

Am I related to Henry VIII's Master of the Mint? Are you?

Peter Rowlett

Sheffield Hallam University

Social media: mostly @peterrowlett, see peterrowlett.net/social for details
p.rowlett@shu.ac.uk

11 November 2023

MathsJam 2023



Mathematics of life reveals the mathematical ideas and shortcuts behind everyday situations



A N N A L S
OF THE
COINAGE OF GREAT BRITAIN

AND ITS DEPENDENCIES;

FROM THE EARLIEST PERIOD OF AUTHENTIC HISTORY TO THE REIGN OF VICTORIA.

BY
THE REV. ROGERS RUDING,
VICAR OF MALDON IN SURREY, F.R.S. AND H.M.A.S. OF NEWCASTLE-UPON-TYNE.

THIRD EDITION:

CORRECTED, ENLARGED, AND CONTINUED TO THE REIGN OF HER PRESENT MAJESTY;
TO WHICH IS ADDED, AN ENTIRELY NEW INDEX OF EVERY COIN ENGRAVED,
AND WHERE REFERRED TO THROUGHOUT THE WORK.

VOLUME II.

LONDON:
PRINTED FOR JOHN HEARNE, 81, STRAND;
BY HANSON AND WARD, 177, LANE, PATERNOSTER ROW.
1840.

A N N A L S

OF THE

COINAGE OF GREAT BRITAIN

To our trusty and wel beloved servants Sir Martine Bowes, Knight, and Raffe Rowlett, Maisters of our Mynte.

Henry the Eight, by the grace of God, Kinge of England, France, and Ireland, Defender of the Faith, and in earth of the Church of England and Ireland the supreme head, to our right trustie and wel-beloved servants Sir Martine Bowes, Knight, and Raffe Rowlet, Esquire, Maisters of our Mynte within our Tower of London, our welbeloved John Browne, Warden of the same, to our trustie and welbeloved servant Peter Meawtas, Comptroller of the same, and to all Deputies of the said Martine Bowes, Raffe Rowlet, John Browne, Peter Meawtas, and to Richard Harry Yonge, Provoste of our Moniers, and to all other Moniers, Gravers, and Ministers of our said Mynte, and to every of them. For as much as wee by

VOLUME II.

LONDON:

PRINTED FOR JOHN HEARNE, 81, STRAND;

BY HASTING AND MARSH, 107, LAMB, PATERNOSTER ROW.

1840.

Ralph (or Raffe) Rowlett (or Rowlet, or Rowlatt)

- ▶ Goldsmith;
- ▶ Master of the Mint;
- ▶ Had six children.

Above: Bonnie Schermer, 2017. Ralph Rowlatt. Find a Grave.
<https://www.findagrave.com/memorial/57576623/ralph-rowlatt>
Right: Find a Grave, database and images
(<https://www.findagrave.com/memorial/57576623/ralph-rowlatt>:
accessed 07 November 2023), memorial page for Ralph Rowlatt
(unknown–1543), Find a Grave Memorial ID 57576623, citing
Saint Alban's Cathedral, St Albans, St Albans District,
Hertfordshire, England; Maintained by PPJ (contributor
47279630).



Am I related to Ralph?

Exponential model

▶ He lived about 20–25 generations ago.

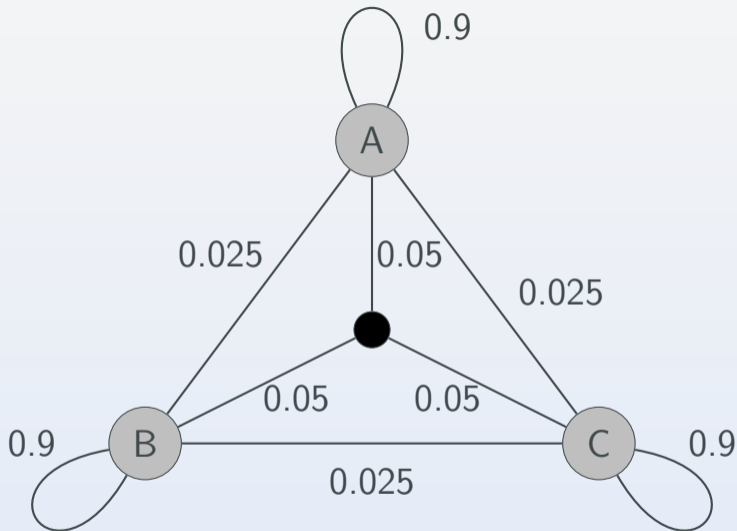
▶ I have

1. $2^1 = 2$ parents;
2. $2^2 = 4$ grandparents;
3. $2^3 = 8$ great-grandparents;
4. $2^4 = 16$ great-grandparents;
5. \vdots
- 20 $2^{20} = 1,048,576$ ancestors;
- 21 $2^{21} = 2,097,152$ ancestors;
- 22 $2^{22} = 4,194,304$ ancestors;
- 23 $2^{23} = 8,388,608$ ancestors;
- 24 $2^{24} = 16,777,216$ ancestors;
- 25 $2^{25} = 33,554,432$ ancestors;

▶ Population of England in 1500 is around 2 million.

Broadberry, Stephen, Bruce M.S. Campbell, Alexander Klein, Mark Overton and Bas van Leeuwen (2015), *British Economic Growth, 1270-1870*, Cambridge: Cambridge University Press, page 21.

But isn't it more complicated than that?





A1 A2 A3 A4 A5 A6



B1 B2 B3 B4 B5 B6



C1 C2 C3 C4 C5 C6



A1* A2 A3 A4 A5 A6



B1 B2 B3 B4 B5 B6



C1 C2 C3 C4 C5 C6



A1* A2 A3 A4 A6 B1 C3



B2 B3 B4 B5



C1 C2 C4 C5 C6



A1* A2 A3 A4 A6 B1 C3

Pair

Children

A1* A2

A7* A8* A9*

A3 C3

A10 A11

A4 A6

A12 A13 A14 A15

B1 A6

A16 A17 A18

- ▶ I ran **fifteen** towns starting with **a thousand** people in each town, 100 simulations.
- ▶ Number where * goes extinct: 5
- ▶ Number of generations until everyone is *:
 - Min: 18
 - Max: 23
 - Mean: 20.1
 - Median: 20
 - Mode: 20

- ▶ I ran **fifteen** towns starting with **a thousand** people in each town, 100 simulations.
 - ▶ Number where * goes extinct: 5
 - ▶ Number of generations until everyone is *:
 - Min: 18
 - Max: 23
 - Mean: 20.1
 - Median: 20
 - Mode: 20
- ▶ I ran the same **fifteen thousand** people with no towns, 100 simulations.
 - ▶ Number where * goes extinct: 6
 - ▶ Number of generations until everyone is *:
 - Min: 16
 - Max: 22
 - Mean: 18.3
 - Median: 18
 - Mode: 18

15 towns of 133333 people:

0	1999995	1*	0%
⋮	⋮	⋮	⋮
15	26354221	416530*	1%
16	31297301	966399*	3%
17	37164754	2199039*	5%
18	44134057	4859753*	11%
19	52398111	10266125*	19%

Two million people without towns:

0	2000000	1*	0%
⋮	⋮	⋮	⋮
15	26314713	342190*	1%
16	31238667	806415*	2%
17	37136974	1889350*	5%
18	44047722	4371831*	9%
19	52315292	9865559*	18%

15 towns of 133333 people:

0	1999995	1*	0%
⋮	⋮	⋮	⋮
15	26354221	416530*	1%
16	31297301	966399*	3%
17	37164754	2199039*	5%
18	44134057	4859753*	11%
19	52398111	10266125*	19%

Two million people without towns:

0	2000000	1*	0%
⋮	⋮	⋮	⋮
15	26314713	342190*	1%
16	31238667	806415*	2%
17	37136974	1889350*	5%
18	44047722	4371831*	9%
19	52315292	9865559*	18%

Ideas welcome!



**Live chats with
cool maths people**

Join us on Patreon/Discord:

finitegroup.co.uk



Next Livestream: Weds 15th Nov 6-7pm