

Poem for the BAMC/BMC 2002

A poem attends the UK Maths Conference at the University of Warwick 2002

by Judy Tweddle

I

You are generous and invite this
unwritten poem
into your infinite dimensions.

We use up to 40 dimensions.
I would say about 27 dimensions.
There are 19 spatial dimensions
and 8 time dimensions.
 \mathbb{R}^3 = three dimensions.
 \mathbb{R}^{3+1} = our normal universe.
Add time and you have an infinity of dimensions

Imagination is infinite.
Do we imagine our world?
The poem is a little
lost in all this
bigness.

II

Maths is finding
how many somethings
make something.
No doubts, only errors.
Therefore doubts.

III

The beauty is that everything fits so well.
The beauty is that something in one field
is consistent with something in a different field.
Many people only live in one field,
and cannot see over the fence,
cannot talk to the cows in the next field.

IV

It is natural to ask whether the set L ,
defined as the set of non-negative linear combinations of the vectors $v_j, j \in \{1, \dots, n\}$
and $v_j, 1 \leq j \leq n$, is a region of linearity
for $R: \mathbb{R}^k \rightarrow \mathbb{R}^k$ in type A_n . Ah.

The poem hasn't learnt to speak maths,
nor to read the books full of

flying fish and wheels and roman arches
and number eight keeled over to infinity
and so many ways of writing x
and so many places to write ^x X_x
and so many sizes of x **x** **X** **X**
and some are filled X and some are hollow X.

The poem strives to exist in
the hollow x, in the unknowable,
in the spaces between.

V

Imagine the world is a shaggy dog,
a ball covered in long grass, you say,
and the wind blows:
there will be a parting.
This is not a good way to live, you say.

Imagine the world is a doughnut,
a hairy doughnut, and the hair is all combed
the same way,
and imagine the wind blows through the hole:
there need not be a parting.
There need not be a parting.

VI

You are generous and let this
unwritten poem into the space between.
And it pingpongs off the walls,
is herded through logic gates and spun with quanta,
is stretched and twisted like a golden fleece
but does not break. It flows.
It pinballs between givens, surmises, and trials,
sunrises and dials,
it curves and loops through intersections,
smiled connections,
it feels the energy, the straining, the zapping, the silences of
pure thought pure pure
thought.

VII

This is a curiosity that burns,
that has grown men, women rush to
draw urgent shapes and move them
annotate them
rotate them
draw them out into the room
extrapolating
extruding them into the room
following the movements with their hands and
swaying and
cupping their hands and
curving them through the air, like brackets;

it has them
plait and
braid invisible endless threads,
pulling points together with rubber bands.
The loops and twists include,
exclude.

"These are rubber bands."
They can see rubber bands.

And they laugh.

VIII

What is bizarre, they say,
is that sometimes sigma changes.
Sigma changes.

And what is really bizarre, they say,
is that sometimes the long way round
is shorter.

IX

The man with three shapes on his paper
- a wobbly circle
- a graph curve
- a corner with clustered spots
ponders.
Deeply alive in his silence,
in the middle of the common room.
His rubber band is tight.
He is looking for the
Aaah.

X

In this common room.
this common room where
common words mean

that the world is impossibly complex
that the world is intrinsically simple
that the world is governed by invisible rules
that the world is random
that the world is elegant, but
our understanding of it incomplete,
that there is a whole class of stuff
that is now provable
that there is a whole class of stuff
that is unprovable
that with quantum computers
the numbers spin around,
ignoring gates
simultaneously

that chaos has been around
for a long time.

In this common room,
people drink coffee
thoughtfully

XI

Maths is music
Maths is silent Maths has a passion
Maths is urgent Maths is very laid back.
Some folk are geomet ric, some symbolic
Some poems are met ric, some gambolic
and the weather would be better if the earth
were a doughnut

XII

Let's split the p
and solve the bubble,
sort out decaying
turbulence trouble,
residue codes, elastic semi-strips,
spherical harmonics, and let's get to grips

with quadratic irrationals
symmetric probability,
finite gap potential,
scalability
the rupture of a thin film on a horizontal plate,
the ways of approaching a steady state.
{Let us imagine they are not only linear,
(some are fatter and some are thinner)}.

And let us consider
the solitary wave,
and the fragmentation of a bloke called Dave,
what to do when things fall apart,
how to deal with the excited heart.

Has it to do with semi-strips,
spiralling jets or scattered rays?

But let us remember all our days
that deep space structure, let us repeat -
that deep space structure, is discrete.

XIII

"Normally mathematicians can't talk
to non-mathematicians.
I am willing to try:

Take a piece of rope and

tie it in a knot
and glue the ends together.
How do you know if it's the same as
another knot?"

Or not?
Loose ends were glued together.
The poem was roped
for climbing impossible mountains.
Thank you.

XIV

We know
the bifurcation sequence for a two-dimensional flow and what to do when $\text{char}(k) = 0$

But where does 1 go 4 char?

We have noted
Basic Ergodic Theory
Classical and Quantum Systems from Symplectomorphisms
Stochastic Differential Equations.
Global aspects of integrable systems
Where is Logic.

But where are the lodgings?

XV

Let us believe in the unifying theory,
and it might be string.

String is a point which can be stretched
in infinite dimensions.

Let us stretch a point.
Let us imagine this poem at the cutting edge.
The cutting edge

is here
is moving outwards
is all around us
is moving in
is at the end
is where doubt lies
is where the fire burns brightest
is the calm centre
is the Aaah.

I believe in the unifying theory.
I believe in the Uncertainty Principle.
I believe in the Mother of All Theories.

There is only right and wrong.
There is no right and wrong.

No doubts, but errors. So always doubts.

Maths is spiritual not because of its certainty,
but because of the quality of its doubt.

XVI

What is surprising is that there is more chaos
in my theory than there is in chaos theory.
But that is not surprising.
Given the nature of chaos.

Given that we are near Coventry.
Warwick Castle is nowhere near here.

XVII

I believe in string.
I believe in the family of curves.
I believe in the cutting edge.

There are so many cutting edges,
no-one can see them all.

When I am at my cutting edge,
I like to bring it down to a simple curve,
then complex up to the edge.

When I am at my cutting edge,
if I can see the curve, I am stuck.
I need to not see a curve, so that I am free to see the edge.
I get a feeling that something might be right,
and I have a dialogue with the knife.
Not words. Not pictures. At the edge.
Might it be like this?

XVIII

You are very kind:
You have allowed this
unwritten poem
to write itself, while
here you are, busy
leapfrogging vortices,
scattering light-rays,
chasing the steady state,
balancing on horizontal girders,
cutting new edges,
hunting for the Aaah.