

James McGrath - The DNA Story

By

Michael F. McGraw, Ph.D.

mfmcgraw@austin.rr.com

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Introduction

The increasing popularity of consumer DNA testing promises the possibility of finding new family connections. In the cases of orphans and adopted children the promise is strongest because they are seeking parents, siblings and 1st cousins. The certainty of the results of Autosomal DNA testing decreases as the generations back to the common ancestor increases. At the level of 4th cousins the common ancestor is back five generations and the length of the matching DNA decreases, approaching noise levels. This is further complicated by the number of possible common ancestors ($2^5 = 32$), which increases exponentially with the number of generations. In most cases the associated paper trail is incomplete and therefore the positive identification of the common ancestor is not possible in many cases.

While the possibility of proof of inclusion diminishes with the increase in the generations of separation, the possibility of exclusion doesn't suffer as badly. Using the standard settings it is possible to predict the expected length of a possible matching result for an assumed family connection. A significantly smaller, or even zero, match length will indicate that the assumed connection has not been verified.

A set of DNA testing results will be used to verify a 2nd cousin, once removed, relationship between two of these individuals. Two of these results will then be used to disprove an assumed connection to a common ancestor back five generations.

The origins of James McGrath have been and remain a mystery. At the time of the 1855 NY Census James was living on what is now Long Road in the town of Pompey. He and another Irish family were living with a local farmer, Cyrus Edwards, and working on his farm. The other family was Michael McGraw, his son Thomas and Thomas' wife Katy (Catherine Gleeson McGrath). On the farm next door was James' future Bridget Ryan, who was Catherine Gleeson McGrath's niece. With all those connections it might seem that it would be easy to figure out James' connection but that hasn't proved to be the case. The census enumerator mistakenly thought that Michael McGraw was the owner of the property and so the relationships of the others were recorded relative to Michael instead of the actual owner. James was listed as a "boarder." James had been in the town of Pompey for 6 years according to the census while Michael and his son Thomas had been in Pompey for only 3 years. Curiously, Thomas' wife Catherine had been in the town of Pompey for "9 years." Neither James nor Catherine was found in the 1850 census which would have been expected given the length of their residencies in the town of Pompey. Additionally no marriage record has been found for Thomas and Catherine either in Ireland or Central NY and there were no children from that marriage.

If the “6 years” of residency in the town of Pompey is correct then James McGrath arrived in town about 4 years earlier than Thomas and his father, Michael McGrath. In this case there is little or no reason to suspect that James is related to Thomas and Michael McGrath. Ignoring the residency information it might be supposed that James was a relative or a neighbor from back in Ireland. An earlier paper explored the other McGrath families in the Moyaliff area and the adjoining parishes for possible James McGraths in the church records of those parishes. A possible candidate for James was found and described in that paper.

In this paper James McGrath will be assumed to be related to Thomas McGrath and the DNA results will be used to test this hypothesis. James will be assumed to be Thomas’ 1st cousin, by using Thomas’ known brother Edmund (my gg-grandfather), so that my DNA results can be used to test the validity of this 1st cousin hypothesis.

Jane Ostrowidzki and Karen Kenealy Comparison

Jane Ostrowidzki and Karen Kenealy are descended from James McGrath and Bridget Ryan as depicted in the family pedigree chart on the following page. The results of the One-to-One comparison from GEDmatch.com web site shows that for Jane and Karen there is an estimated 3.8 generations to the Most Recent Common Ancestor (MRCA). Since the family connections are already known it can be seen that the common ancestor is James McGrath (and Bridget Ryan) is three generations from Jane and 4 generations from Karen. This is in agreement with the estimated number of generations of 3.8.

GEDmatch.Com Autosomal Comparison - V2.1.1(c)

Comparing Kit A604824 (*jaozki36) and A664235 (Karen Kenealy)

Minimum threshold size to be included in total = 500 SNPs

Mismatch-bunching Limit = 250 SNPs

Minimum segment cM to be included in total = 7.0 cM

Chr	Start Location	End Location	Centimorgans (cM)	SNPs
1	157,849,970	162,926,661	10.6	950
2	8,526,851	23,360,921	26.2	2,508
4	70,621,927	82,109,374	10.1	1,220
5	1,155,134	4,685,694	11.3	983
7	148,801,169	155,664,126	20.4	1,338

Largest segment = 26.2 cM

Total of segments > 7 cM = 78.6 cM

5 matching segments

Estimated number of generations to MRCA = 3.8

398494 SNPs used for this comparison.

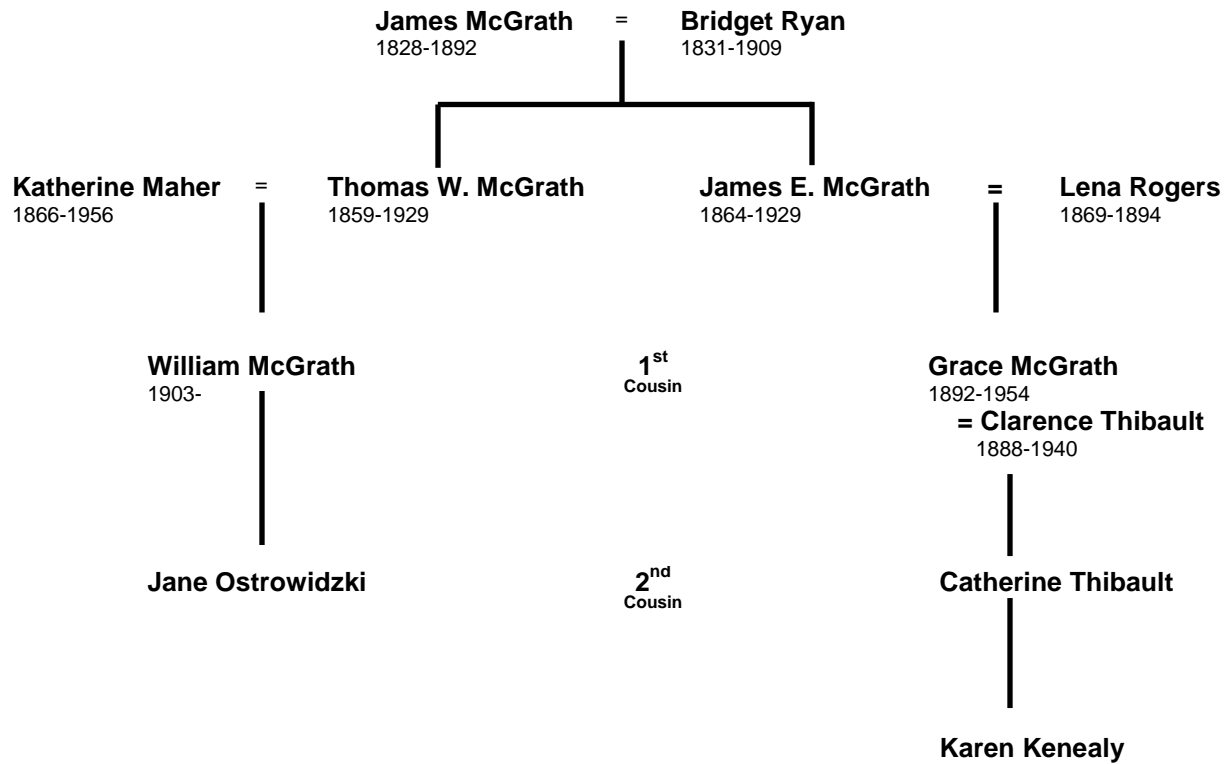
Comparison took 0.38735 seconds.

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GEDmatch DNA numbers

NAME	GEDmatch Number
Jane Ostrowidzki	A604824
Karen Kenealy	A664235
Mike McGraw	A608074

Some Descendants of James McGrath and Bridget Ryan



Jane Ostrowidzki and Karen Kenealy are 2nd cousins once removed. Jane is 3 generations from the common ancestors (James McGrath and Bridget Ryan) while Karen is 4 generations away.

Karen Kenealy and Mike McGraw Comparison

GEDmatch.Com Autosomal Comparison - V2.1.1(c)

Comparing Kit A664235 (Karen Kenealy) and A608074 (*MM)

Minimum threshold size to be included in total = 250 SNPs

Mismatch-bunching Limit = 125 SNPs

Minimum segment cM to be included in total = 4.0 cM

Chr	Start Location	End Location	Centimorgans (cM)	SNPs
18	55,280,977	57,148,006	4.1	307

Largest segment = 4.1 cM

Total of segments > 4 cM = 4.1 cM

1 matching segments

403126 SNPs used for this comparison.

Comparison took 0.03419 seconds.

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Jane Ostrowidzki and Mike McGraw Comparison

GEDmatch.Com Autosomal Comparison - V2.1.1(c)

Comparing Kit A604824 (*jaozki36) and A608074 (*MM)

Minimum threshold size to be included in total = 250 SNPs

Mismatch-bunching Limit = 125 SNPs

Minimum segment cM to be included in total = 4.0 cM

Chr	Start Location	End Location	Centimorgans (cM)	SNPs
1	967,643	2,918,281	7.1	254
2	7,070,704	8,326,564	4.4	280
16	12,139,240	14,882,793	4.7	548
17	10,928,958	12,972,185	4.9	488
18	44,175,212	47,038,025	4.1	553

Largest segment = 7.1 cM

Total of segments > 4 cM = 25.2 cM

5 matching segments

435780 SNPs used for this comparison.

Comparison took 0.26496 seconds.

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With the normal settings (Min segment 7.0 cM and Min threshold size 500 SNPs) I (Mike McGraw) had zero matches with Jane and Karen. After lowering Min segment to 4.0 cM and Min. threshold to 250 SNPs the above “matches” were found. This is much smaller than the expected results for the proposed “1st cousin” relationship show in the above diagram.