



Puget Soundings



Mindfulness and Mathematics - Shelly Henderson

Winter Dinner - February 10, 2020

Check out Shelly's "Comfort and Joy" Holiday Bingo on page 7!

December 17, 2019

Editor: Joyce Frost (frostjoycee@gmail.com)

Calendar

PSCTM **February 10, 2020**
Winter **Bishop Blanchet HS**
Dinner **Shelly Henderson**

NWMI **Sat., Feb. 29, 2020**
Winter **Lynnwood HS**
Workshop **9 am - 4 pm**

PSCTM **May 18, 2020**
Spring Dinner **Bishop Blanchet HS**
 Dan Finkel



***President/** and
 Social Media-
 Traci Cotton
Past
President- -
 Jane
 Bissonnette*

President's Letter - Traci Cotton

Greetings, fellow PSCTM members!

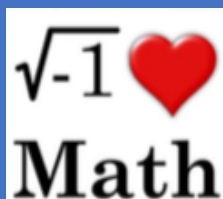
This fall we've had the incredible opportunity to connect with other math enthusiasts at the 58th Northwest Mathematics Conference and at the PSCTM Fall dinner event. I'm grateful for the opportunity to learn from others, and to take ideas back to my building to continue our important work with students and staff. Save the date for our Winter Dinner event which will be held on February 10, 2020.

I recently read an article from Mindful.org on **10 Ways to Become More Grateful**. The article shares ten strategies for support rewiring your brain for less stress and more joy. Strategy number four, *share your gratitude with others*, resonates with me. I'm continuing to build my practice of gratitude by taking a few moments each day to find a genuine way to connect with a colleague, friend, or family member by sharing something I appreciate about their efforts. <https://www.mindful.org/10-ways-to-become-more-grateful/>

On behalf of the Puget Sound Council Teachers of Mathematics, I'd like to express our appreciation for your continued support. It is through the efforts of our volunteers, and our members, that PSCTM continues to be a professional organization dedicated to uniting teachers and improving mathematics education.

With gratitude,
 Traci Cotton, PSCTM President
 PSCTM President

*Joyce Frost- Program/ Newsletter, Jane Hunter
 Art Mabbott- Treasurer/ NCTM Rep,
 Joe Frost- Web Page, Lynn Adsit - Membership
 Laura Beckett, Maryke Haynes, Angela
 Ensminger*



58th NWMC Reflections, October 10-12, 2019 - We All Count!

From that first meeting when we asked each other what we really wanted in a convention to the resounding success that came to be 2 years later -what an incredible journey it has been. We all have heard the statement ... "Build it and they will come", but I'm not sure any of us realized just how profound and meaningful the results would be in October! Speakers and participants brought it. The well needed discussions of reaching students of all walks of life and need came through. I think I can speak for us all and for so many of the folks we spoke with, this convention brought to light and to the forefront so much of what we are all asking ourselves... *How do we bring all of our students along? What does success look like for so many children that have been left out of the picture?* - - - **Jane Hunter, 58th NWMC Publicity Chair**

A huge thankyou to everyone who worked so tirelessly to make the recent 58th NWMC such a big success! From the fifteen incredible 3-hour mini-courses on Thursday morning and afternoon, to the poignant and passionate "Designing for Belonging" Opening Keynote by Dan Meyer, Thursday was an incredible experience. Thank you to: Julia Aguirre, Kim Sutton, Leslie Nielsen, Kendra Lomax, Chris Luzniak, Tom Reardon, Patty Stephens, Jim King, Dan Finkel, Dan Meyer, Megan Franke, Elham Kazemi, Nathan Dunham, Michele Hackstadt, Gini Stimpson, Molly Huggins, Darrel Trussel, Sasha Hammond, and Ann Sipe for the amazing mini courses. Many of the mini courses also allowed participants to earn STEM clock hours as did sessions and workshops on Friday and Saturday.

A true highlight of the conference for me were the 170+ incredible speakers who helped to create a diverse and robust program highlighting the theme of "We All Count". The theme was clearly evident in Dan Meyer's opening keynote, in sessions and workshops by our many talented speakers, and in Julia Aguirre's moving Closing Keynote, "Build Bridges not Walls: Elevating our Vision for Math Strong Children and Youth".

There were so many wonderous moments at the conference, from the way teachers interacted with their math heroes (swooning over Ruth Parker in the crosswalk back to the Convention Center or posing for photos with her at the Speaker Pop Up Breakfast), to the amazing way our Social Media experts Angela Ensminger and Traci Cotton kept us connected via Twitter, Facebook, Instagram, and Whoova (Conference App). I think we have set a new bar with the 58 Day Twitter/Facebook/Instagram Speaker Countdown and Livestreaming of the Friday night IGNITE talks. I don't think I will ever forget the magic of the eight amazing IGNITE talks by Annie Fetter, Ksenija Simic-Muller, Jeff Crawford, Mei Pontano, Chris Luzniak, Saraswati Noel, Peg Cagle, and Chris Shore. Their talks were poignant, moving, inspirational, thought-provoking, and short! Jane kept telling me they brought her to tears. What made it unique was that they packed so much meaning and passion into a short time as the slides flew by! I left wanting to research each speaker and topic further.

I had so many attendees approach me with enthusiastic reviews. From "Our math teachers loved the conference. They said it was life changing.", to " Ugh, my mind is STILL blown! This is my 20th year of teaching and I'm reminded why attending those is so important! I'll be at Portland next year for sure!", to (from a speaker), "I've spoken at hundreds of conferences over the years. You are truly the most organized and attentive organizer I've ever connected with!".

A conference like this takes many hours of preparation and many different kinds of expertise. Memories of late nights laughing with Jane Hunter on publicity or inspirational conversations with Gini Stimpson on the program or pondering spaces with Art Mabbott, both Joe and I want to publicly thank you all. And, I especially want to thank our chair, Sharon Young, for her vision for this conference and for keeping all of the moving parts working together. It was a true honor to be a part of this conference.

Joyce Frost, 58th NWMC program co-chair

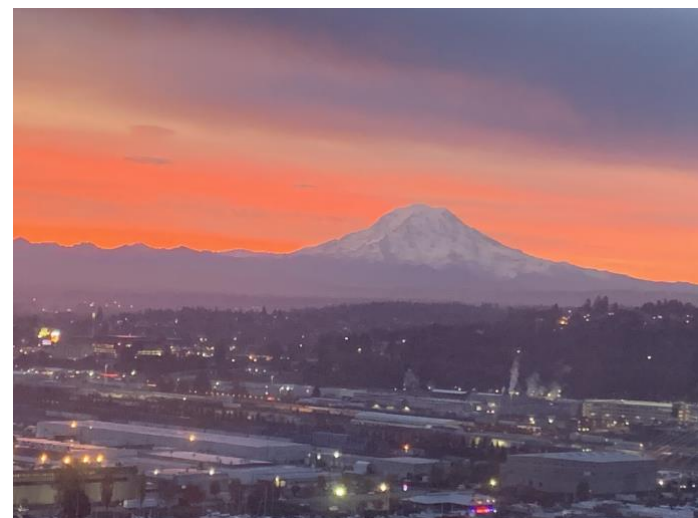
Please enjoy the following special pictures from this cool event!



Tacoma Mayor, Victoria Woodards introducing the 58th NWMC and posing with Jane Hunter. Dan Meyer, Opening Keynote, *Designing for Belonging*, taking a selfie with Jane Hunter and Joyce Frost. Julia Aguirre's Closing Keynote, "*Build Bridges not Walls: Elevating our Vision for Math Strong Children and Youth*" (the autographed poster advertising her talk went home with fan, Saraswati Noel!)



Noticing & Wondering with Annie Fetter during Leslie Nielsen's sharing with Emeritus Math Fellows. IGNITE speakers Ksenija Simic-Muller, Annie Fetter, Jeff Crawford, Mei Pontano, Chris Luzniak, Saraswati Noel, Peg Cagle, and Chris Shore with MC's Jane Hunter and Joyce Frost.



Sunrise view from the 25th Floor of the Murano Hotel Speakers' breakfast. Ruth Parker, talking on her Apple Watch, enjoying the breakfast with her fans, and regaling us with great stories.

Three Things I Learned Chairing the 58th Northwest Math Conference

A little more than two years ago when the PSCTM board suggested that I chair the 2019 Northwest Math Conference, my first thoughts were many – and not always positive:

- “What? Me? How can I possibly take on such a big role as Conference Chair?”
- “That would be a crazy thing to do!”
- “I have such little experience working on previous conferences – I’ve only briefly assisted with the Program subcommittee for the 2007 and the 2013 conferences. I’ve never even been a subcommittee chair!”
- “I’m totally ignorant of everything it takes to organize a conference.”
- And so on . . .

In the end, I said yes and it was one of the best decisions I’ve made in my mathematics education career.

What did I learn from chairing the NWMath Conference that was held in Tacoma October 10-12? A lot – and here are just three of the many things that I learned.

1. It’s pretty easy to learn on the job! Having little conference committee experience, I had no choice but to learn while chairing. And you know what? It was surprisingly easy to do because I had so much help from committee members past and present – and even committee members from Portland who worked on the 2017 conference. When I needed information on setting up committees and budgets and facilities and equipment – there were always people I could ask who had done it before. Everyone was so helpful because everyone wanted the conference to be a success.

2. Sometimes you have to go with your hunches! For two major decisions we made, we had to go with our hunches – as we had no data to back up our ideas. First, we decided to book the conference at the Greater Tacoma Convention Center and the Murano Hotel, rather than going with Seattle and Bellevue venues that we’ve used in past years. Was it going to be a risk to move the conference an hour plus away from Seattle and Bellevue? Well, we had a hunch that the Tacoma venues would pull more people from the South Sound and from Portland than we had at previous conferences – and that’s exactly what happened – so our hunch paid off. Second, we had to decide what to do about publicity. Even in 2013, most publicity was by snail mail – both time-consuming and costly. The committee had a hunch that now was the time to go electronic – so that’s what we did. I’m sure you all received the wonderfully creative emails, Facebook messages, and Twitter tweets that were created by our talented publicity/social media committee members, Jane Hunter, Joyce Frost, Angela Ensminger, and Traci Cotton. Our hunch paid off! We had so much more frequent – and better – publicity this time around.

3. A conference is like an orchestra! I’m sure you’re wondering why I would say that a conference is like an orchestra, but it’s true. In an orchestra, which has strings, woodwinds, brass, and percussion, it takes all of the different instrument players to play their individual instruments and – amazingly enough - beautiful music happens! For the conference, there were 15 sub-committees: Program, Facilities, Exhibits, Technology, Hospitality, Math-a-Rama, Publicity, Registration, Signage, Social Media, Special Materials, Budget, Website, Volunteers, and Clock Hours. So every committee member had a job to do. But all it took for a successful conference was for the volunteers on all of the various sub-committees to do their individual tasks and - amazingly enough – the conference happens! Note that it is not the conductor that makes the music, nor does the Chair make the conference. Rather it is everyone doing their parts.

So, don’t you think it’s time for you to join a sub-committee for the next conference? Will you think about it? It’s not that hard because it’s not just one person that makes the difference – it’s that there are lots of individuals working together who can make a difference. - - - *Sharon Young, 58th NWMC Chair*



***Follow PSCTM & NWMC on social media!
Share your lesson ideas, news with us, too!
@PSCTM @NWMATHCONF***

Got a Minute? Let's Play a Game!

Place value is a concept that requires routine maintenance for our students. There are simple ways to practice this concept. Number cards are a great way to have students play with numbers. For students who are emerging in their understanding, you might use a deck of cards with numbers 1-10. For students who have a stronger understanding of number, you might consider using cards with multi-digits or even decimals.

Game ideas:

Play **Compare!** Stack the cards face down between you and your partner. Player A takes the top card from the deck and lays it face up in the game space. Player B takes the next card, the new top card from the deck, and lays it face up in the game space. Each player takes a turn and reads his/her card. Who has the number with the great value? The player with the larger number says "me" and collects both cards to begin his/her collection pile. Play continues, with each player taking a turn and collecting cards, until all of the cards from the deck have been used.

Looking for a little variety? Play the game and have the partners compare the digit in the ones place, or the tenths place, or the number that is closer to 10.

Let's try **Double Compare!** Player A takes the top two cards, and places them face up, side by side in the game space. Player B takes the next two cards and places them face up, side by side in the game space. Who has the greater total? Each player states the sum of their cards. The Player with the largest sum says "me" and collects all 4 cards to begin his/her collection pile. The game continues until all of the cards from the deck have been collected. Are there strategies using what we know about the value of each number that can help us determine the winner for a round without having to compute the sum?

Sort it Out! How about doing a sorting task? Have students lay out the cards and sort the cards. The cards could be put in order from least to greatest, or students could use a rule to organize the cards. How could we sort this deck of number cards? Maybe odd and even. Multiples of 5. Divisible by 3. Numbers with a decimal that when added together make a whole number.

After several opportunities of playing, have students create their own sorting rules. Students could have peers, or adults, try to guess their rule.

Looking for decks of cards? There are plenty of places online to get cards for free. I found them on mrprintables.com, and on Pinterest and on Teachers-Pay-Teachers. - - - ***Submitted by Traci Cotton***

BEFORE THE CALCULATOR, PEOPLE JUST USED AN



Math 4 Love: Our Spring Dinner speaker, **Dan Finkel**, recently sat down with Rachel Alva of strategieswithkids.com for a 3-part podcast conversation on supporting math learning at home. His three featured podcasts are: Episode 16: [Math as Play](#), Episode 17: [The Preschool Years](#), Episode 18: [The Elementary Years](#)

Save the date! **Math for Love's Julia Robinson Math Festival** is scheduled for March 14, 2019. (Pi day!) You can use the link above to sign up as a teacher volunteer and even earn free Clock Hours through PSCTM.

Tribute to Sarah Ellen Magelssen Callow - January 29, 1948 - November 8, 2019

Mathematics education lost a powerhouse last month. A prolific presenter at NW Math Conferences and other workshops across the state, Sarah was an active member of the Puget Sound Council of Teachers of Mathematics and the Washington State Mathematics Council, serving as a secretary and board member of both organizations. She also served as president of PSCTM from 1990-1991 and conference secretary for multiple Northwest Math Conferences. Sarah was instrumental in organizing and leading Middle School Math Olympiads and helping to organize workshops across Washington State.

As a classroom teacher, Sarah enjoyed working with middle school students and spent most of her career in the Tacoma Public Schools. She also spent three years prior to her retirement at the Educational Service District in Bremerton. She retired in 2000 and was awarded the Barbara Chamberlain Female Teacher of the Year Award in 2005 by the WSMC. By sharing her experiences and creative ways to help all students understand mathematics, Sarah was an inspiration to other teachers. She will be missed. - - - *by Art Mabbott*

Mathematics is not about numbers, equations, computations, or algorithms: it is about Understanding.
- - - *William Paul Thurston*

There is a difference between 'not knowing' and 'not knowing yet'. - - - *Shelia Tobias*

The only way to learn mathematics is to do mathematics. - - - *Paul Halmos*

A person who never made a mistake never tried anything new. - - - *Albert Einstein*

Education is not the learning of facts, but the training of the mind to think. - - - *Albert Einstein*

PSCTM Membership Awards in honor of *Diane Lustyk and Reg Waddoups*

Do you know someone who would be interested in a free year of membership to PSCTM and a prepaid opportunity to attend three dinner events in 2020? (Winter, Spring, Fall)

In honor of two great mathematics educators, ***Diane Lustyk and Reg Waddoups***, the PSCTM is offering two scholarships for membership which will include paid admission to the winter, spring dinner events for the 2020 calendar year. One scholarship will be awarded to a teacher working with elementary aged students, in memory of ***Diane Lustyk***. One scholarship will be awarded to a teacher working with middle school or high school students, in memory of ***Reg Waddoups***.

Diane Lustyk was a teacher in Bellevue and Everett Public Schools. Diane served as an elementary math specialist in Everett Public Schools for over 25 years. She was also a very active member of PSCTM and served on the board as the Snohomish County Representative. Diane loved sharing math with her students. She was also happy to encourage other teachers to join PSCTM, and other math focused events.

Reg Waddoups was a teacher in Seattle Public Schools and Lake Washington School District for many years. In both districts, he started and ran the Math Olympiad program, writing the competition questions and running the events. He was a regular presenter at the annual NWMC sharing amazingly creative math projects, puzzles, games, etc. He was well loved by all who knew him.

To nominate yourself, or a colleague, please send an email to tostrick@everettsd.org. Please include the following information:

- Nominee name
- Grade level the nominee teaches
- A brief explanation, in a few sentences, why the nominee should be awarded the PSCTM membership scholarship
- The name of the person suggesting the nomination (unless this is a self-nomination)
- Phone number and email address for the nominee

The PSCTM Membership Award deadline is January 15, 2020.



Comfort and Joy Bingo



Created by Winter Dinner Presenter, Shelly Henderson

Take a nap	Soak in a tub, by candlelight	Bake for someone special	Sing to your favorite music	Start a fire in the fireplace
Donate blankets to a shelter	Take a stroll in the woods	Make a gratitude journal	Put on some cozy socks	Volunteer
Find a quiet spot, and read	Drink your favorite warm beverage	Eat your favorite cookie	Take a nap	Cuddle with your pet
Spend an evening with friends	Buy fresh flowers	Drink your coffee outdoors	Spend an evening in candlelight	Donate food to a family in need
Create a relaxing space	Bake something yummy	Go see holiday lights	Make a meal in your slow-cooker	Watch your favorite movie

Let this holiday season be the season of "Comfort and Joy" by practicing some self-care! It's easy to stress out during these rushed holiday times, but you can manage to make the season a little merrier for yourself (and others) by engaging in some small activities that elicit the feelings of joy and comfort. Complete this form and complete a bingo, in any direction, or go for it and complete a "blackout" (doing all activities above). Turn this in to receive an incentive, or just do it for your own health and happiness. Spread the joy and invite your family to help choose an activity for you to all to participate in!

Created by Shelly Henderson



Everett SD Teachers at the Fall Dinner; Speaker Jana Dean with some dinner attendees

PSCTM Fall Dinner, October 21, 2019: Jana Dean Building Language Positive and Math Positive Cultures

Jana Dean's presentation challenged us to 1) raise questions about the intersection of language diversity and math learning, and to 2) generate ideas about how to truly invite students' languages and ways of seeing to math class. To accomplish this, she guided us through a math and language experience based upon a common interest of her Middle School Students - BMX Bike Riding. She showed us a clip of a famous Bike Jumping Championship featuring BMX rider, Saya Sakakibara. At just 17, Saya is a five-time BMX female world champion and favorite for the 2020 Olympics. The question that Jana posed to her students (and to us) was, "What makes the rider not crash?" This could also be interpreted or posed as, "What factors impact a rider's ability to make a safe landing?" It was fascinating to compare all of the sophisticated ways her students talked about the success of the BMX rides and how their words could be translated into common geometric terms. Making the transition is the tension that we all face when modeling real life interests and expressing the underlying mathematics. She closed her presentation by talking about her experiences in the Netherlands as a Fulbright Distinguished Award in Teacher Fellowship and about her research there. Her Fulbright research focused on the role of language in classroom communities and in the development of mathematical thinking. It will be the basis of a collaborative book on the same subject.

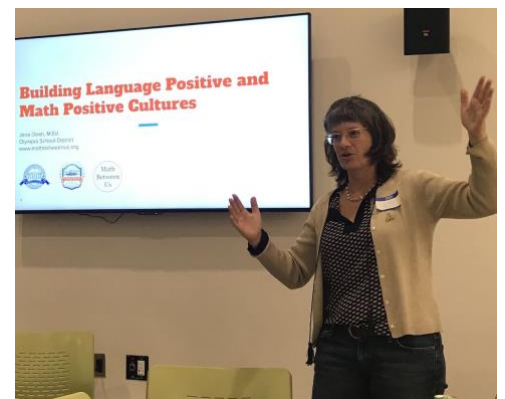
Jana closed her presentation with the offer to stay in touch!

You can subscribe to: mathbetweenus.org, read an article about her Fulbright experience, http://www.mathbetweenus.org/wp-content/uploads/2019/07/Dean_Euclides_I_see_what_you_mean.pdf), or email her to receive the Bike Jumpers to Academic register article, an article about language positive practices, or a reference list. - - - **Joyce Frost**



A look at language

Words the class used	Math terms
Times around	Degrees of rotation
Tucked	Shorter radius
Legs out	Longer radius
Distance around	Circumference
Tucked spin is quicker than legs out	Ratio of radius to circumference (2 times radius times pi:1)
Single	360
Double	720
Triple	1080
Biff or case	Incomplete rotation



Jerry Johnson's MATHNEXUS Available in Book Form

Jerry Johnson, one of the leading lights in mathematics in the NW, created and maintained the *MathNEXUS* website with new content on a weekly basis for eight years, until he retired and stopped adding content.

Recently, Western Washington University decided to shut down this website as well as his other two websites involving Mathematics History Courseware and a data base of 1600+ ancient mathematics problems. To preserve and update the information on those sites, he converted it into a series of six books that were published this year.

These books are lots of good problems, activities, mathematics history courseware, etc. available at very low costs (i.e. his intent was not to make any money but to preserve the information and still make it available). He writes, "At best, I can expect the royalties to maybe provide a good dinner at Pepper Sisters in Bellingham annually!" The linked pages include a more complete description of each book. *The six books and links are:*

[1] Olde Mathematical Problems—To Amuse, Abuse, and Remember (401 pages)

<https://www.amazon.com/dp/1093530324>

[2] Exploring the History of Mathematics Through Its Problems (368 pages)

<https://www.amazon.com/dp/1099815541>

[3] Thought-Provokers: Mathematics, Science, Teaching, Creativity, Life, Impossibles, Dogs... (589 pages)

<https://www.amazon.com/dp/1097787494>

[4] Recreational Problem-Solving—Doing Mathematics (282 pages)

<https://www.amazon.com/dp/1081846666>

[5] Name That Mathematician: A Game of Clues (150 pages)

<https://www.amazon.com/dp/1072832518>

[6] Exploring Data with Statistics, with Some Dashes of Math Lint (278 pages)

<https://www.amazon.com/dp/1672444438>

STEPS TO STAMP OUT MATH ANXIETY



JO BOALER'S ADVICE FOR PARENTS.

- Encourage children to play maths puzzles and games. Puzzles and games—anything with dice, really—will help kids enjoy maths and develop number sense, which is critically important.
- Always be encouraging and never tell kids they are wrong when they are working on maths problems. Instead, find the logic in their thinking. For example, if your child multiplies 3 by 4 and gets 7, say, "Oh, I see what you are thinking. You are using what you know about addition to add 3 and 4. When we multiply, we have 4 groups of 3..."
- Never associate maths with speed. It is not important to work quickly, and we now know that forcing kids to work quickly on maths is the best way to start maths anxiety for children, especially girls.
- Never share with your children the idea that you were bad at maths at school or you dislike it—especially if you are a mother. Researchers found that as soon as mothers shared that idea with their daughters, their daughters' achievement went down.
- Encourage number sense. What separates high and low achievers is having an idea of the size of numbers and being able to separate and combine numbers flexibly. For example, when solving $29+56$, if you take one from the 56 and make it $30+55$, it is much easier to work out.
- Perhaps most important of all: Encourage a "growth mindset" to let students know that they have unlimited maths potential and that being good at maths is all about working hard. When they tell you something is hard for them (or they have made a mistake, tell them, "That's wonderful—your brain is growing!"

Do you have a favorite math activity, math joke, lesson, book review, math photo, or other mathematics education tidbit for our next newsletter? Send it to: Joyce Frost, frostjoycee@gmail.com. Our next PSCTM newsletter will go out March 15, 2020.

The Misnamed Equation

I'm always amused when I run across any of Leonhard Euler's errors. He wrote so much that it is inevitable that he made some mistakes. One of those mistakes is still carried along in the name of "Pell's Equation", $ax^2 + 1 = y^2$, which has the useful feature of being a tool for calculating square roots. Other forms of the equation are found in works by Euclid and Diophantus, but the specific version we recognize was posed in a general challenge by Pierre de Fermat in 1657.

John Pell (1611 – 1685) was a 17th century English mathematician who corresponded with Descartes, Mersenne, Leibniz, and other leading mathematicians of the era. He should be known as the inventor of, (or, according to some reports, teacher of the inventor of) the division symbol. He served as editor for a book called *Teutsche Algebra (Algebra in German)* by his student, Johann Heinrich Rahn, in 1659. That book introduced a new symbol, the obelus, which we currently call the division sign (\div). It is unknown whether the symbol was the brainchild of Pell or Rahn, but it has lasted well. Pell published an expanded edition of Rahn's book with solutions of Fermat's challenge by John Wallis and Lord Brouncker in 1668. That edition apparently caught Euler's attention, who erroneously attributed the equation in question to Pell. Euler was so influential that his name for the equation stuck in the world of mathematics, regardless that his reading of the publicly available source was wrong.

Perhaps it is just as well that Pell is given the credit. Euclid and Diophantus have glory enough. John Wallis is remembered for inventing the number line and the symbol for infinity among other advances. Fermat has his Last Theorem, Little Theorem, Fermat Numbers, Fermat Principle, and the field of probability in his legacy. Even Pell's obelus is now falling into disfavor in the world of computer keyboards, but Pell's Equation remains.

John Pell served as an ambassador for Oliver Cromwell, which didn't go well, published a tract denouncing Longomontanus's spurious proof of the quadrature of the circle, taught mathematics in England, Netherlands, and Switzerland, and published a book of 10,000 square numbers, (handy for use of Pell's Equation). His brother, Thomas, owned most of what is now the Bronx and Westchester County in New York, but Pell himself served some time in debtor's prison. Pell's son, John, moved to America and inherited his uncle's estate. A descendant, Claiborne da Borda Pell, served as a Senator from Rhode Island from 1961 to 1997. Claiborne Pell sponsored the 1972 bill reforming financial aid to college students that created the Basic Educational Opportunity Grant program, called Pell Grants.

Submitted by: Joe Frost

Just How Does Santa Accomplish All That He Does In One Short Night?

Here's one article that explains how Santa can make all the deliveries in one night.

<https://phys.org/news/2004-12-physics-santa-claus.html>

It relies on his having an ion shield to prevent heat buildup and using 11 dimensions to make the time problem trivial. It also points out: "'I want to comment on the alternative situations: Of course, you can find many trivial and sometimes fake Santas out there. But that doesn't mean that you won't find some real Santas,' says Einevoll, who adds:

"If I lived alone at the North Pole and were to visit children and their mothers, I would want to do it when their father was out, he says, and suggests that this is the source for the socially realistic popular song 'I Saw Mommy Kissing Santa Claus'."

This site has a series of calculations on how fast Santa's sleigh must travel and how much he spends on his annual extravagant gesture:

<http://chalkdustmagazine.com/blog/science-behind-santa-claus/> - - - *Joe Frost*