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JoAnne Growney

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Cover Page Footnote

JoAnne Growney has retired from teaching mathematics at Bloomsburg University in Pennsylvania and now lives in Silver Spring, MD, where she writes a few poems, guides occasional poetry workshops, blogs (on Intersections — Poetry with Mathematics) and enjoys both mathematical and poetic conversations with her grandchildren. During childhood on a farm in Western Pennsylvania, JoAnne began to love poetry when she found Robert Louis Stevenson's *A Child's Garden of Verses* on her family's bookshelf, but then she left poetry for a time as scholarships in mathematics enabled her to finance some education. Now she delights in the elegance of language in both mathematical and poetic domains and hopes to use words effectively not only for enjoyment and insight but also to promote vital causes, including equal opportunities and recognition for women and protection of our environment. Her blog (which offers more than a thousand "mathy" poems, a few of them hers) is found at <http://poetrywithmathematics.blogspot.com>.

They Say She Was Good — for a Woman: Poetry and Musings

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Synopsis

These pages contain ideas and verses that consider the roles of women in mathematics. Details of the life of Amalie “Emmy” Noether inspired a poem and the poem, in turn, led to the poet’s growth and awareness of her self and her voice.

A Coming-of-Age Poem

The title of this essay/poetry collection is a line from “My Dance Is Mathematics,” a poem I wrote in the early 1990s (published first in the *Mathematics Magazine* in 1995 [3]). A sabbatical project in the 1980s had led me to explore the arts as complements to mathematics courses and I became involved in reading widely in history and biography and poetry in order to select enriching reading assignments for my students. Reading about Emmy Noether [6, 7] and recalling an incorrectly-titled display seen in a 1964 World’s Fair exhibit led me to the poem.

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Many of us take notes as we read or listen to lectures because the physical act of writing a thought helps us to focus and remember. For some of us who write, the act not only records what we have thought but also can discover what we have not yet thought. Writers sometimes say, “My fingers knew before my mind did” and “When I read what I had written I learned things I had not known I knew.” The poem “My Dance Is Mathematics” was a learning poem for me. Within my expressions of admiration for Emmy Noether, I wrote of my own loneliness as a female mathematician — loneliness I recognized only when I reviewed what I had written. And, as my confidence grew, I edited the poem a bit — with later versions appearing in [2] and [4].

Thus, because of its personal importance, the first poem I offer here is (the revised version of) “My Dance Is Mathematics”. Following that I include several other small poems of two different types. First, a few “found poems” — poetic words found in the prose writings of Vera Rubin [1], Mary Cartwright [8, 9], and Grace Murray Hopper [10] — graceful prose from these women that I have shaped into stanzas. After these I include a collection of small poems composed of words of my own — poems shaped by syllable-counts and offering views of the challenges faced by a woman in mathematics.

Honoring Emmy Noether

Amalie “Emmy” Noether was born in Germany in 1882 and she was educated there. She fled the Nazis to arrive in the United States in 1933, and died on April 14, 1935, in Bryn Mawr, Pennsylvania. When *The New York Times* failed to publish an obituary following the death of this noted algebraist, Albert Einstein corrected the omission with a letter to the editor (noting Noether’s accomplishments); this letter was published in *The Times* on May 5, 1935.² In his letter, in addition to his praise for one of the most accomplished mathematicians of all time, Einstein said this of mathematics: “Pure mathematics is, in its way, the poetry of logical ideas.”

In the 1960s, as I climbed into the male-dominated world of mathematics, Emmy Noether was one of my heroes. Years later I wrote this poem.

²For a copy of this letter, see http://www-groups.dcs.st-and.ac.uk/history/Obits2/Noether_Emma_Einstein.html, last accessed on June 11, 2017.

My Dance Is Mathematics*by JoAnne Growney*

*Down, down, down into the darkness of the grave
Gently they go, the beautiful, the tender, the kind;
Quietly they go, the intelligent, the witty, the brave.
I know. But I do not approve. And I am not resigned.*

From "Dirge without Music" by Edna St Vincent Millay; offered
by Hermann Weyl in a Memorial Address for Amalie "Emmy" Noether
on April 26, 1935 at Bryn Mawr College.

They called you *der* Noether, as if mathematics
was only for men. In 1964, nearly thirty years
past your death, I saw you in a spotlight
in a World's Fair mural, "Men of Modern Mathematics."

Colleagues praised your brilliance—but after
they had called you fat and plain, rough and loud.
Some mentioned kindness and good humor
though none, in your lifetime, admitted it was you
who led the way in axiomatic algebra.
Direct and courageous, lacking self-concern,
elegant of mind, a poet of logical ideas.

At a party when you were eight years old,
you spoke up to solve a hard math puzzle.
Fearless, you set yourself apart.

I followed you and saw you choose
between mathematics and other romance.
For women only, this exclusive standard.

I heard fathers say, "Dance with Emmy—
just once, early in the evening. Old Max
is my friend; his daughter likes to dance."

If a woman's dance is mathematics,
she dances alone.

Mothers said, "Don't tease. That strange one's heart
is kind. She helps her mother with the house
and cannot help her curious mind."

Teachers said, “She’s smart but stubborn,
contentious and loud, a theory builder
not persuaded by our ideas.”

Students said, “She’s hard to follow, bores me.”
A few stood firm and built new algebras
on her exacting formulations.

In spite of Emmy’s talents,
always there were reasons
not to give her rank
or permanent employment.
She’s a pacifist, a woman.
She’s a woman and a Jew.
Her abstract thinking
is female and abstruse.

Today, history books proclaim that Noether
is the greatest mathematician
her sex has produced. They say she was good –
for a woman.



Figure 1: Emmy Noether (1882–1935). Image on the left is in the public domain, <https://commons.wikimedia.org/w/index.php?curid=66702>, accessed on June 11, 2017. Image on the right is by Konrad Jacobs, Erlangen - http://owpdb.mfo.de/detail?photo_id=3096. CC BY-SA 2.0 de, <https://commons.wikimedia.org/w/index.php?curid=42894188>, accessed on June 11, 2017.

Found Poems

On Christmas Day, 2016, Vera Rubin, a pioneering astronomer who confirmed the existence of dark matter, passed away. And a timely NPR feature [1] — noting Rubin’s death and celebrating her life – contained several quotes from this outstanding scientist about women’s roles. Two of these poetic statements I have shaped into syllable-square stanzas:

World wide, half
of all brains
are women’s.

There is no problem
in science that can
be solved by a man
that can’t also be
solved by a woman.

About Congress, Rubin noted:

We need senators
who studied physics,
representatives
who can understand
earth’s ecology.

Next, from an article by Tattersall and Murrin [9] and a chapter in Rachel Swaby’s *Headstrong Women* [8], are some of Mary Cartwright’s poetic words (reflecting on the ages and genders of mathematicians). First, speaking of her employment at Cambridge:

I regret to say that my impression
when I began research was that, in general,
less qualified men were employed quite a lot,
which eliminated some quite good women.

Here are more of Cartwright’s words:

Mathematics is a young
person's game mainly because
major advances in the subject come
from approaching problems from
a slightly different perspective than
previously adopted.

These types of ideas often come
in the course of learning
a subject for the first time.

Grace Murray Hopper (1906-1992) [10] was a person I had the good fortune to meet when she visited Pennsylvania's Bloomsburg University (where I was a math professor) in 1984 to receive an honorary Doctor of Science degree. Hopper was imaginative and articulate; here is some poetry found in her words.

If it's a
good idea,
do it.

It's much easier
to apologize
than it is
to get permission.

We must break away
from the sequential
and not limit computers . . .
We must state relationships,
not procedures.

Poems That Count

Constraints can play an important role in achieving power and beauty in a poem. In a sonnet, for example, each line is ten iambs — or heartbeats — filling one breath, and rhyming patterns help the ear and heart to be attentive.

Some other forms, like the square stanza, the Haiku, and the Fib, rely on syllable count and the form creates a measured structure that guides toward new thinking. . .

The initial selections below include several shout-outs for math women that I have written using syllable squares, followed by a stretched Haiku and two poems whose syllable counts obey the Fibonacci numbers. These poems are selected from [5] — this seven-year-old blog includes hundreds of varied verses (most of them by poets other than me) — that celebrate the connections between poetry and mathematics.

Little Women

In school, many
gifted math girls.
Later, so few
famed math women!

Untitled

When I look around
the room – if I don't
know in one glance how
many women are
there with me, I smile.

Square Attitudes

To publish mathematics,
a woman must learn to think
like a man, learn to write like
a man, to use only her
initials so reviewers
guess she's a man! Women must
masquerade, pretend man-think –

or can we build
new attitudes,
so all of us
have fair chances?!

Girls who prove
theorems can
do it all!

A Stretched Haiku:

I am the girl voice,
Drafts scribed—thoughts stretched, smoothed, squared, sighed –
Catch here now my I.

8-5-3-2-1-1 A Backward FIB

HE is famous but SHE is not.
Yet we once judged her
potential
greater
than
his.

More FIB-bish 1-1-2-3-5-8-13-21-13-8-5-3-2-1-1

Is
she
less known
because of
motherhood? – few want
to pass on procreation, yet
that choice limits so many things — not for the father,
for he may slip off to an office at children’s bedtimes for extra hours of thinking,
for writing those ideas that never come while bathing
toddlers, or diapering. Bright thoughts
wait in still places
for capture—
or they
float
on.

For lots more mathy poems, visit <http://poetrywithmathematics.blogspot.com>.

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