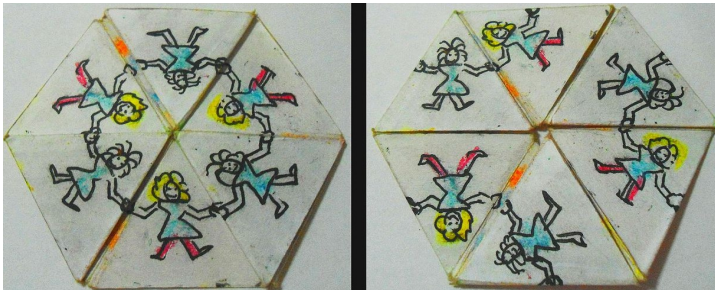September 30th

The gospel of Christ
        is the power of God
unto salvation
        to everyone that believeth. Romans 1:16

For hints on learning this verse see the lesson for 27th September.

Are you using flashcards to help you learn your memory verses? If you have not tried this yet, look at the lesson for 22nd of August – perhaps you missed it because of holidays – and read about the benefits of this method as well as who invented it! The lesson contains suggestions for using flashcards, including for memory verses.

Something to make:

British mathematician Arthur Stone (1916-2000) born on 30th September. He was the inventor of flexahexagons.[1] These fascinating toys are related to the Möbius strip which we looked at earlier this month.[2] They are not only easy to make but quite fascinating to play with.

Arthur Stone discovered flexahexagons when he moved to America and was playing with some strips of paper he had trimmed from his American notepaper to make it fit his British ring binder.

You will need a template for this activity. The best one can be found here:

First cut out the template carefully. Then score and fold along the centreline lengthwise, folding so that the pattern is facing upwards. Glue the two halves together. Next score and fold along the edge of each triangle, folding back and forth along each edge of solid black lines. Make a fold four triangles from the right. At this point, you should have the smaller side facing upright. You should see two white triangles at either end with eight patterned triangles in between. Count four triangles from the right side of the paper and fold along the far edge of the fourth triangle (this is actually the third patterned triangle because there is a blank triangle on the end). Make the fold downward so that the crease of the fold points upward.

Now make another fold four triangles from the other side. Flip the entire paper over and count four triangles from the left side of the template. Fold the paper up so that it begins to resemble a hexagon. If you have done the folds correctly so far, you should see only one pattern making the hexagon with one extra triangle flap sticking out. Take the blank flap that sticks out and fold it over the other blank triangle. You should now see a hexagon with six identical faces. Glue the flap in place.

It takes a bit of practice to use a flexahexagon but to help you, make folds along all three diagonals of the hexagon and fold them back and forth a few times. Now pinch together two adjacent triangles. Fold two triangles together so that the fold goes toward the inside of the flexahexagon. The other two sides should flatten against each other.

1   Ilustration: By Anna Frodesiak - Own work, CC0, https://commons.wikimedia.org/w/index.php?curid=25760773
2   See the lesson for 26th September.

Unfold the new pattern of the flexahexagon. With the two triangles pinched towards the centre, the flexahexagon should almost fall open into a new pattern. Grab the top corners in the centre of the flexahexagon and pull them open, revealing the new pattern. Practice flipping the flexahexagon and see if you can see all three patterns.[3]

September 30th is the anniversary of the death in 420AD of one of the most famous Bible translators of all time. He had a towering intellect and a brilliant skill with Greek and Latin. What is more he understood the need to go back to the Hebrew for a translation of the Old Testament. He had a somewhat bitter and grumpy personality and he was an enthusiast for such unbiblical ideas as the worship of Mary, withdrawing from the world into monasteries and the collecting of relics of departed "saints".[5] His Latin translation of the Bible dominated the world for centuries to come. His full name was Eusebius Sophronius Hieronymus or Εὐσέβιος Σωφρόνιος Ἱερώνυμος but we know him simply as Jerome.[6]

Jerome's translation of the Bible is still usually called the Vulgate. This name means "common". By Jerome's day Latin was the common or "vulgar" language of much of the Western World. The early Christians had been more likely to be able to understand Greek than Latin. They could read the New Testament in the language in which it was written. The Old Testament was originally written in Hebrew. Not many people could understand that in the days of the early church. However, there was a translation into Greek called the Septuagint for people to use. As time went on a number of Latin translations of at least parts of the Bible were made as Latin began to overtake Greek as the most widely spoken language. None of these survive in a complete form today. Jerome's translation into Latin is the earliest complete Latin translation to survive.

Jerome initially took up language study when he was interested in becoming a lawyer. When he decided to devote himself to translating the Bible he took steps to ensure that his work was accurate. To do this he sought out the Hebrew original of the Old Testament rather than translating the Septuagint into Latin. However, he was influenced in what books he chose to include as part of the Old Testament by the work of Origen (c.185-c.254 AD) a heretical scholar who thought the Bible contained "...many things not true, but actually impossible and absurd..." and who included the books we call the *Apocrypha*[7] as part of the Old Testament. Origen put together a *Hexapla,* a comparative version of six versions Greek and Hebrew of the Old Testament, changing the text as he thought fit to conform with his own views.

Jerome began by translating the four gospels. Then he turned to the Old Testament. His work on the Old Testament took him about fifteen years. Other translators contributed to the translation of the other books of the New Testament.

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3   If you find these instructions difficult to follow you can see how it is done here:
    https://en.wikipedia.org/wiki/Flexagon
4   Adapted from lessons available at https://latinigcse.weebly.com
5   All true Christians are saints – they are not just some special class of "super Christians" see the lesson for February 27th.
6   Information from: https://www.gotquestions.org/Saint-Jerome.html
https://cdn.ymaws.com/www.tbsbibles.org/resource/collection/01C074CC-748F-4C67-86AC-A9926A25241A/Issue%20579%20-%20April%202007%20from%20web.pdf and other sources.
7   These are books mostly in Greek or Aramaic, never considered part of the Bible in Old Testament times or by the Apostles or quoted in the New Testament. They do indeed include "many things not true, but actually impossible and absurd"!

It is interesting to consider the different ways that translation can be approached. When legal documents are translated the method used is called *Formal* Equivalence. Here the translator aims for a word for word translation and tries to keep the grammatical structure of the original as far as possible. When a novel or story is translated a better method is *Dynamic* Equivalence. Here the translator aims to translate the ideas of the original in such a way that the reader of the translation will gather the meaning of the original although the grammatical structure will not be preserved and the individual words may be different from those used in the original.

In Bible translation these two ways of translating are very important. A translator using dynamic equivalence strives to make sure that the reader of the translation can grasp what the Bible *means*. A translator using formal equivalence strives to ensure that the reader is given what the Bible *says*. Both these aims are praiseworthy. But the use of dynamic equivalence assumes that the *translator himself* has the right understanding of what any particular passage means and this may or may not be the case. The use of formal equivalence leaves the task of working out the meaning (by prayerful comparison of Scripture with Scripture) to the reader. This means that formal equivalence is preferable in Bible translation. We all need to know what God *says* not just what someone thinks God *means*. However, there are some places where dynamic equivalence seems almost unavoidable since there is not equivalent word or grammar pattern for the translator to use in the language in which he is working. The only way to get round the problem is to invent a new word or construction to convey what the original says. The Latin of Jerome's day often lacked words that were the direct equivalent of those in the Hebrew of the Old Testament. It was this problem that led Jerome into extensive use of dynamic equivalence translation.

Jerome's new translation was not liked by everyone. People often preferred the old Latin versions they were used to. If Jerome's translation was strongly influenced by Origen's ideas perhaps their old versions were, in fact, better. In those days memorization was more common than it is now. Christians memorized whole books of the Bible. Scholars memorized it all! Imagine how shocking a new translation was to someone, like Augustine of Hippo,[8] who had done that. Some, including Augustine, at least at first, thought Jerome had introduced errors through his dynamic equivalence methods – not that Augustine would have used the term dynamic equivalence. Or was it again the influence of Origen's *Hexapla* that caused the errors? At this distance of time it is hard to tell.

Nowadays when any book is published the author generally checks proofs of the book before it is printed and then many copies are printed and then published at once. Copies are deposited at various national libraries and there can be no doubt as to what is actually in the book. If anyone wants to check, it is a simple matter to consult a printed copy of the book. In Jerome's day and for many centuries afterwards this was not the case. Books had to be copied by hand. It was a long time before Jerome's work was generally accepted and during this period both the Vulgate and the Old Latin Bibles circulated alongside one another. By the fifth century, Gaul (modern France) had accepted the Vulgate but in Britain and in North Africa the older Latin version was still in use. However, the continuous use of both versions side by side in an environment where hand copying was needed led to a sort of cross contamination as scribes selected their personal preferred readings of various texts, making alterations as they went along. As copies were passed around and recopied new layers of changes and differences increased the problem. By the eighth century the Vulgate was in use throughout Western Europe but there were variations and differences. It was no longer possible to identify what Jerome had written and what came from older translations.

During the middle ages there were some attempts to standardize the Vulgate text by Cassiodorus, Alcuin of York, Theodolph of Orleans and later a group of Paris scholars. But even the invention of printing, although it led to a standardized version of the Vulgate could not restore it to Jerome's original: that had been lost sight of long ago! For these reasons we cannot even say what Jerome's

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8   See lesson for August 28th (yet to come).

original Vulgate looked like. Certainly any regard he had for Origen and his *Hexapla* would have had a very negative influence.

By this time Latin was not the common language any longer, it was the language of scholars only. Ordinary people did not understand it and conversed in their own local languages. Far from being a help to enable people to understand God's Word, insistence on the use of the Vulgate became a hindrance. When it was read in church most people could not understand it. The reformers, John Wycliffe, Martin Luther, John Calvin and others, about many of whom we have read in these lessons, all translated or promoted reliable translations of the Bible into the various local languages of Europe. Only in this way could God's message be heard by everyone once more.

Something to read from Medical history[9]

On the evening of 30th September 1846 Ebenezer Hopkins Frost (1824–1866) of Boston, Massachusetts, known to his friends as Eben, had toothache. Young Eben Frost was in a lot of pain. He knew the only relief would be to go to the dentist but he was afraid. In 1846 there was nothing available for dentists to use to stop their patients feeling the pain when they extracted a tooth. The whole business was agonising. Nobody really enjoys going to have a tooth out even today when we can have a little injection that takes away the pain before the dentist gets to work. But just imagine if there were no pain killing injections! Poor Eben! He paced up and down but the pain in his mouth got worse and worse until he could bear it no longer. It was no good! He would *have* to go to the dentist.

Eben's dentist was William Thomas Green Morton (1819-1868) and Eben hurried round to his surgery or, as American's call it, his office. It so happened that the dentist had just been performing an experiment – on himself!

In those days, speed was important in dentistry in order to shorten the agony of the patient. Mr Morton had studied dentistry under a dentist called Horace Wells and he was good at extracting teeth quickly. His college mentor, Charles Thomas Jackson (1805-1880), a chemist, had pointed out to him the properties of ether and he decided to try it as a possible method of rendering patients incapable of feeling pain for a short time while a tooth was quickly removed. He wanted to try it out on himself before using it on others but how could he do it? He hit on the idea of soaking his handkerchief in ether and then breathing the fumes. He sat down in his own operating chair and held the handkerchief over his nose and mouth. Here is what happened next in his own words:

I looked at my watch and soon lost consciousness. As I recovered I felt a numbness in my limbs with a sensation like nightmare, and would have given the world for someone to come and arouse me. I thought for a moment I should die in that state, and the world would only pity or ridicule my folly. At length I felt a slight tingling of the blood in my third finger, and made an effort to touch it with my thumb but without success. At a second effort, I touched it but there seemed to be no sensation. I gradually raised my arm, pinched my thigh but I could see that sensation was imperfect. I attempted to rise from my chair, but fell back. Gradually I regained power over my limbs, and full consciousness. I immediately looked at my watch, and found that I had been insensible for seven to eight minutes.

Mr Morton was delighted. Seven to eight minutes! A tooth could easily be extracted in that time. Quickly he informed his assistants of his success and eagerly they awaited a patient who would be willing to try the new procedure. At that moment, in walked Eben, his face aflame with toothache yet terrified of the pain of having his tooth extracted. Mr Morton explained that he could help with an extraction that Eben *would not even feel* if he was prepared to try the experiment that Mr Morton

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9   Illustration and quotations from Rice, Nathan P., *Trials of a Public Benefactor* (New York, 1859)
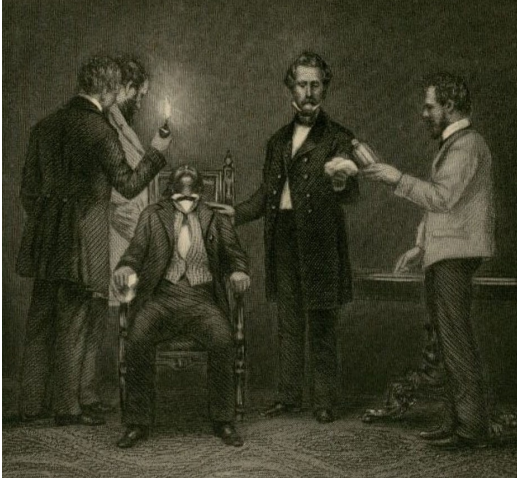
had just conducted on himself.

Eben grasped the opportunity with both hands. It was dark by now so by the light of a lamp held by Dr Hayden, one of his assistants, Mr Morton held the handkerchief to Eben's nose. Eben lost consciousness and Mr Morton set to work on the tooth at once. In a few minutes – well before Eben began to come round – he had it out. Here is how Eben later described what happened:

Dr Morton took out his pocket handkerchief, saturated with a preparation of his, from which I breathed for about half a minute, and was then lost in sleep. In an instant more I awoke, and saw my tooth lying upon the floor. I did not experience the slightest pain whatsoever. I remained twenty minutes in his office afterward, and felt no unpleasant effects from the operation.

The use of anaesthetics in dental operations had begun! Further developments mean that nowadays it is no longer necessary to make the patient completely unconscious for dental surgery such as removing a tooth. In Britain all dentists stopped giving any kind of general anaesthetic to patients in 2002. Instead a local anaesthetic is used, generally Lidocaine, which was discovered in 1946 by a Swedish chemist. It is injected into the area where the extraction is going to take place and prevents pain being felt just at the correct spot – without sending the patient to sleep. This means it is much safer.

This all makes a very good story, doesn't it? But I am sorry to have to tell you that in reality it was not so simple and there were at least two other men who claimed that they, not Mr Morton invented the idea of dental anaesthetics. One Was Horace Wells and the other was Charles Jackson. It is now known that Mr Morton was, in fact, something of a charlatan who had lived in a number of cities before he came to Boston from all of which he had fled after embezzling funds, stealing money and forging documents. His credentials for dentistry were doubtful to say the least and although he had trained at Baltimore College of Dentistry he left Harvard Medical school before he had qualified. Charles Jackson's Chemistry lectures at Harvard had introduced the idea of ether to Morton which is the basis of Jackson's claim to have made the discovery himself. However, Jackson was a strange character who had a habit of claiming to have discovered things that were credited to other Americans including guncotton,[10] the electric telegraph[11] and the digestive action of the stomach![12]

And Horace Wells? He seems to have been the most likely candidate for the discovery in reality. Mr Morton was a business partner of his for a while and Wells had experimented with another anaesthetic, nitrous oxide, at about the time of Mr Morton's experiments. But then he was a strange character too.... So who was it that had the idea first? Who knows? One thing is certain, Eben Frost was very grateful – and so are we all!

Look at the picture of Eben Frost's visit to the dentist above and re read the first hand accounts in the story. Make a list of the difference between dentistry in Eben Frost's day and dentistry today. How do you account for these differences?

10 Actually invented by Christian Friedrich Schönbein.
11 Actually invented by Samuel F. B. Morse. See the lesson for 2nd April.
12 Actually discovered by William Beaumont.