WEDNESDAY, SEPTEMBER 14th, 2016**, at Student Resource Center, room 204 **at CNM!**

PUZZLE TIME!

Cyber-Cypher: SEPTEMBER 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.

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" W T C    L I T S    Y T S    O G V N W

E Y H D    F B F O E H T I    O W O B F

H D .    H    U H J Y E    A F    E Y F

I F P E    Q G F D H M F I E .    W T C

L I T S    E Y V E ,    G H J Y E ? "    –

X T G U F G    I U    J T R F G I T G

J V G W    Z T Y I D T I
```

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!

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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
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AUGUST CYPHER SOLUTION

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"A TRUMP PRESIDENCY WOULD EMBOLDEN ISIS. WE
CANNOT TAKE THAT RISK. THIS ISN'T REALITY
TELEVISION. THIS IS ACTUAL REALITY."
- HILLARY CLINTON
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         Esteemed August Code Crackers: Mike Arms*, Terry Lauritsen*, Nancy Shelton*, Alice Anderson*, & Austin Moede*. *Secret Word: "BULKY IMPORTANCE"

Need more Secret Word Cryptograms?

SOCORRO STUMPER

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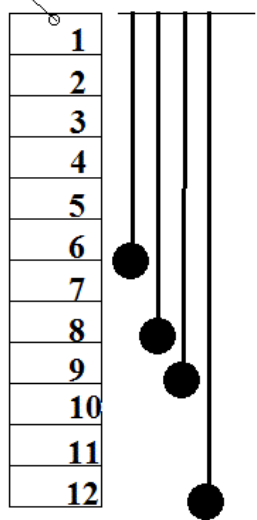www.nmsr.org/SocorroStumper.htm

September Bonus: "A Pair of Swingers"

Submitted by Dave Thomas

         A rigid 12-inch ruler with a tiny hole at one end is hung on a nail, and allowed to swing

back and forth. It is hung alongside four simple pendulums, of lengths 6, 8, 9 and 12 inches.

The September Bonus: Which one of the four simple pendula has the same period as the ruler?

August Bonus: "Chilling by the Box"

Submitted by Dave Thomas

Given the solution to the July Bonus (probability that at least one adjacent pair of freeze pops has the same color, in a packet of 10 pops made with 6 colors, is ~ 0.806): here is **the August Bonus: In a typical box of eight packets (=80 freeze pops), what is the *most likely number of packets* (0-8) having at least one pair?**

Solution: 7.

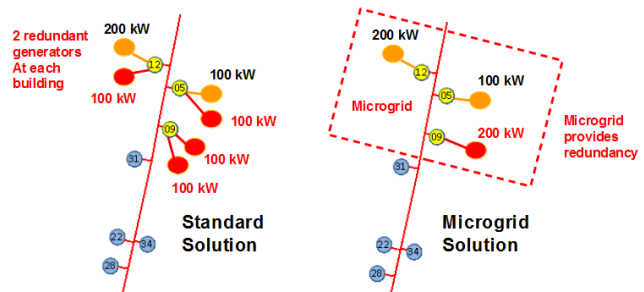*Congrats to our crack August Solvers:* Paul Braterman (UK), Brian Pasko (NM), Alice Anderson(NM), Eric Hanczyc (WA).

NMSR August 10th 2016 Meeting:
Mike Hightower, on "The SMART Grid - Challenges and Emerging Directions"

Sandia Lab's Mike Hightower talked about Smart Grids and Microgrids in electric power systems. While the nation has increased reliance on electric power, we have found that extended power disruptions, caused either by weather events, fires, or terrorism, can have significant impacts upon society and industry. If a power outage lasts too long, high-tech companies can even be forced out of business. The "Smart" Grid is an effort to make power more reliable; it is based on re-designing the grid so that small "collectives" can share resources like emergency backup generators, making power availability more reliable for all. The focus of much recent work has been on developing "Microgrids," typically with outputs of one to 20 Megawatts.

A "Smart Grid" includes plans for:

- Increased use of digital information and control technology to improve reliability, security, and efficiency of the electric grid,
- Dynamic optimization of grid operations and resources, with full cyber-security,
- Deployment and integration of distributed resources and generation, including renewable resources.

Mike's full presentation is online, at www.nmsr.org/Hightower_SmartGrid.pdf.

NMSR thanks Mike Hightower for a splendid discussion.

Truth (re Cat Populations) Matters
by Alice Anderson

Cat advocates often say that one cat can produce 420,000 descendants in seven years. Carl Bialik, The Numbers Guy for the Wall Street Journal, debunked the claim. *See Bialik, Carl. 2006. Trying to herd a cat stat. The Wall Street Journal. October 12, 2006. www.wsj.com/articles/SB116058075161889442*

See also *Morris, Desmond. 1997. Cat World: A feline encyclopedia. Penguin. Page 167*, which says that domestic cats are shown in

Egyptian artwork starting about 2000 BCE. The period 1500 BCE -- 2000 CE is 3500 years, or 500 7-year blocks. How many descendants of a cat alive in 1500 BCE are alive today?

Supposedly, in 7 years, one cat has 420,000 descendants, of which half, or 210,000 are female. In another 7 years, these 210,000 females have another $210,000 \times 210,000 = 210,000^2$ female descendants. (The ^ mark indicates raising to a power.) And so on. After 7n years, there will be $210,000^n$ female cats. Today, after 500 7-year blocks, the exponential model says that we have $210,000^{500} = (2.1 \times 10^5)^{500}$

$= 2.1^{500} \times 10^{2500}$ female cats.

The predicted number of cats is more than 10^{2500}, or 1 followed by 2500 zeros. (I ignore the factor 2.1^{500} as being very small compared with the other factor, 10^{2500}.)

The human population today is less than 10 billion = 10^{10}. How many cats per person are predicted? $10^{2500} / 10^{10} = 10^{2490}$.

If the exponential growth model applies to cats, then for every person in the world there would be over 10^{2490} female cats. Where are they? Clearly something is seriously wrong with the exponential model, as Carl Bialik said. What is wrong is that the exponential model assumes that every kitten realizes its full reproductive potential.

Cat advocates, including one quoted by Bialik, say that telling the exponential growth myth is desirable, because it encourages cat owners to neuter their cats, which prevents cats being taken to animal shelters. I disagree that lying is OK if the result of people believing the lie is good. Concerned citizens can make the case for neutering pet cats as an alternative to shelter euthanasia or cats dying on the streets without telling fantastic stories. Truth matters.

Late Summer Skeptiverse Haiku!
by Keith Thomas, Sept. 2016

There's an easy way You can quickly flush away Personal toxins!	Evidence sometimes Is excoriated by Ideology.
Some old ghost stories Have shown an ability To rise from the grave.	What secret programs Are promoting the spread of Paranoid rumors?
Geocentrism Seems to be centered upon Core misconceptions.	Did pollsters produce Some statistically sound Brexit exit polls?

September 14th Meeting: Fracking and Earthquakes 7:00 PM

CNM SRC #204

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Future Meetings Announced

New Puzzles!

Aug. Meeting - Smart Grids

Cat Breeding - Out of Hand?

New Haiku!