

Claude Shannon and His Rubik Cube Poem

Shannon was not only the creator of information theory, he was also an avid juggler, unicyclist, designer of machines that play chess and other games, and—most surprising of all—a poet.

Rubric on Rubik Cubics (1)

By Claude Shannon

Once puzzeldom was laissez faire
With rebus, crosswords, solitaire.
Comes now the Rubik Magic Cube
For Ph.D. or country rube.
This fiendish deaver engineer
Entrapped the music of the sphere.
It's sphere on sphere in all 3D --
A kinematic symphony!

Tal Ral al Boom De Ayl
One thousand bucks a day
That's Rubik's cubic pay.
He drives a Chevrolet. (2)

Forty-three quintillion plus (3)
Problems Rubik posed for us.
Numbers of this awesome kind
Boggle even Sagan's mind. (4)
Some chaps pry their cubes apart
In with calm intelligence.
Then reassemble to the "start".
Not cricket! A rude game's afoot
And up with which we will not put!

Tal Ral Ral Boom De Ayl
Cu-bies in disarray?
First twist them that-a-way,
Then turn them this-a-way.
Respect your cube and keep it clean.

Lube your cube with Vaseline.
Beware the dreaded cuber's thumb,
The callused hand and fingers numb. (5)
No borrower nor lender be.
Rude folks might switch two tabs on thee,
The most unkindest switch of all,
Into insolubility. (6)

In-sol-u-bility.
The cruelest place to be. (7)
However you persist
Solutions don't exist.

While most folk watch the idiot tube
Cubemeisters spin the Rubik cube.
Minh Tai's the champ — he's fast as sin.
Minh solves his cube in half a min. (8)
John Conway leads a Cambridge pack
And solves his cube behind his back. (9)
Singmaster write THE BOOK— first rank;
Now cubes while riding to the Bank. (10)

Here now a heavyweight!
Programming potentate!
Software sophisticate!
Morwen B. Thistlethwaite! (11)

Eschewing this dull 3D place
Joe Buhler cubes in hyperspace. (12)

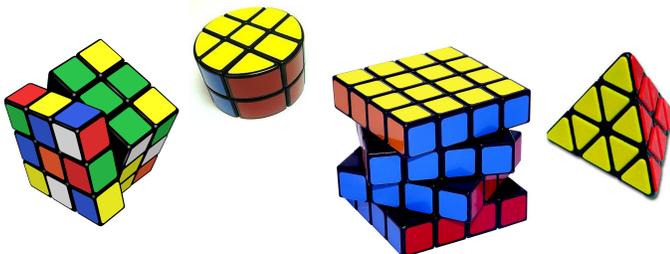
All hail Dame Kathleen Olerenshaw,
A mayor with fast cubic draw. (13)
Is cubing just a crashing bore?
Let Taken's robot do this chore. (14)
God moves in geodesic ways
And solves His cube in twenty plays. (15)

Cubemeisters one and all,
Their cubes find final rest
Bronzed in the Hall of Fame
In lovely Budapest.

The battle's joined in steely grip:
Man's mind against computer chip,
With theorems wrought by Conways's eight
'Gainst programs writ by Thistlethwaite.
Can multi-billion neuron brains
Beat multi-megabyte machines?
The thrust of this theistic schism --
To ferret out God's algorithm!

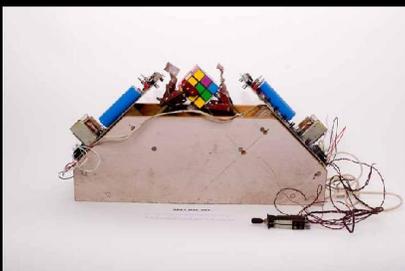
CODA:

He (hooked on Cubing) with great enthusiasm:
Tal Ral Ral Boom De Ayl
Men's schemes gang aft agley
Let's cube our life away!
She: Long pause (having been here before):
----- OY WAY!



Footnotes

- (1) When T. S. Eliot published "The Waste Land" in 1922 with a wealth of footnotes, there was considerable commotion among the critics — should a work of art stand on its own feet or refer to such weighty tomes as *The Golden Bough*. The ambiguity, obscurity and even prurience of modern poetry are also under attack. We intend this to be clean as a hound's tooth, crystal clear, sensible as a dictionary, and with footnotes galore.
- First off, this may be either read as a poem or, better, sung to "Tal Ral Ral Boom De Ayl!" (with an eight bar chorus). The verses should be sung solo, in a slightly bitter sardonic manner, à la Noel Coward or Bea Lillie; the choruses, in contrast, a joyous rousing salute to the cube.
- (2) A little poetic license here — the *Wall Street Journal*, Sept. 23, 1981, reports Rubik as receiving \$30,000 a month from cubic royalties, but driving a "run-down rattling Polski Fiat". This would neither scan nor rhyme as well as Chevrolet.
- (3) There are $\frac{8! 12!}{2} \cdot \frac{3^8}{3} \cdot \frac{2^{12}}{2} = 43252 00327 44898 56000$ possible arrangements of the cube.
- (4) It would take *billions* and *billions* of "*billions* and *billions*" for forty-three quintillion plus.
- (5) While not as debilitating as weaver's bottom or hooker's elbow, cuber's thumb can be both painful and frustrating. For more on these occupational ailments see recent issues of "The New England Journal of Medicine".
- (6) A friend of mine, Pete, an expert cuber, told me of encountering a friend Bill at a hobby shop. Bill gave Pete his cube, saying that he had been working for days without success. After a few minutes, Pete turned it into a position where he could see that two tabs had been interchanged.
- Pete: Bill, somebody has switched two tabs on your cube.
Bill: That's impossible. I've always carried it, or left it in my apartment, and nobody has keys to get in there.
Pete: Nobody?
Bill: That's right, nobody. Just me and my girlfriend.
- (7) Especially in April.
- (8) Minh Tai, World Speed Champion, in a public demonstration solved six scrambled cubes, each in less than 30 seconds.
- (9) Actually, he pokes a little. John Conway, the great Cambridge combinatorialist, in addition to his tour de force blindfold cubing has, with his colleagues, contributed much to Rubik cube theory.
- (10) Singmaster, David. *Notes on Rubik's Magic Cube*, now in its sixth edition.
- (11) A pioneer in programming computers to solve the cube. His program solves the cube in 52 or fewer moves.
- (12) Group theorist Buhler and his colleagues have developed a theory of higher dimensional cubes.
- (13) Renaissance woman, sometime mayor of Manchester, recreational mathematician, expert cubist and discoverer of the cubist thumb syndrome and its relation to the felloek problem in horses.
- (14) In October 1981 the writer foresaw the need for a cubing machine and sketched the design of a pair of mechanical hands to be connected to a computer and manipulate a cube. In the summer of 1982 a crack team of one M.I.T. student was assembled. Late in July the hands were making their first fumbling attempts to hold and manipulate a cube, when we received a crushing newspaper clipping from a friend. It seems that Dan Talken had assembled a crack team of Southern Illinois University students and beat us to the punch. My friend wrote one word across the slipping: "Scooped!"
- (15) Or so Singmaster finds it tempting to conjecture.



Rubik's cube manipulator

by Shannon, Claude Elwood
10 in x 19 in x 5 1/2 in
Exhibition in MIT Museum