



NMSR Reports

The Newsletter of the
New Mexicans for Science and Reason

NMSR Reports, David E. Thomas, Editor, 1201 N. Avenida de Chamiso Pl., Socorro, NM 87801 © 2020

NOVEMBER MEETING:

NEW MEXICANS FOR SCIENCE
AND REASON will hear

Nicholas Lamar Soutter

on

**“The Election, the Future of
Science, and More!”**

=>November 11th,2020 7:00PM<=

=>Attend online!<=

FUTURE MEETINGS ANNOUNCED!

**November 11th, 2020 NMSR Meeting:
Nicholas Lamar Soutter will hold forth
on “The Election, the Future of
Science, and More!”**

Our November 11th, 2020 meeting will feature Nicholas Lamar Soutter. Nick 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 is also host of YouTube news and commentary channel "[In Time](#)".



Because of the ongoing Corona virus crisis, this meeting will be held online, and members can attend from their homes or offices. It will be hosted on Zoom. A Zoom Link will be sent out to all members and potential attendees before the meeting. To get added to the attendee list, simply email nmsrdave@swcp.com.

Tune in at **7:00 PM November 11th, 2020, On Line!**

Future NMSR Meeting, TBD. Keith Matzen of Sandia National Laboratories, on "High Energy Density Science with Pulsed Power --From Fundamental Science to National Security Applications" Location and Date TBD.



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**1201 Avenida de Chamiso Pl., Socorro, NM 87801
nmsrdave@swcp.com**John Covan, Vice-President**

jmcovan@juno.com

Debbie Thomas, Treasurer3205 Alcazar NE, Albuquerque, NM 87110
abqdebbie@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

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: Y = C, X = Y.

Bonus Puzzle Clue: $X_{\text{midnight}}/X_{\text{dusk}} = D' / (D - R_E)$ **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 **ONLINE**, Nov. 11th 7PM!

Zoom Meeting info will be emailed out, ask nmsrdave@swcp.com for a copy.

PUZZLE TIME!

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

Cyber-Cypher: NOVEMBER PUZZLE

(Submitted by Dave Thomas, quote courtesy Mike Arms)

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.

" L V I C Z V I K I W I E F Z X R Q Z V I
H M L F K Z R D I K R Q Z I C I G ,
H I Z O F Z X , C R Z D E F D I K , D I
Z V I N R Z F W I . " - K O M C F K V
L E F Z I E N F S B I H G I
Y I E W M C Z I K

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

"SOME PEOPLE DRINK DEEPLY FROM THE FOUNTAIN OF KNOWLEDGE. OTHERS JUST GARGLE." -- GRANT M. BRIGHT

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

*Secret Word: "ALONG MURKY DEPTHS"

SOCORRO STUMPER**Need more Secret Word Cryptograms?**

New puzzles every week at

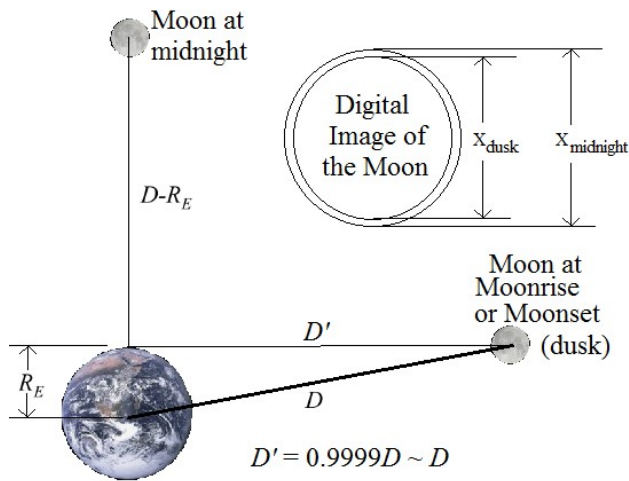
www.nmsr.org/SocorroStumper.htm



November Bonus: “How Far the Moon”

Submitted by Dave Thomas

As this diagram shows, a person viewing the full moon at midnight sees the moon slightly *larger* than if it was viewed just after rising (dawn) or just before setting (dusk). This is because the moon over the horizon is about the radius of the earth farther from the viewer than is the overhead full moon at midnight.



The November Bonus: Two images of the full moon (one taken at midnight, one at dusk) have been obtained from a digital camera, with the exact same focal length and zoom settings.



If the diameter of the digital image of the full moon at midnight is 2536 pixels, and that of the moon at dusk is 40 pixels smaller, what is the distance to the moon, as a multiple of the radius of the Earth, R_E ? How does this compare to the actual value? (There is some inaccuracy in measuring diameters from the photos). [Based on a true story.]

October Bonus Solution: “Social Voting”

Submitted by Dave Thomas

Consider the following statistics about Harris County, Texas (includes Houston) and New York County, New York (Manhattan):

	Harris County, Texas	New York County, New York
Number of Registered Voters	2,300,000	1,000,000
Area in Square Miles	1,777	22.8
Number of Polling Places	1	250

The October Bonus: If all of the registered voters in each county formed a line at their polling place, and each voter kept a social distance of six feet from adjacent voters, how long would the typical line be, in miles, in Manhattan? And in Harris County? Assume an equal number of registered Manhattan voters resides in each of the areas for the 250 polling places.

Double Bonus: If a Federal judge grants an injunction barring enforcement of Gov. Abbott’s order limiting Texas counties to one ballot dropoff, and twelve ballot centers *can* be used in Harris County, and are equally distributed, how long would the typical line be, then?

Answer: NY: 4.5 miles/polling place

TX: 2613.6 miles/polling place

Bonus: TX: 217.8 miles/polling place.

Congrats: Earl Dombroski (NM), Rocky S. Stone (NM), Mike Arms (NM), Allen Robnett (NM). Congrats to Prez-Elect Joe Biden, and VP-elect Kamala Harris also!

October 14th, 2020 NMSR Meeting: Nuclear Power Prospects

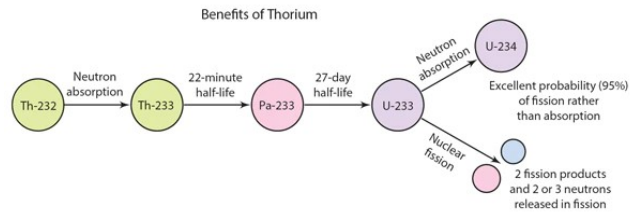
Our October 14th, 2020 meeting was to have featured Milton Vernon, who spoke to NMSR about novel medicinal radioisotopes back in October 2019. Due to an unfortunate communication error on the part of Dave Thomas, however, Milton was not able to attend. NMSR members plunged ahead with a spirited discussion on nuclear power.

The first topic was SPARC, a Compact Nuclear Fusion Reactor being developed by Commonwealth Fusion Systems. The New York Times reported on September 29th that it was ‘very likely to work’ in the near future. The short

(decade) interval for this system to go live is much faster than ITER (International Thermonuclear Experimental Reactor), the globe’s largest fusion-power project, spearheaded by a multinational consortium in Southern France ([link](#)). Like ITER, SPARC is a tokamak design, which employs high temperature superconductors that can produce a much higher magnetic field than ITER’s. Comments on the article included the caveats “Fusion has been 20 years in the future since I was a small child in the 1950s.” and “Wake me up when there’s a prototype.”

Up next was ANEEL, a thorium-based reactor described in the September 22nd issue of Forbes ([link](#)). The United States Department of Energy (DOE), the Idaho National Laboratory (INL), and the Nuclear Engineering & Science Center at Texas A&M are teaming with Clean Core Thorium Energy (CCTE) to produce a new type of nuclear fuel, “Advanced Nuclear Energy for Enriched Life”, or ANEEL. When used in heavy water reactors, like CANDU (Canada Deuterium Uranium) and India’s PHWR (Pressurized Heavy Water Reactor), thorium (element 90, named after the thunder god, Thor) has several things going for it. Unlike uranium, thorium reactors can’t cause “meltdowns”; to stop a reactor from going into runaway, you can just switch it off. The lead coolant is moved convectively; if pumps fail, as in Fukushima, the reaction just stops. Neutrons cause thorium to transmutate into Uranium 233; the fission

products produced render the spent fuel incapable of being used for atomic weapons. Additionally, the spent fuel requiring disposal becomes safe many times faster than that from uranium reactors.



A wide ranging discussion included other topics, such as solving the current radio-waste dilemma by burning that waste as fuel in breeder reactors. The GE Hitachi PRISM project is based on burning spent fuel and surplus plutonium.

NMSR thanks the participants for an informative discussion.

Videos of past meetings are available at <http://www.nmsr.org/meetings.htm>.

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!

NMSR Reports Vol 26, No. 11 November 2020
 David E. Thomas, Editor (505) 410-0753
 1201 Avenida de Chamiso Pl. Socorro NM 87801
IN THIS ISSUE:
 Future Meetings Announced
 New Puzzles!
 October Meeting:
 Nuclear Power

November Meet
 Nick Souther
 Weds 11th 7PM
 Online/Zoom