

LIVING WITH RISK – GUIDED BY MY NUMBERS

45th Crabtree Oration, Australian Chapter

13 February 2019 - Emeritus Professor John Rickard

Mister President, Madam Chair, Almost Living Burden, Distinguished Elders and Scholars, I thank you for giving me the opportunity to deliver the 45th Annual Crabtree Oration. It is both an honour and privilege and I hope that in half an hour or so I may look back and say it was also a pleasure!

Like many Elders here this evening, I have to thank for tonight's opportunity and chance for fame, three elderly and persuasive friends. Oh, my apologies; in this august company this evening I should refer to these distinguished individuals as friendly Elders rather than elderly friends! Nevertheless, their powers of persuasion are always greatly enhanced by a generous intake of wine. For that matter, my ability to say 'no,' 'you must be joking' or 'get lost' is also greatly reduced after a few glasses. So, like many before me I agreed to deliver a Crabtree Oration. The lead-time was so great that I decided in my usual manner to put it to one side for a while, or perhaps a year or so. After all, as a colleague of mine used to say, never write notes or a summary of a meeting until you receive the first request for such. Often this is not forthcoming and your efforts will be entirely wasted!

Where and how to get started? Like many past Orators, it seemed like a good idea to read a subset of past Orations, especially from the UK and Australian Chapters. Which ones? In my case I settled on four categories:

- (i) Those delivered by friends and close colleagues. Why? I wanted to see if there was any correlation between their Oration and their normal personality! Would I recognize them?
- (ii) Those Orations with some connection to my alma maters or places I had worked. For example, UCL, Oxford, Monash, the University of Melbourne.
- (iii) Those Orations where the subject matter was close to my own discipline – Mathematics, Finance, Economics.
- (iv) Finally, a few with unusual titles. Sadly, I have to confess that some of these I was either unable to read or incapable of understanding!

There seems to be a requirement or at least a strong tradition that the Orator will draw upon his or her own discipline or expertise, at least in part. Perhaps at this point I might be allowed to digress for a moment.

My doctoral years were spent at UCL from 1966-1969 immediately prior to moving to Australia. My research problem comprised a mathematical analysis of the equations governing the motion of a magnetic rotating fluid within a spheroidal shell. The real world problem was to analyse the motion of the molten part of the earth's core and, in particular see if I could explain certain phenomenon which manifest themselves at the earth's surface and which are important to cartographers and navigators. To the mathematicians present, my challenge comprised the simultaneous solution of the Navier Stokes Equations and Maxwell's Equations.

As I thought! Looking around me confirms my expectation that any attempt to connect Joseph Crabtree's life and work to my doctoral research would likely render the Living Burden anything other than living and send most Elders and Scholars into a deep coma!

Enough of Geophysical Fluid Dynamics. Let us turn our attention to Joseph Crabtree. I am sure many of you are aware, but probably not all, that in addition to the comprehensive on-line material available, Barrett & Harte have published two volumes of past Orations covering the period from 1954 to 2003. At the back of each volume of these books is a copy of our Polymaths CV. Clearly the CV was not written by our hero himself, but rather compiled from the collected findings of Orators over many years.

The important point is that we have a detailed summary of Crabtree's life, provided as a result of a large number of distinguished scholars research over many years.

As my contribution this evening, I would like to present a brief REVIEW of some aspects of Crabtree's life as illustrated by his CV. I realize that this represents a departure from the norm, but since it is sixty-five years since Sir James Sutherland delivered the inaugural Oration at UCL I believe it is entirely appropriate and timely. I hope you agree, or are at least too merry or too polite to disagree!

Numerous Orators over more than half a century have commented on Crabtree's contribution to such aspects of mathematics as number theory, algebra, trigonometry, geometry and of course, in

last years Oration, Elder Breen demonstrated his contribution to the discovery and development of the computer. One of the straightforward concepts familiar to Crabtree was that of prime numbers. For any Elders present whose Orations I was unable to read or understand, let me remind you of what a prime number is. It is a number divisible only by 1 and itself. For example, 2, 3 and 5 are prime numbers. Clearly no even number greater than 2 can be prime. What about 7? It is prime because it is not divisible by 2, 3 or 5 (and clearly not by 4 or 6!) And 9? It is not prime because it is divisible by 3.

Crabtree lived to be 100 years old. There are 25 prime numbers between 1 and 100. They are **2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89** and **97**.

Crabtree lived between 1754 and 1854. There are 10 prime numbers between these dates. They are: **1759, 1777, 1783, 1787, 1789, 1801, 1811, 1823, 1831** and **1847**. It is interesting to note that his year of conception, **1753** is also prime. Note that there are only 4 occasions during Crabtree's long life when both the year and his age in that year are prime, namely:

1759 when his age was **5**

1777 when his age was **23**

1783 when his age was **29** and

1801 when he was aged **47**.

Henceforth I shall highlight any of the above thirty-five (35) prime numbers, (ten (10) prime years and twenty-five (25) prime ages) or **Crabtree Primes** in bold face.

Let me now introduce the final piece of skeleton before I am able to add flesh around the bones! I am currently involved in a significant project with a group of associates: two former doctoral colleagues from the University of London, a highly talented journalist and a distinguished US actuary. We are producing a multi-media package – four books and a multitude of supporting material addressing the topic of RISK. We have sponsors in place and the first materials will soon be available. We cover the period from ancient times – the Oracle of Delphi, the Dutch Tulip Mania, right up to recent rocket science including the Black-Scholes Options Pricing Formula and the use of Derivative Securities generally. It has been my involvement in this project that has focused my attention on Joseph Crabtree and his attitude and response to risk.

Let me read you part of the text of my Christmas/New Year email from Andrew Crilly and Jane Johnson, two of the colleagues referred to previously.

‘There once was a man who never risked,
He never tried,
He never laughed,
He never cried.
Then one day, when he passed away,
His insurance was denied.
They said since he never really lived,
Then he never really died.’

I am sure you will agree that the man referred to was certainly not Joseph Crabtree! I wonder if any of our Life Insurance Companies have relied on this interpretation to deny a claim? I didn’t pick this up in the discussions at the recent Royal Commission, but it would certainly make an interesting topic for debate!

This brings me, **finally you will say**, to the title of my Oration this evening: **Living with risk – guided by my numbers.**

I want to explore whether in any particular year, Crabtree’s attitude to risk was in any way correlated with whether or not the year in question was a prime number and/or whether Crabtree’s age in that year was a prime number. In any particular year was Crabtree inclined to pursue more or less risky activities depending on whether the year in question and/or his age in that year were prime numbers? Was, perhaps Crabtree like Dr Jekyll and Mr Hyde with the determination of whether to pursue risky ventures or not dependent on his **Crabtree Primes??**

First, I couldn’t help myself exploring whether there were any significant events that occurred in the ‘double header’ or ‘double prime’ years mentioned previously, namely **1759** when Crabtree was age 5 or for easy future reference **(1759, 5)**, **(1777, 23)**, **(1783, 29)** and **(1801, 47)**.

Dismissing **1759** when Crabtree’s life had barely begun, I immediately noticed that **(1783, 29)** and **(1801, 47)** were both associated with something Crabtree was clearly very fond of and by the look of things, so are many of you here tonight!

What am I referring to?

I am of course referring to Crabtree's association with and love of WINE over many years of his life and involving several interesting ventures. Let me summarize these:

Initially, in the very first Oration delivered at UCL in 1954, Sir James Sutherland recounts what in his view was and I quote:

‘the event which must always take a foremost place in the biography of our poet.’

In **1783** Crabtree's uncle, Oliver Crabtree was persuaded to find a place for him in the firm of Crabtree and Hillier Wine Shippers of Orleans in France. Briefly the story is, and I quote from Sutherland's Oration:

‘Arriving at Orleans in **1783** Crabtree set himself with his usual tenacity of purpose to master the details of the wine trade, and he not unnaturally considered that he was serving the best interests of his firm by sampling as many of its wines as possible and becoming thoroughly familiar with the various vintages. With his Uncle, a morose teetotaler and Methodist, he seems to have been on friendly terms; but as his livelihood depended on his Uncle's good will he appears to have suppressed his natural feelings, as far as was compatible with his mercurial and poetic temperament. To this period however, belongs his fine *Ode to Claret* with its well-known opening lines:

No more, Pomona, let thy vot'ries chaunt
The praise of Cyder; no, nor Ceres bring
Her grain for beery clowns. Avaunt, avaunt!
Bacchus is our undoubted Lord and King!’

Second in his 1971 Oration, Prakash Datta describes how Joseph and his cousin George Bernard Crabtree were acting as import/export agents from (**1801, 47**) in defiance of the monopoly of the Honorable East India Company. Our ‘box-wallahs’ as they were known were importing claret including medicinal claret into Calcutta and exporting a variety of goods including gold, silver, silks and powdered rhinoceros horn! In passing we might note that in his 1965 Oration, Andrew

Tay described how Crabtree had decided to include rhinoceros horn in his contraceptive pills. More on contraceptive pills and Viagra in a moment.

Crabtree's involvement with wine and the wine industry has also been exposed 'Down Under'. In his 2002 Oration, Elder Rodan was able to attribute the establishment of Australia's first winery to Crabtree, when our hero was aged 53. Indeed, he produced a bottle of 'Crabtree' wine at his Oration that had been produced by Crabtree's heirs. Alas, rather than securely keeping this as an important piece of historical memorabilia, I understand that Elder Rodan and other Elders consumed the wine 'on the spot'!

Finally in his 1995 Oration, Michael Freeman was able to demonstrate that a 1787 bottle of Chateau Lafitte that was sold at auction at Christies in 1985 for £105,000 had been initialed Th. J for Thomas Jefferson by none other than Joseph Crabtree.

In summary, all of the above significant events in Crabtree's life involving wine were correlated with the **Crabtree Primes!**

To put the fore-mentioned four events into perspective, consider the following 'game'. Suppose we had a box with 100 balls placed within. Each ball is labeled (year, age), going from (1755, 1) to (1854, 100). Four balls, representing our 'double primes' where both the year and age are prime are gold in colour. Twenty-one balls are silver in colour, representing cases in which the age is a prime number but the year is not. Six balls are blue in colour, representing the cases in which the year is a prime number but the age is not. The remaining 69 balls are white. Draw four balls from the box. What is the probability of drawing two gold, one silver and one blue ball? Whilst I have not carried out the calculation, I can assure you it is very, very small!

So, other than wine, what topics stand out as highly correlated with Crabtree's Prime numbers? Well, there is a matter of Crabtree being a naughty young man, and for that matter, a naughty old man. No I don't mean his debauchery or sexually deviant behavior. More of that in a moment.

At the age of 17, Crabtree was expelled from Eton for lampooning the Headmaster. (Graham-Campbell 1990 Oration).

At the age of **19**, he was sent down from Queens College, Oxford University for writing satirical verses about his tutor Jacob Jefferson, who erased his name from the matriculation list. (Sutherland 1954 Oration). In passing, we might note that 1773, when Crabtree was **19**, was an exceptionally busy year. In the same year Crabtree was sent down from Oxford, he was employed by Cambridge University, invented a beer pump, was recruited as a life-long spy and published the first of six poems under the name of Malcolm M'Greggor!

In his Oration, Sutherland also reported on Crabtree's affair with Annette Vallon when he was aged **37**. This affair was especially interesting as William Wordsworth agreed to be regarded as the father of Vallon's child.

In 1821 at the age of **67**, Crabtree went bankrupt and was sent to NSW for fraud (Nyholm 1963 Oration).

At the ripe old age of **89** in 1843, Crabtree is believed to have been responsible for arson that destroyed a factory in Pimlico (Tony Smith 1994 Oration).

There were other minor misdemeanors including short visits to jail!

There is an overwhelmingly strong correlation between incidents such as those just mentioned, let's refer to them as delinquent events, and the **Crabtree Primes**.

Having covered wine and delinquent behavior and established the significant correlation between events related to these and the **Crabtree Primes**, I have no doubt many of you are wondering about sex, debauchery, contraceptives and the numerous affairs in which Crabtree was a willing participant! Well apart from his affair with Annette Vallon at age **37**, commented on earlier, I could find no significant correlation between the dates and/or Crabtree's age and such adventures or associations. Of course it might be that our hero regarded such behavior as normal, inconsequential or having no significant element of risk attached!?

The same thing may be said of Crabtree's reported sex change operations (Tatterstall 1978 Oration & Harte 1988 Oration). The latter event coincided with the death of Jeremy Bentham in 1832, who Crabtree had first met in 1773 at the age of **19**. Whilst our Polymath might have regarded sex change operations as yet another non-event, I found the comments by Orators

Tatterstall and Harte most interesting. Next time I visit UCL and gaze upon the embalmed Jeremy Bentham, I am sure I will wonder which bit or bits of his anatomy were stolen by or given to Crabtree! And vice-versa! More broadly, perhaps we should ask whether Jeremy Bentham is Jeremy Bentham or possibly Joseph Crabtree or a hybrid and vice-versa.

Perhaps this is a topic for a future Orator, although I hesitate to suggest or recommend a suitable academic background for such a person.

Whilst I was unable to identify any significant correlation between Crabtree's love of food and the **Crabtree Primes**, I must read to you the comment made by Crabtree to Bentham (whom Crabtree regarded as a culinary philistine) after supper one evening (Scott 1964 Oration):

‘If the soup had been as hot as the claret, the claret as old as the bird, and the bird had had the breast of the parlour-maid it would have been a damned good dinner.’

Finally, it is of course quite possible that Crabtree regarded all matters to do with wine and delinquency as inconsequential and that matters of debauchery, sex, sex change activities, cross dressing and numerous affairs as matters of great risk. Clearly my argument about **Crabtree Primes** could be inverted or turned on its head! I leave you to ponder this over a glass or two of something appropriate. Or perhaps this is another challenge awaiting an eager and enthusiastic future Orator.

To those of you who have remained awake during my Oration, I thank you for your perseverance. For those of you who have struggled to stay alert, I will tell myself it was the wine!

Oh, and yes, it was indeed a pleasure delivering the Oration!