



# NMSR Reports

The Newsletter of the  
New Mexicans for Science and Reason

NMSR Reports, David E. Thomas, Editor, 801 Fitch Ave., Socorro, NM 87801 © 2018

## NOVEMBER MEETING:

NEW MEXICANS FOR SCIENCE  
AND REASON will hear

**Dave Thomas**

on “Scientific Animation”

7:00 PM Nov. 14<sup>th</sup>, 2018

==>**CNM MAIN CAMPUS,**  
**Student Resource Center**<==

==>Room 204<==

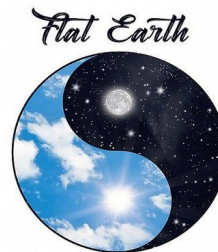
*Bring a friend!*

- Map Projections, Day vs Night, Seasons
- Path of the Sun: Globe vs. Flat Earth
- 3D Shape Visualizations
- 9/11 Collapse Simulation
- Curved Mirror Reflections
- Dancing Anagrams

Join us at 7:00 PM October 10th,  
2018, CNM MAIN CAMPUS, Student  
Resource Center, Room 204.

## December 12<sup>th</sup> 2018 NMSR Meeting: Bruce Lacey on "A Flat Earther's Journey and Perspective."

I've argued with several Flat Earthers online, but have never met one in person. Some folks wonder if all the Flat Earthers online are simply trolls, yanking on other people's chains for their own amusement. Our December 12<sup>th</sup> speaker, Bruce Lacey, assures me that he is the real deal, a genuine Flat Earther, and does not think the Earth is spherical (or that it spins daily, or orbits the sun yearly). He also thinks the Apollo missions never happened, and that 9/11 was an Inside Job. Lacey will discuss how he became a Flat Earth proponent, and will present some of the evidence that has convinced him that the earth is flat and stationary, and that the moon landings are a hoax



## FUTURE MEETINGS ANNOUNCED

**November 14<sup>th</sup>, 2018 NMSR Meeting:**  
**Dave Thomas, on**  
**“Scientific Animation”**

At our November 14<sup>th</sup> meeting, Dave Thomas will present several examples of Scientific Animation, e.g. using computer-generated movies to illustrate complex phenomena, optical illusions, and more. Dave will discuss and show his home-brewed animations for:

- Special Relativity and the Twin Paradox
- Seismic Refraction - “Seeing” Underground
- Optical Illusions – Peripheral Vision
- Isochron and Concordia Dating Methods

## 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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**John Covan, Vice-President**

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**Debbie Thomas, Treasurer**

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**Kim Johnson, Industrial Physicist**

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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: U = K, Z = V.

Bonus Puzzle Clue: No forks or knives, please.

### 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., NOVEMBER 14<sup>th</sup>, 2018**, at Student Resource Center, room 204 at CNM!

## PUZZLE TIME!

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

### Cyber-Cypher: NOVEMBER 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.

" N D P F B D F            O G U F N            Y F L Y E F  
H F G D R            T L H            Q H C Q R            G B W  
L M K F D Q P Z P Q X ;            P Q            Q F G D R F N  
Y F L Y E F    Q L    G D D F Y Q    H F G E P Q X ,  
V P Q R                    V L B W F H                    G B W  
G W O P H G Q P L B . "            -            E P N F  
O F P Q B F H

### 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

### OCTOBER CYPHER SOLUTION

"JUST REMEMBER - WHEN YOU THINK ALL IS LOST, THE FUTURE REMAINS." - PHYSICIST AND INVENTOR ROBERT H. GODDARD, BORN OCTOBER FIFTH, EIGHTEEN-EIGHTY-TWO

Esteemed October Code Crackers: Mike Arms\*, Austin Moede\*, George Egert\*, and Terry Lauritsen\*.

\*Secret Word: "MAN BUILDS ROCKET"

## SOCORRO STUMPER

### Need more Secret Word Cryptograms?

New puzzles every week at

[www.nmsr.org/SocorroStumper.htm](http://www.nmsr.org/SocorroStumper.htm)



## November Bonus: “A Stimulus / Response Enigma”

Submitted by Dave Thomas

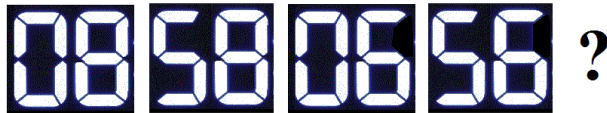
A common device with a digital keypad for data entry has a certain response for an input of 170, and twice that response for an input of 420. The first response is also the result of inputting 210, and the response is likewise doubled when 380 is used as input.

**The October Bonus:** What is the device? And what are the two actual responses?

## October Bonus : What Comes Next?

Submitted by Dave Thomas

Here are some values in a sequence. They appear one after the other, starting with the one on the left.



**The October Bonus:** What comes next?

**ANSWER:** The intended answer was 001 (it’s a count-up to 100 on an upside-down digital display), but some very clever answers were also submitted. If you start with 8, and add 50 and then find the modulus-102 value repeatedly, you get the sequence 8, 58, 6, 56, 4, 54, 2, 52, .... Well done!

**Congrats:** Allen Robnett (NM), Terry Lauritsen (NM), Earl Dombroski (NM), George Egert (NM), Rocky Stone(NM), and Mike Arms (NM)!

## October 10<sup>th</sup>, 2018 NMSR Meeting: Allen Robnett, on "Astronomy: A Humanist Perspective"

Our October 10<sup>th</sup> speaker, Allen Robnett, said “We will concentrate on how clumps of carbon, nitrogen, oxygen, hydrogen, calcium, etc managed, after becoming aware of themselves, to become intimately aware of the nature of objects that are unimaginably far away. And all of this was done using nothing but tiny photons, streaming for thousands, millions, and even billions of years, only to be annihilated by contact with our eyes or instruments.”

Allen, an award winning science teacher, began by noting that “Before the end of the 20th century, cell phones were not a constant

distraction. Before the middle of the 20th century, TV did not constantly entertain. Before the beginning of the 20th century, the night sky was not polluted with light. Before the beginning of the 19th century, the sky was not polluted with industrial smog. The night was made for love, and for seeing stars, literally as well as figuratively.”



He described early estimates of Earth’s circumference. In 200 BCE, a Greek, Eratosthenes came within 1%, using shadows from two locations, one of which was directly under the sun at noon on the solstice. In 500 CE, an Indian mathematician came within 1%, and in 830 CE, Muslim astronomers got within ½%. Medieval Europe was strongly influenced by Ptolemy’s maps, which indicated 18,000 miles (quite short of the actual, some 25,000 miles). Columbus probably used those maps (which explains why he thought he could get to Asia the long way), and certainly knew that the Earth is not flat.

Allen went on to describe technological steps in astronomy:

- 1543 Copernicus' heliocentric model
- 1609 Galileo's telescope
- 1619 Kepler's 3rd law
- 1687 Newton's Principia
- 1725 Flamsteed cataloged 3000 stars

- 1771 Messier cataloged 110 nebulae/clusters
- 1801 LaLande cataloged 50,000 stars
- 1924 Hubble discovered other galaxies
- 1929 Hubble discovered redshift with distance
- 1969 Man on the Moon
- 1990 HST launched on Discovery
- 2021 James Webb Telescope

The Webb telescope is designed for longer wavelengths, red/orange to infrared, to allow it to both punch through dust (infrared works better) and to capture the Doppler shifts of the oldest objects in the universe (shifted towards the infrared by the expansion of space).

Robnett champions using Stars as guiding lights, and navigation via astronomy, and noted that George Washington was a master surveyor, John Adams was elected Surveyor of Highways, and Thomas Jefferson was a Master Surveyor. Abraham Lincoln and Teddy Roosevelt were surveyors as well.

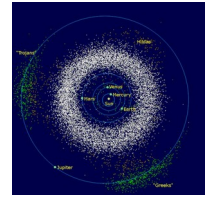
Allen mentioned that it would be easier to escape from the sun (to leave the solar system) than to plunge into the sun, which seems counter-intuitive. Earth's orbital speed is about 30 km/sec. To escape the sun, one would have to shoot a rocket off at 11 km/sec, to achieve 41km/sec escape velocity. But to guide the rocket into the sun, we would have to decelerate from 30km/sec down to 0, almost triple the acceleration to leave the solar system.

Allen described all sorts of astronomical phenomena, from the inner solar system to the outer planets, the Milky Way (which actually extends to some 180,000 light years across), and beyond (Andromeda, to the edge of space). He discussed how his professor, Robert Dickie, was a pioneer on predicting the Cosmic Microwave Background that should have been left over from the Big Bang. Dickie's team was looking



*Iapetus*

for the CMB, but he was scooped by Arno Penzias and Robert Wilson, who weren't even looking for the CMB!



Allen mentioned a surprising fact about the Asteroids. Numerous though they are, the combined masses of all asteroids is just 0.1% of the mass of the Earth, indicating that the belt is not an exploded or otherwise ruptured planet. He explained how we have used light waves to explore the universe, finding the direction and distance to the stars, their chemical compositions and temperatures, their masses, ages, and more.

Among the many fascinating facts presented, Allen observed that while our weekdays are named for Norse gods (Thursday is Thor's day, for example), in most latin-based languages, day names are based on our solar system. In Spanish, these are Domingo (Sunday), Lunes (Moon day), Martes (Mars day), Miercoles (Mercury Day), Jueves (Jupiter Day), Viernes (Venus Day), and Sabado (sabbath).

NMSR thanks Allen Robnett for a fascinating presentation.

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](mailto:nmsrdave@swcp.com).**

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


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**November Meeting:**  
 Dave Thomas on  
 "Scientific  
 Animation"  
 Weds. Nov. 14th  
 7:00 PM

**Future Meetings Announced**  
 New Puzzles!  
 Oct. meeting: Allen Robnett on  
 Astronomy: a  
 Humanist's Perception

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