March 11

My times are in thy hand. Psalm 31:15

A missionary tragedy

We begin with the story of a tragedy that happened to a man who knew the value of today's memory verse. How would you feel if everything you had worked for for years was destroyed in a moment by fire? Missionary William Carey (1761-1834), about whom we learned in a lesson last month,[1] went through just such an experience on 11th March 1812. India is a land of many different languages. In Carey's print shop in Serampore was a huge polyglot[2] dictionary that he had compiled to help him – and others in translation work. There were also grammar books he had written for two Indian languages and many Bibles in Indian languages that he and his colleagues had translated. With the books were sets of type for 14 Indian languages. When fire engulfed the print shop, everything was reduced to ashes. When I read that at this Carey was "undaunted", I wondered. Perhaps he was daunted but the point is surely that in his dauntedness (I think that might be a new word!) he relied on the Lord who had sent him to India and given him the language skills he needed to do God's work. This is what enabled him to say,

The loss is heavy, but as travelling a road the second time is usually done with greater ease and certainty than the first time, so I trust the work will lose nothing of real value . . . We are cast down but not in despair.

This is what enabled him to persevere and do again this massive task. News of what had happened reached England and prompted more generous financial support for Carey and also more volunteers to go and help him.

Map Work: A famous promise that was kept

This famous episode from the Second World War will make much more sense if you get out your atlas and look up the places highlighted in green as we go along. The American, General MacArthur (1880-1964), was chief military advisor to the Commonwealth of the Philippines before the Second World War where he was helping to supervise the creation of the Philippines army. When the Japanese bombed Pearl Harbour, in December 1941, bringing the USA into the war, they launched an invasion of the Philippines the next day. The general did his best to save the Philippines but the American President, Franklin Roosevelt ordered him to return on 11th March 1942.

Even this was difficult to do and involved the general and his family in a hair-raising journey by small boat through a mine infested sea where they could be discovered by the Japanese at any moment. They then travelled by plane to an airfield near Darwin in Australia (Darwin itself was subject to Japanese bombing at the time) where they hoped to find more allied troops who could relieve the Philippines. The General had not wanted to abandon the Philippines where he had had to leave behind 90,000 American and Filipino troops, who, without supplies and support, would soon be defeated by the Japanese. It turned out that there were far fewer troops in Australia than General MacArthur had expected. "I shall return," he promised and he repeated the promise often in public appearances over the next two and a half years.

Hitler's propaganda minister Goebels called General MacArthur a "fleeing general" and Italy's dictator Mussolini derided him as a coward but in the USA he was awarded the Congressional Medal of Honour and his famous promise galvanised people into action. It helped recruiting and prompted people to invest in War Bonds.

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1   See lesson for 6th February. More about Carey coming up later in the year in the lessons for June 9th and October 2nd.
2   You might remember what "polyglot" means from the lesson for 10th January – "many languages".

In June 1942 the Americans won the Battle of Midway, a key battle to secure dominance in the Pacific Ocean that took place at Midway Atol (now known as *Kuaihelani* in Hawaiian) an island in the Hawiian Archipeligo that is about midway between the USA and Asia. But it was not until October 1944, after advancing from island to island across the Pacific, that MacArthur's plan for invading the Philippines could be carried out.

A few hours after his troops landed, MacArthur waded ashore onto the Philippine island of Leyte. On arrival, he made a radio broadcast. "People of the Philippines, I have returned!" he said, "I'm a little late but we finally came."

Something to read from Science history[3]

If you cut yourself, I'm sure you would be very surprised if your mother immediately put a piece of mouldy bread on the wound. This is what often happened in the middle ages and further back in time too. And if you wonder why on earth people did such strange and rather dirty things in those days the answer is because it often worked! In those days, of course, no one knew why. It was not until Alexander Fleming (1881-1955), who died on 11th March, accidentally stumbled on penicillin in his laboratory in 1928 that anyone knew why that old cure sometimes worked well.

Sir Alexander Fleming spent all his working life at St Mary's Medical School near Paddington Station in London where he had trained to be a doctor. He worked with other doctors who were doing research to try to find out ways of killing the bacteria that caused infections that could often lead to disease and death.

Sir Alexander served in the Royal Army Medical Corps during the First World War and discovered the reason why antiseptics, so useful in cleaning a small cut, did not work well for deep wounds and in fact often made the patient worse. The reason was that there were bacteria – germs – lurking deep in the wound that the antiseptic applied to the surface could not reach. These went on working while the antiseptic not only killed the germs on the surface of the wound but also destroyed natural protective agents produced by the body. The natural agents were at least as good as the antiseptics on the surface so the doctors were actually removing protection from the wound. No one listened to the results of his researches, however. Doctors kept applying antiseptics to deep wounds instead of using saline (salt) solution as Sir Alexander recommended and many soldiers died as a result.

One day Sir Alexander noticed in his lab that some mould had formed on an experiment dish that contained some living bacteria. In the dish, those bacteria that were right next to the mould were dying. He realised that the mould was producing something that killed the bacteria. As the mould was called *penicillium notatum,* he called this substance penicillin. He carried on working and eventually was able to show that penicillin killed many dangerous bacteria.

Sir Alexander's big problem with penicillin was producing it in a large enough quantity to be useful. Thus it was that, although some patients were successfully cured, there was no widespread interest in penicillin. During World War II, however, some scientists from Oxford began

experimenting with methods to produce large quantities of the substance and began to treat patients with great success. Antibiotics had arrived.

Do you know what a prime number is? If not, the extract on the right from a maths dictionary[4] will help you. Can you find the next prime number after the ones listed below?[5]

Prime numbers are the awkward ones like 11, 17, 23 which don't break up into smaller equal groups.

You won't find them in the answers to your multiplication tables anywhere except when they are multiplied by 1.

They will only divide exactly by themselves and 1.

Examples of prime numbers are: 2, 3, 5, 7, 11, 13, 17, 19, 23, 29.

9 is not a prime number because it will split into three equal groups of three ($3 \times 3 = 9$).
11 is a prime number because however you try to split it into equal groups, you have something left over. You can only have one group of eleven (1×11) or eleven ones (11×1).

1 is not counted as a prime number. It is a special case because $1 \times 1 = 1$.

Prime numbers are like the building block of the whole number line. Everything else in it consists of prime numbers multiplied together. Mathematicians are always trying to calculate the next prime number that has not yet been discovered but they can never find the *last* prime number: the list goes on and on for ever! Nor does the sequence ever loop round and repeat itself. You can easily understand that apart from 2, no prime number can be even. Also, apart for 5, no prime number can end with a 5. But prime numbers seem to be randomly distributed and there is no known formula for predicting what the next prime number will be. This all fascinates mathematicians and they look for patterns in prime numbers that will give a clue as to how they "work".

On <mark>11th March</mark> 2016 two mathematicians, Kannan Soundararajan and Robert Lemke Oliver, published a paper in a scientific journal about prime numbers,[6] revealing the most recent discovery about prime numbers. They had found a strange pattern showing that prime numbers are not distributed as randomly mathematicians had thought. It turns out that the sequence of prime numbers has what could be called an "anti-sameness bias". Soundararajan and Oliver discovered that a prime that ends in 1 is less likely to be followed by another ending in 1 than might be expected from a sequence that was just random. "It is really a surprise," said Soundararajan.

Can you list the numbers which can be the last digit of a prime number, (ignoring the initial 2 and 5)?[7]

Can anything be truly random – even a number in a sequence if God is in control? When mathematicians used the word random as in "random number" they mean unpredictable to *us*. Nothing is unpredictable to God. See Proverbs 16:33. Can you see how this relates to today's memory verse?

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4 Maths Dictionary from the *Mothers Companion* flashdrive available here: https://motherscompanion.weebly.com/
5 31.
6 https://www.nature.com/articles/nature.2016.19550

7 1,3,7 and 9 – just four digits.