



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 © 2023

AUGUST MEETING: NEW MEXICANS FOR SCIENCE AND REASON will hear

Joe Archbold and Dave Thomas, on
“Looking Under the Hood of
Wave/Particle Duality”

=>AUGUST 9th, 2023 7:00PM<=

=>Attend online on Zoom!<=

FUTURE MEETINGS ANNOUNCED!

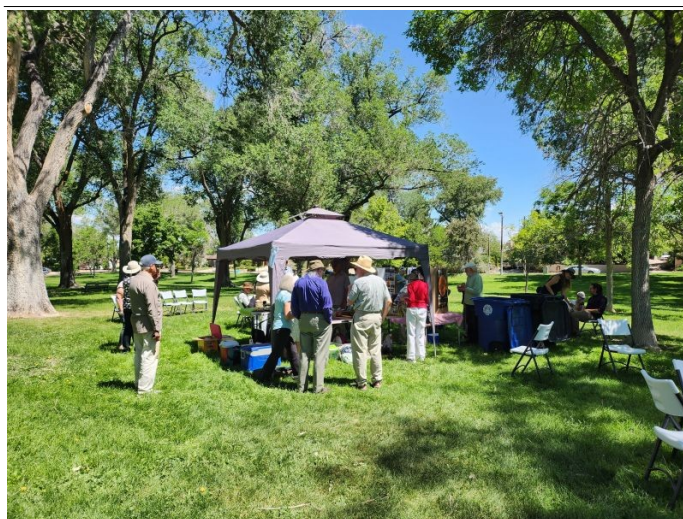
August 9th 2023 NMSR Meeting: Joe Archbold and Dave Thomas, on “Looking Under the Hood of Wave/Particle Duality”

Our August meeting will feature Joe Archbold and Dave Thomas, in a discussion on the puzzle of wave/particle duality. Join us at 7:00 PM on Zoom!



June 3rd, 2023 Memorial Gathering:

An informal gathering to celebrate the life of NMSR founder John Geohegan, who passed away on March 6th, was held on Saturday, June 3rd, 2023, from 11:00 AM to 2:00 PM, at Hyder Park in Albuquerque. Several posterboards with images of John’s activities, friends and family, and scientific accomplishments and puzzles were available. There were plenty of great visits and conversations, a few science demos, and even some live music.



The gathering, at Hyder Park in SE Albuquerque



Janet and John Geohegan



Continued on Page 3...

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 a secure, undisclosed location. NMSR Reports is its official newsletter.

NMSR officers:**Dave Thomas, President**1201 Avenida de Chamiso Pl., Socorro, NM 87801
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abqdebbie@comcast.net**Mark Fraser CNM Sponsor**ippon@earthlink.net**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**,
Adjunct Professor, University of New Mexico.
- **John Geissman**
Professor of Paleomagnetism
- **Alan Hale**
Southwest Institute for Space Research

Cyber-Cypher Clue: Z = V.

Bonus Puzzle Clue: You'll need to sum the angles in 3-sided and 4-sided polygons.

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 **August 9th at 7PM!**

Meetings, Live or Zoom? Vote!

www.roundorflat.com/covid19

**PUZZLE TIME!**

[Please send solutions to Dave Thomas at: nmsrdave@swcp.com, or at 1201 N Avenida de Chamiso Pl., Socorro NM 87801.]

Cyber-Cypher: AUGUST 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.

" K B J K D R Q F M D R J P E B Y B G D
X D E J B G F J X Q R H F R E F J Y ; K B
J K D R Q P E B Y Y R G N F J
E D J D R E A C . " - - - - J K R G M L X
A B Y D M F R G J K D Z D G S E F H C 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

JUNE CYPHER SOLUTION

"PERHAPS A NEW CONCEPT OF TIME WILL GRADUALLY WORK ITSELF INTO OUR COLLECTIVE INTUITION AS MORE APPLICATIONS OF SPECIAL RELATIVITY ARE REALIZED." - JOHN GEOHEGAN

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

*Secret Word: "SPRY EDUCATION"

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

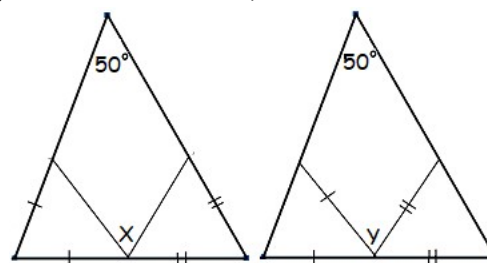
New puzzles every week at

www.nmsr.org/SocorroStumper.htm

August Bonus: "And The Angle Is..."

(Submitted by Dave Thomas)

Given triangles having two isosceles triangles at their bases, as shown.



The August Bonus: What is Angle X? And what is Angle Y?

June Bonus Solution: “Roll Them Bones”

Submitted by K. Sengupta

Alex can see three sides of each of two dice, and he notices that the total number of pips showing is a perfect cube.

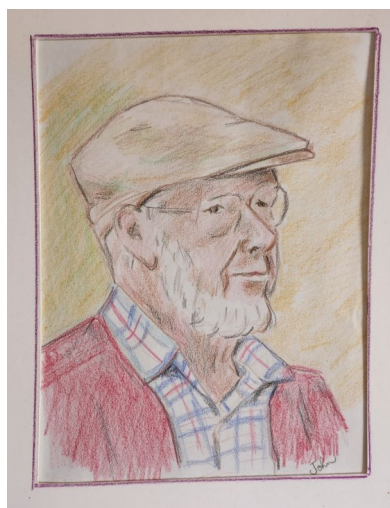


The June Bonus: What are the numbers of pips on each face that Alex can see?

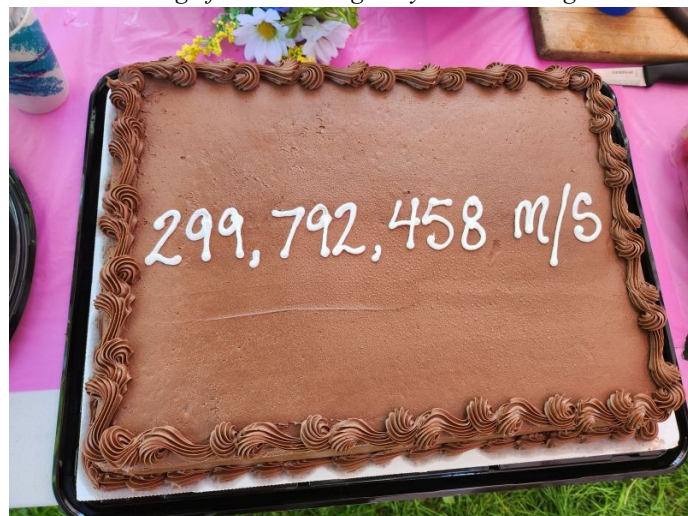
Answer: (2,4,6) and (4,5,6), $12 + 15 = 27 = 3^3$.

Congrats to: Rocky S. Stone (NM), Earl Dombroski (NM), Gene Aronson (NM), and Mike Arms (NM).

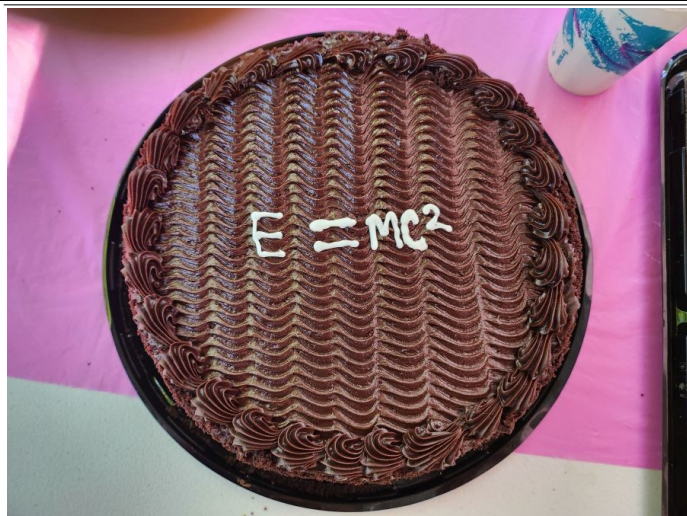
**June 3rd Gathering for John Geohegan,
continued...**



Drawing of John Geohegan by Janet Geohegan



The Speed of Light, in m/s



One of John's Favorite Equations



*The Falling Chain, one of John's Favorites, was demonstrated
Live at the gathering*



Food, conversation, and friendship were in plentiful supply.



John, his sister Jacintha Stall, and Pentaceratops(in the rear)



Ruth Frazier and Mark Boslough

Science Fair Winners

We are pleased to announce the 2023 Science Fair Winners. This year, students from Grants, NM took home both awards, congratulations to both!



Coalition for Excellence in Science and Math Education (CESE) Award for an Outstanding Senior Division Project (\$250): F. Valdez, "American Sign Language Training Glove."

New Mexicans for Science and Reason (NMSR) Award for an Outstanding Junior Division Project (\$250): H. Lee, "Oryctolagus cuniculus Urine Fertilizer"



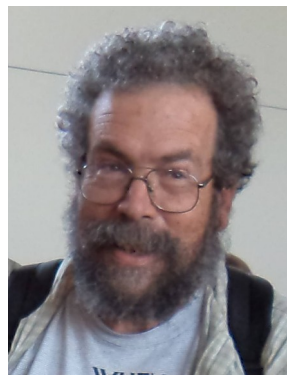
Videos of past meetings are available at <http://www.nmsr.org/meetings.htm>.

Skeptiverse Haiku for August! by Keith Thomas

A frosty day. Where Dragons fly,/Will vapor trails Decorate the sky?	A wildfire wonder – Pyrocumulonimbus Lightning and thunder!
Did T-rexes hide Those spiked teeth tips/Underneath Their theropod lips?	How long does it take To detoxify after A deep detox cleanse?
Skeptiverse Haiku – Blending chiles, salt and lime For a tasty rhyme.	Some municipal Trash recycling services Are mostly rubbish!

That's Not How You Handle Secret, Compartmentalized Information. I Should Know.

By Dave Thomas



In the 1980s, after I graduated with physics and math degrees from New Mexico Tech, my first job was at a small defense contractor in Albuquerque. My work there involved mitigating the effects of Electro-Magnetic Pulses (EMPs), the intensely strong radio waves that are produced when atomic weapons are detonated at high altitudes. The EMP waves from a single well-placed nuke can cripple electronic equipment over a very wide area. Not just telecommunications are in danger of being compromised: critical flight control systems in military aircraft are also vulnerable. The last thing the United States wanted to happen in the early stages of a nuclear war was a total communications failure, compounded by all our planes falling out of the sky. The threat was real (and remains so), and it was terrifying to strategic planners. That's why, back in the heyday of the Cold War, the United States spent billions to study and implement measures for countering the effects of EMP. Many of my physicist colleagues used to quip that "EMP was the first three

letters of Employment.”

While I was busily helping analyze experiments we ran at Kirtland Air Force Base to “zap” real aircraft with EMP-style radio waves, I was required to have a top secret clearance. I needed that to be able to use documents like MIL-STD-2169C, the High Altitude Electromagnetic Pulse Standard, which describes still-classified details of the physics of atomic weapons with respect to EMP. The document is an engineering reference, a “spec,” describing the expected intensities of EMP waves in detail, and providing a benchmark for this harsh environment (“Aircraft X has been hardened to withstand the environment specified in MIL-STD-2169”). I can’t describe this environment further – it’s still secret. Why? Hint – it’s not the American bombs that the spec covers – it’s *foreign* weapons, perhaps Soviet, perhaps Chinese. How was the information obtained? Did spies die while collecting that physics data? Most importantly, how can foreign adversaries be prevented from learning the innermost secrets of what America knows about *their* nuclear stockpiles?

There are special categories of classification far above Top Secret. These can involve Secret Compartmentalized Information (SCI), which is kept and used inside a SCIF, an extremely secure facility that can only be used by those with the proper clearances, and (more importantly) the “need to know.” Ordinary citizens are probably not aware of the sheer avalanche of security measures used in such facilities.



I had the opportunity to work on an SCI program in the 1980s. My boss called me in one day to say that some of my colleagues had suggested I join the electromagnetic modeling effort for a certain secret program. When I asked what the program was, he chuckled, and said he was not allowed to tell me. Where was the program office? He couldn’t tell me that either. Outside of knowing my plane would land at LAX, I would not learn about the project until I arrived at the secure facility itself. I had to be chaperoned by a co-worker, Ralph, who was already read in to the program. And that’s how I found myself at a plant of the Northrop Corporation deep in eastern Los Angeles. I was read into the “SENIOR CEJAY” program, which I then found was a joint Northrop/Boeing effort to build the B2 “Stealth” Bomber. The building had a huge flag on the wall, a backdrop to a

life-sized wooden mockup of the B2 itself, used mainly to impress visitors and new arrivals. It was a jaw-dropping SCIF.

We could only work on our physics analyses inside that secure facility. Every piece of paper we generated, even a scratch page of physics equations, had to be controlled. This was done by assigning our documents their own control numbers and cover envelopes, and requiring that the documents be stored in a secure safe when not in use. The safes were extremely rugged, and required five numbers to open. There was no “taking work home” after work hours. If you had to work overtime, it was in the secure facility itself, and that was generally frowned upon. I estimate that a third of our work days were consumed with security – having our briefcases inspected upon entry and exit, stamping sensitive pages of our reports with the required classification markings, and shepherding these documents to their secure homes. If we were at a movie, and were approached by a foreign national, we had to report the incident to project security the next day. If someone at the airport asked us what we were working on, you guessed it: we had to report.

Why was the project at Northrop? That company had experimented with “Flying Wings” during World War II, and it turned out that flying wings had a naturally low radar cross section. With the advent of strong non-metallic (and unreflective of radar) materials like graphite-epoxy, it was realized that the United States could develop a radar-invisible flying wing bomber, the Stealth B2. When I began working on the program, *everything* was top secret – the very shape of the craft, its material makeup, the location of development facilities, the results of our physics studies, and more. The reason for all this secrecy was to allow the U.S. time to develop this aircraft before our adversaries could come up with something similar. Now that the B2 is in production and use, some of that secrecy has been lifted. I can go buy a Revell model of a B2 Stealth Bomber today. If I had been caught sharing a picture like the one on the model box with non-cleared individuals back in the 80s, however, I would *still* be serving time in a federal prison.

Many of my colleagues in those days were conservative Republicans. But all of us, Republicans, Democrats, and Independents alike, felt it was important to do our part to protect the vital military secrets of the United States and its allies. We felt that it was our constitutional duty to promote the common welfare of our fellow Americans. And we are proud of the fruits of our work – making nuclear wars impossible to “win” – which ultimately led to the collapse of the Soviet Union, and a lessening of the Cold War.

I suspect many of us that worked on SCI programs back in the day are horrified by the cavalier attitude of the former president with respect to secret or classified information. Trump did not give these

documents the respect and caretaking that they deserved. Perhaps he kept them as mementos of his “perfect” presidency, or because keeping these documents let him feel like he still possessed some of his former Presidential “mojo.” He used them to impress guests at his Bedminster golf course, as recently released tapes show so clearly.



The former president has claimed that the Presidential Records Act (PRA) of 1978 means that these documents were his personal property to keep. But that is not what the act says at all. Rather, it “Establishes that Presidential records automatically transfer into the legal custody of the Archivist as soon as the President leaves office.” Trump’s trove of secret documents were never his personal property, they belong to the United States of America. The indictment mentions that some documents spilled onto the floor of a storage room at Mar-A-Lago were marked “SECRET/REL TO USA/FVEY”, which indicates extremely sensitive “FIVE EYES” information limited to just five countries: U.S., Canada, U.K., Australia and New Zealand. It does *not* include longtime allies like Israel, or France, or Germany, or Spain. That these documents should end up tossed on a messy floor at a golf resort is unconscionable.

The former president must be held accountable for his actions, which have jeopardized our national

security immensely. If Trump is allowed to wiggle out of responsibility for his actions, why should anyone ever worry about respecting laws regarding classified information? Just as importantly, why should our allies even consider sharing their secrets again with the United States? If there is no accountability, will organizations like the UK’s MI6 ever share knowledge with their American counterparts again? The answer is No.



If the laws regarding classified material are to be respected, and the United States is ever to regain the respect and cooperation of our allies in the future, the former president must be found guilty of espionage. He must face accountability for his actions. Anything less would be a betrayal of the national security of the United States of America.

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, Debbie Thomas, Keith Thomas, and all of our Puzzlers!

NMSR Reports Vol. 29, No. 7/8 August 2023
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IN THIS ISSUE:
Future Meetings Announced
New Puzzles!
Geohagan Gathering
- pictures!
Science Fair Winners
August Haiku
"How Not to Secret"

August Meeting
Wave / Particle
Duality?
Weds. Aug. 9
7 PM