

# Points & Angles

Newsletter of the Metropolitan Mathematics Club of Chicago  
Volume XLIII No. 2, October 2008

## Discovering Theorems Using Cabri 3-D

**Stephen West**  
State University of New York  
at Geneseo

BY PAUL CHRISTMAS

Dr. Stephen West, Distinguished Teaching Professor of Mathematics Emeritus at the State University of New York College at Geneseo, will discuss several 3-space theorems with nice analogs and surprises to theorems in the plane. This presentation will illustrate how Cabri 3-D can be used to investigate those theorems and discover “new” results. Thanks to Texas Instruments for sponsoring this presentation.

As former Chair of Mathematics, Dr. West has spent his entire career working with pre-service and in-service teachers of mathematics. Most recently Dr. West served on the New York State Education Department’s Mathematics Standards Committee which prepared the New York State Standards and as the New York State Coordinator of the joint MAA/NCTM Preparing Mathematicians to Educate Teachers (PMET) Project. Dr. West is a proponent of the use of technology to enhance the teaching and learning of mathematics and regularly presents workshops on implementing technology in the classroom. Dr. West earned his Ph.D. from the University of Texas.

Please be sure to reserve your seat(s) by the deadline. It helps Fountain Blue plan the meal preparation, staffing needed, and room set-up. Also note that late reservations are accepted—we would hate for you to not come because you missed the deadline.

This evening will be a very enjoyable and professionally rewarding experience. You certainly do not want to miss it. We look forward to seeing you there!



**From I-90 & Southbound I-294:** Exit at I-190 West to O’Hare; Exit onto North Mannheim Rd.; Take Mannheim Rd. North 2.25 miles.

**From Northbound I-294:** Exit at West Touhy Ave.; Take Touhy Ave. to Mannheim Rd.; Turn right on Mannheim Rd.

**Public Transit:** Take the CTA Blue Line to the Rosemont Bus Terminal; Take Pace Bus #223 to Touhy Ave. & Lee Rd.; Walk East on Touhy to Mannheim Rd.

**Friday, October 3, 2008**

5:30 PM Doors Open, 6:00 PM Social Hour,  
7:00 PM Dinner and Talk

**Fountain Blue Banquets &  
Convention Center**

2300 Mannheim Rd., Des Plaines  
(847) 298-3636

\$31 for Members, \$37 for Nonmembers

**Reserve by Noon, Monday, Sept. 29**

reservations@mmcchicago.org or (847)  
486-4690, day or night, leave a voicemail.

# Points from the Interior

By PHIL GARTNER

I had the privilege of attending a conference along with Paul Christmas this August designed for leaders of affiliate organizations of NCTM. While there are many things that MMC does wonderfully, my predecessor, Conrad Wayne, did a nice job highlighting some of our achievements in this column last year.

Therefore, I thought I would write instead on an area of potential weakness. I decided that rather than pat ourselves on the back, I would ask for your help in a critical area. We are not unique in this respect. Almost all the affiliates have this same problem that we do.

What is it? It is involving new people of all ex-

perience levels with the work and leadership of the organization. Some of the same people have been in leadership positions for a while, which is great. Some former Board members have come back into service which is great, too. It provides for continuity and a level of expertise that comes with experience.

On the other hand, some turnover and introduction of new people with fresh eyes and a new approach is healthy for any organization.

What can we do? Find a way to contribute to make MMC move forward and grow to be even better. First, continue to come to the dinner meetings and attend the annual Conference of Workshops. In addition to that, I have a few suggestions.

Get new people to come to MMC meetings. If each of us brought a new person this year, the effect would be tremendous. Thank you to all of you who already do bring new teachers and student teachers.

Consider getting involved with a committee or just helping out informally—help at the conference (speaking, volunteering), join the scholarship selection committee, do a write-up of a dinner talk for Points & Angles, and various special projects. Again, thank you to those of you who have done these things.

Think about running for the Board. Being on the Board of Directors for MMC is not as big of a time commitment as you may think. You get to work with a great group and we only meet four times a year. Talk to a Board member if you may be interested. If



At the NCTM Affiliate Leaders Conference: NCTM Executive Director Jim Rubillo, MMC President-Elect Paul Christmas, MMC President Phil Gartner, and NCTM President Hank Kepner

## *Points & Angles*, Volume XLIII

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*Points & Angles*, published nine times per school year, is the official publication of the Metropolitan Mathematics Club of Chicago. Founded in 1913, the Metropolitan Mathematics Club is the National Council of Teachers of Mathematics' first affiliate. The official club website: <http://mmchicago.org/>

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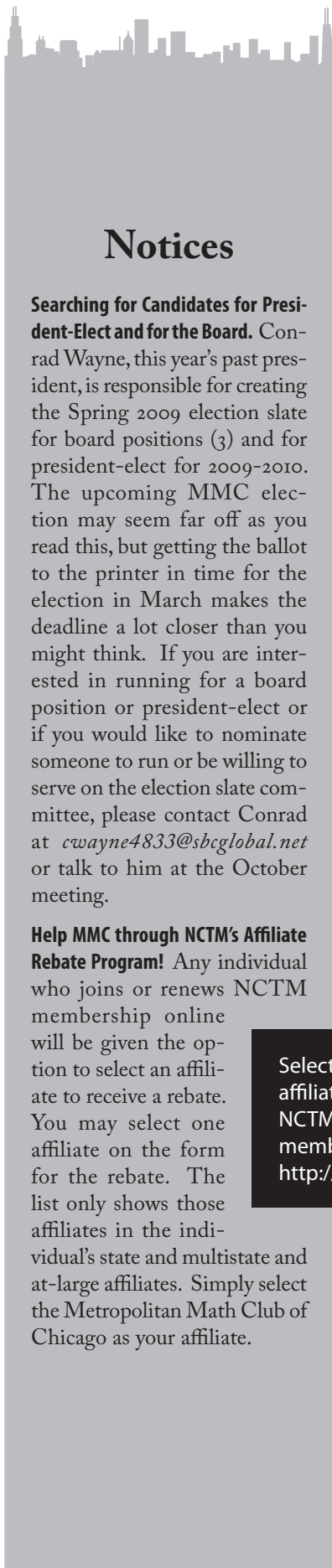
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## Notices

**Searching for Candidates for President-Elect and for the Board.** Conrad Wayne, this year's past president, is responsible for creating the Spring 2009 election slate for board positions (3) and for president-elect for 2009-2010. The upcoming MMC election may seem far off as you read this, but getting the ballot to the printer in time for the election in March makes the deadline a lot closer than you might think. If you are interested in running for a board position or president-elect or if you would like to nominate someone to run or be willing to serve on the election slate committee, please contact Conrad at [cwayne4833@sbcglobal.net](mailto:cwayne4833@sbcglobal.net) or talk to him at the October meeting.

**Help MMC through NCTM's Affiliate Rebate Program!** Any individual who joins or renews NCTM membership online will be given the option to select an affiliate to receive a rebate. You may select one affiliate on the form for the rebate. The list only shows those affiliates in the individual's state and multistate and at-large affiliates. Simply select the Metropolitan Math Club of Chicago as your affiliate.

Select MMC as your affiliate when you join NCTM or renew your membership online at <http://nctm.org/>

we approach you, please consider the request and say yes if you can.

You know organizations are always asking for money. Consider donating to the Speaker Fund or Scholarship Fund as you are able. Ron and Mary can do that for you as you buy your dinner ticket. As dinner costs and airline fares have risen sharply the past years, we try to do as much as we can to keep our costs down. Any additional revenue helps.

You can also simply do your NCTM membership online (new or renewal). When you choose Illinois you can find MMC in a drop-down list of affiliates to designate as the organization to which you would like to contribute. A portion of your membership for NCTM is then allocated to MMC automatically. It is \$3 per year for renewals and \$5 per year for new memberships. This new program is easy and costs you nothing!

Always read [Points & Angles](#) for information and ways to get involved. Of course, if you are reading this deep into Points from the Interior, I imagine that you are doing that already!!

There is much to celebrate with an organization such as ours. We will be even better in the future if we have as much involvement as possible from the membership. We will be healthier moving forward if we have some great new faces on the Board to complement the talented members who sit on the Board now.

# The End of High School Math As We Know It

BY RICHARD RUKIN

MMC began the 2008–2009 school year with Cathy Seeley’s announcing (actually wishing for) “The End of High School Math as We Know It Today.”

She started by asking each of us to write one sentence that describes what we want a math student to know and/or be able to do when they graduate from high school. The resulting sentences had many of the same themes, including problem solving, having confidence, critical thinking and questioning, communicating, pattern recognition, persistence, and solving practical problems. Cathy noted that these are the kinds of things we generally do not find on standardized tests.

Bill Gates was quoted to the effect that the next 50 years (even 10 years) will produce more advances and innovations in technology, science

and computing than even the last 50 years, and those were legion. This means that we have to produce students who can adapt to changing situations and job markets. The technology will allow everyone to be connected from anywhere, thus giving everyone an opportunity to be involved in the economy and “every person can have a chance for a future, probably one we can’t see.”

In the past, panic has led to innovations in math education. For example, Sputnik led to the New Math. Funding from NSF led to innovations and helped to improve math teaching. There is somewhat of an air of panic and concern today about students’ ability to compete in a global economy. Time magazine wondered “not merely whether some fraction of our children get ‘left behind’ but also whether an entire generation of kids will fail to make the grade in the global economy because they can’t think their way through abstract problems, work in teams, distinguish good information from bad, or speak a language other than English.”

The report “Tough Choices or Tough Times” notes that successful workers need top academic performance, to be creative and innovative, and the ability to learn very quickly. Einstein once said, “Imagina-

tion is more important than knowledge. Knowledge is limited. Imagination encircles the world.” In order to promote creativity we need to not only provide students with knowledge, but promote creative thinking and help them become motivated.

Karlyn Adams for the National Center on Education and the Economy gave these nine recommendations for education:

1. Promote three components of intelligence in curricula.
2. Teach students about creativity.
3. Help students find their passion; promote confidence, persistence, risk-taking.
4. Increase problem/project-based learning.
5. Realign testing system to reflect need for creativity.
6. Integrate entrepreneurship into K-12 curriculum.
7. Integrate enjoyment into education.
8. Increase interdisciplinary learning.
9. Career counseling/exploration.

Cathy pointed out that there are lots of things that all students need, so she recommends that students have fewer options early in their academic career, with options for later. In math, we have long noted three important things that all students need—understanding (i.e. making sense of) math; doing math (skills, facts, procedures); and using math (thinking, reasoning, applying, solving a range of problems). Now, though, there is an additional basic skill that all students need—the ability to have deep transferable skills, what has been called versatilizing

In terms of content, students need to know about data handling and statistics; functions and the mathematics of relationships between variables, and mathematical modeling.

Students need to be able to communicate, collaborate, and work in teams. The needs of tomorrow can’t possibly be in today’s textbooks since we don’t know what they will be.

So what do we do to prepare students for college, work, and citizenship? In 2006, ACT noted that “whether planning to enter college or workforce... students need to be educated to a comparable level of readiness in reading and mathematics.” Various

I am enough of an artist to draw freely upon my imagination. Imagination is more important than knowledge. Knowledge is limited. Imagination encircles the world.

— Albert Einstein

reports and organizations have issued reports and recommendations. Some general themes have emerged, such as: Algebra 2 is the new Algebra 1 (everyone needs Algebra 2), but not your grandpa's Algebra 2; statistics is vital; financial literacy is necessary and lacking; we need to change our view of preK–16 mathematics.

The Partnership for 21<sup>st</sup> Century Skills recommends a much wider view of student academic needs, including many core subjects (like arts history, and civics), more 21<sup>st</sup> century content (like global awareness), learning and thinking skills, problem solving, critical thinking, and computer skills.

Bill Gates also noted that “by 2014 there will more than 2 million job opening in the United States in STEM fields” (science, technology, engineering, and math). So there are two goals. First, double the number of workers in STEM fields by 2015 and secondly, have every student be more scientifically and mathematically literate.

Cathy has some recommendations:

1. Beef up Algebra 2 (and Geometry).
2. Build consensus around a few 12<sup>th</sup> grade options.
3. Convene integrated math developers and users to agree on a curriculum.
4. Set a long-range goal (2020?) for integrated high school math and a coherent preK–12 curriculum.
5. Develop a plan to reach the goal.

What do teachers need for the future? Content knowledge and understanding; a strong, diverse set of teaching strategies; excellent resources; support for ongoing improvement; and commitment to career-long learning.

Cathy said she was looking at a Home Depot slogan one day and realized it fit what teachers should think of as their slogan: “You can do it. We can help.” Also, Lowe’s says “Let’s Build Something Together.” Let’s tell our students we want to build their future together.

*Slides from Cathy Seeley’s presentation are available as a PDF at <http://tinyurl.com/mmc-seeley-08>*

## New Teacher Incentive

For this school year, 1<sup>st</sup> and 2<sup>nd</sup> year teachers who become members of MMC will receive ½ off their second and third dinner meetings! Take advantage of this tremendous opportunity to get involved with a great organization, hear top-notch speakers and meet fellow math teachers from throughout the Chicagoland area.

To participate, cut out the form below, bring it with you to all 3 dinner meetings, and have it signed at the registration desk. You will receive your 2<sup>nd</sup> dinner meeting for \$16 and your 3<sup>rd</sup> dinner meeting for only \$15!

Thanks to an anonymous MMC member for generously funding this program.

MMC 2008-09	
Name _____ FOR USE OF MMC REGISTRATION PERSONNEL ONLY	Meeting 1
	Date: _____
	Approved: _____
	Meeting 2
	Date: _____
	Approved: _____
Meeting 3	
Date: _____	
Approved: _____	



# From the Archives...

By GEORGE PRYJMA

Did you know that in the late 1930's, the Men's and Women's Mathematic Clubs of Greater Chicago provided "exhibits of interesting models and other mathematical developments from our class rooms" at the Adler Planetarium? Exhibits included those from the following:

- Lane Tech and Oak Park H.S. from June 12 to October 10, 1937
- Evanston H.S. and Tilden Tech from October 10, 1937 to January 2, 1938
- Foreman H.S. and Hyde Park H.S. from January through April of 1938
- Dundee Community H.S. and Saint Xavier College from April through July, 1938

There was also mention made of math education exhibits at the Museum of Science and Industry, but no details were provided.

2008 is the 50<sup>th</sup> anniversary of the ascendancy of Professor Irwin K. "Bud" Feinstein to the Presidency of the MMC. Dr. Feinstein has been a member for over 50 years and very recently celebrated his 94<sup>th</sup> birthday. May he enjoy many more years of good health and happiness.

## Board Report 24 August 2008

By STEVE VIKTORA

The Board of Directors met on 24 August 2008. Most of the meeting was devoted to procedural matters.

Mary Wiltjer reported a club membership of 540, of whom 57 are students, 48 are retired, 12 are first-year teachers, and 20 are e-members.

Phil Gartner presented the completed schedule of speakers for the year.

Carol Nenne and Mary Wiltjer announced that the MMC Conference of Workshops will be held 24 January 2009 at the University of Chicago Lab School. They both appealed for speakers to send in proposals.

The next meeting of the Board is scheduled for 20 November 2008 at 6:30 PM at the Braxton Grill. Members of the club are welcome to attend any Board meeting, but please contact Phil Gartner at [pgartner@glenbrook.k12.il.us](mailto:pgartner@glenbrook.k12.il.us) before 13 November if you plan to attend. Because this is a dinner meeting, you would be expected to pay for your meal.

**NEW TEACHER INCENTIVE CARD**

**IMPORTANT DATES 2008-09**

Friday, September 5<sup>th</sup>—Cathy Seeley  
Friday, October 3<sup>rd</sup>—Steve West  
Friday, November 7<sup>th</sup>—Ron Lancaster  
Friday, December 12<sup>th</sup>—Angela Andrews  
Friday, January 9<sup>th</sup>—John Diehl  
Saturday, January 24<sup>th</sup>—Conference of Workshops  
Friday, February 6<sup>th</sup>—Tony Pernessini  
Friday, March 13<sup>th</sup>—Claran Einfeldt  
Friday, May 8<sup>th</sup>—Nick Jackiw

Metropolitan  
Club of  
Mathematics  
Chicago  
1913

NCTM  
Center

# Details for Upcoming Events

**ICTM Annual Meeting and Conference, Peoria, IL, October 16–18.** 59<sup>th</sup> Annual Meeting and Conference, “Connections in the Mathematics Landscape.”

<http://ictm.org/annualmeeting.html>

**UCSMP Grades 6–12 User’s Conference, Chicago, IL, November 15–16.** This weekend conference is designed for teachers and administrators who teach from UCSMP Grades 6–12 (third edition), are considering UCSMP Grades 6–12 (third edition), use or have used earlier editions of UCSMP middle and high school materials, or use or have used Everyday Mathematics.

The conference will introduce you to the program and provide overviews of each course, teaching tips, technology usage, the research behind the materials, and more. On Saturday, take an in-depth look at books of your choice, devoting the morning to one text and the afternoon to another. On Sunday, you can attend as many as four sessions on special topics, and pre-register for a one-on-one meeting with a textbook author.

<http://social-sciences.uchicago.edu/ucsmf/Nov08.html>

**Mathematics Educators Exploring Computer Algebra Systems (MEECAS) Meet-**

**ing: CAS For All, November 22, 9AM–12PM.** Location TBD. How CAS works in a classroom with diverse learners.

<http://meeecas.org/>

**MEECAS Meeting: CAS Camp, January 31, 9AM–12PM.** Location TBD. Learn how to use CAS! Sessions for beginning and advanced users.

<http://meeecas.org/>

**MEECAS Meeting: Precalculus, Calculus, and CAS, April 18, 9AM–12PM.** Location TBD. How CAS changes teaching topics in these courses.

<http://meeecas.org/>

NAME		PREFERRED CONTACT Check one: <input type="checkbox"/> Home <input type="checkbox"/> Work	
HOME ADDRESS			
CITY	STATE	ZIP	
HOME PHONE	HOME E-MAIL		
EMPLOYER			
WORK ADDRESS			
CITY	STATE	ZIP	
WORK PHONE	WORK E-MAIL		
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		SCHOLARSHIP FUND \$	
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Make check payable to **MMC**

**MMC Membership and Change of Address Form**

MMC

Mail completed form and check to:

415 S. Ridgeland Ave. #2  
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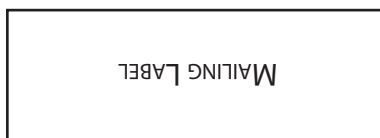


# Upcoming Events

Fri., Oct. 3	Steve West	Discovering Theorems using Cabri 3-D
<i>Oct. 16–18</i>	<i>(see page 7)</i>	<i>ICTM Annual Meeting and Conference</i>
Fri., Nov. 7	Ron Lancaster	Mozart’s Dice Game and Other Beautiful Connections between Probability, Music, Art, and Drama
<i>Nov. 15–16</i>	<i>(see page 7)</i>	<i>UCSMP Grades 6–12 User’s Conference</i>
<i>Nov. 22</i>	<i>(see page 7)</i>	<i>MEECAS: CAS For All</i>
Fri., Dec. 12	Angela Andrews	Focusing on the Big Ideas in Mathematics—Right from the Beginning
Fri., Jan. 9	John Diehl	<i>e, i, 2π, oh! Come Explore What These Numbers Can Do</i>
Sat., Jan. 24	U. of C. Lab	MMC Conference of Workshops 2009
<i>Jan. 31</i>	<i>(see page 7)</i>	<i>MEECAS: CAS Camp</i>
Fri., Feb. 6	Tony Peressini	Comparing Solutions of the Paper Roll Problem
Fri., Mar. 13	Claran Einfeldt	A Math Cursed Life
<i>Apr. 18</i>	<i>(see page 7)</i>	<i>MEECAS: Precalculus, Calculus, and CAS</i>
Fri., May 8	Nick Jackiw	Using the Newest (Yet-to-be-Released!) Version of Geometer’s Sketchpad to Improve Learning

Send upcoming event items to [ilg@chicagomath.org](mailto:ilg@chicagomath.org) no later than the date of the MMC dinner meeting preceding the issue in which the item should appear. All items are subject to editing.

Your membership renewal date appears in the upper right corner of the label.



METROPOLITAN MATHEMATICS CLUB OF CHICAGO  
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