Robin Chapman on (her) Mathematics Education

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JHM is an open access bi-annual journal sponsored by the Claremont Center for the Mathematical
Sciences and published by the Claremont Colleges Library | ISSN 2159-8118 | http://scholarship.claremont.edu/jhm/
I was lucky enough to be introduced to mathematics at an early age with object representations of numbers; and to have had one of the best mathematics teachers in the US, Mary C. Laycock, for three years of Oak Ridge High School classes. She was a teacher who conveyed her love of the subject to all her students, and the excitement of finding many ways to solve problems. She came back full of enthusiasm from the School Mathematics Study Group meetings after Sputnik to teach, collaboratively, the mapping of Cartesian and plane geometry; and, in senior year, number theory, set theory, and statistics to our class, before going on to develop innovative teaching materials for the whole kindergarten-high school range of mathematical subjects in California. Her brief memoir may be found here:  http://hcle.wikispaces.com/Mary+Laycock.

–ROBIN CHAPMAN  (rschapma@wisc.edu), Wisconsin, USA.

Math Education

What did I learn from stars and string?
What did I learn from school? At four, Dottie showed me how to add the stars on cards:
two plus three to five, easy as matching each to each.

From my father, the art of finding the secret
of which two of his fingers or thumbs
would unlock his leg trap—the principle of systematic search
to let you remember what you’d done.

From high school, the translation of gesture
and string to points on a grid and measuring,
matching geometry to algebra, working to find
as many ways to solve a problem as we could.

That math could be starburst discovery,
as exciting as any game of hide and seek.
Mary Laycock
(1915-2011)

What did she do for us in three years of math–algebra, trig, geometry, calculus? Let us confer like kids
on the playground, rushing now to the monkey bars, hand over hand, suspended between the number lines’
equal intervals, or jumping on the merry-go-round spinning the polar co-ordinates of the passing scene
as we rode the sine and cosine waves of the palominos galloping slowly on their poles, passing again and again
the brass ring; or piling on the seesaw up and down, learning the tradeoffs of placement and weight,
watching the strictly-paired angles of right triangles widen and narrow–or, on the track, the lever of the pole vault, the conversion of distance and time to rate–for it was play that she brought to the room, and trust
that as we worked to solve every problem two ways at least, play could be mapped onto the worlds of Euclid and Descartes.
Why The Poet Made a C in Calculus

The scientist looks at levels of scale
up and down the universe from Planck’s
small constant to the unraveling spread
of space and time but loses her way
if she doesn’t return to the metaphor–
that sweater that knits us up and keeps
us warm, that level of all of us
huddled together on the green earth–
where none of us has time enough
to count the rational numbers or even
the integers or slice the conic sections
infinitely thin and that callous disregard
for the span of our human lives
in the computation of Pi or the pursuit
of the integral of all those endlessly
chopped up bits vanishing down
some bottomless well–well, you see
why I rebelled, refusing to believe
in that bait-and-switch of infinitesimals.