Celebrate Mathematics: Everybody's Heritage and Everybody's Future

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This is a summary of comments made at the opening session at the NCTM Canadian Regional Conference held in Edmonton in October 1994.

Welcome to the celebration of the 75th anniversary of the National Council of Teachers of Mathematics (NCTM). Before I address the theme of this year's celebration, let's look back at the beginning to that day in February 1920 when 127 teachers from 20 states met in Cleveland, Ohio. It must have been a decisive group that capitalized on the experience of local mathematics teachers' groups and the need for unity. That very day, they founded the Council. The first president, C.M. Austin, described the need for such a group:

> During the same period [1910–1920] high school mathematics courses have been assailed on every hand. So-called educational reformers have tinkered with the courses, and they, not knowing the subject and its values, in many cases have thrown out mathematics altogether or made it entirely elective. The individual teachers and local organizations have made a fine defense to be sure, but there could be no concerted action. (NCTM 1970, 194)

Reflect on the goals of the Council as set forth (below) by Austin. Do we still have the same needs? How has the situation changed? Two changes are immediately notable: the Council now includes Canada, and its membership includes more than secondary mathematics teachers.

> *First*, it will at all times keep the values and interests of mathematics before the educational world. Instead of continual criticism at educational meetings, we intend to present constructive programs, by the friends of mathematics. We prefer that curriculum studies and reforms and adjustments come from the teachers of mathematics rather than from the educational reformers.
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> *Second*, it will furnish a medium through which teachers in one part of the country may know what is going on in every other part of the country.
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> *Third*, the Council through its journal will furnish a medium of expression for all of the teachers of the country.

> *Fourth*, the Council will help the progressive teacher to be more progressive. It will also arouse the conservative teacher from his satisfaction. . . . (NCTM 1970, 195)

The theme of the 75th anniversary is "Mathematics: Everybody's Heritage, Everybody's Future." Throughout the year, we are celebrating teaching and the teachers of mathematics. In the following, I would like to share with you what may have been some of the headlines in our mathematics education heritage in North America. As we look at these headlines, think about what implications they may have for today's reform efforts.

1556: First Mathematics Book Published in the Americas

Author: Juan Diez Freyle
Place: Mexico City
Title: *Summario Compendioso de las quentas de plata y ore*

This first book published on the North American continent dealt with the gold equivalencies to other currencies. It chiefly called for use of ratios and proportions. There were several other Spanish books published prior to 1700, all of which dealt with the mathematics of the practical.

As we honor our heritage, we need to remember all the cultures that have contributed to the subject that some consider a universal language. As we relate to the people of diverse cultures, we will help our students realize that mathematics is a human endeavor to which we all can contribute.

1729: First English-Language Mathematical Book Published

Author: Isaac Greenwood
Title: *Arithmetick, Vulgar and Decimal*

This was the first book written and published in the English language that dealt solely with mathematics. And, yes, our students today still may think

of fractions as vulgar! But the students of 1729 were not school children but adults studying for business and trade. Arithmetic was not even permitted in the early schools.

1807: Harvard: Arithmetic for Admission

Over 200 years after the establishment of Harvard, arithmetic will be required of all students entering college in 1807. It is expected by the year 1816 that the "whole of arithmetic" will be required, not just the whole number operations, reduction and the rule of three. By 1820, Harvard will require algebra for admission.

This headline reminds us how young mathematics education actually is in North America. It took Harvard 200 years to require arithmetic for admission, and less than 200 years have passed since that 1807 watershed. We've come a long way!

1861: Both Puzzled

But, Sir, if wanst nought be nothin', then twice nought must be somethin', for it's double what wanst nought is." (NCTM 1970, xviii)

This picture and caption were published in the centennial history of the Ontario Educational Association and remind us that our central mission is to help students understand and use mathematics. Have we made any progress in helping our students learn about 0?

1890: What Algebra?

The Cajori study of algebra reform released its findings today. Teachers of algebra were asked what reforms are needed in the teaching of algebra?

Some typical answers were:
- More of the spirit and reason and less of mechanical solution.
- Rattle the bones of the algebraic skeleton, as exhibited in this country, and show it in its living, breathing continuity and beauty of form.
- Anything to make it less a collection of dry bones and more a living and beautiful science. (NCTM 1970, 160)

We are still asking today about algebra. Do the responses of teachers in 1890 surprise you?

1932: Canadian View of Math Today?

Come to high school, young people. . . . True, the material we shall teach you will be completely useless to most of you. . . . We shall teach it to you anyhow, even if we make incurable bluffers out of you in the process. Our duty in this new day is to train you for citizenship, and we propose to perform that duty by administering to you exactly the same training as was given to an entirely different class for an entirely different purpose a generation ago. (NCTM 1970, 413)

These were the words of a Canadian mathematics teacher. They remind us that we always need to change and always need to keep the needs of our students in mind.

1954: Crisis in Math

The present crisis in mathematics is due not to any deterioration in the work of mathematics teachers, but to an urgent national need for more and better mathematics at a time when administrators and the public have for years slighted mathematics and, indeed, discouraged all vigorous mental effort in the high schools. . . . Excellence in scholarship is permitted, but mediocrity is considered more democratic. (May 1954, 303)

As we moved into this era of reform in the 1950s, the role of the mathematics teacher shifted. To me, the greatest change in the present reform is the centrality of the teacher. Perhaps we have come to the true intent of the NCTM founders. We have also come to realize that it is not an either-or situation. It will take all of us to make the vision of the Standards become a reality.

1974: Four Bones in Teaching

Wishbones—those that say, "If only somebody would do something!"

Jawbones—those that do much talking about what ought to be done

Knucklebones—those that knock no matter what is done

Backbones—those that do the work

(Smith 1975, 529)

Yes, we have much to do so that mathematics is every student's future. It will take all of us. In his 1974 presidential address, Gene Smith described teachers in terms of bones. What type of bone are you?

Now, let's celebrate. But before we leave, take the time to remember one teacher who made a difference to you. And take one step, so one more student will remember you as the teacher with backbone, the one who makes it work.

References

May, K. O. *Mathematics Teacher* (May 1954).

NCTM. *1970 NCTM Yearbook*. Reston, Va.: 1970.

Smith, G. "Presidential Address." *Arithmetic Teacher* (October 1975).