25th May

Memory Verse
In whom are hid all the treasures of wisdom and knowledge. Colossians 2:3

The Astronomer Johannes Kepler (1571-1630)[1] is supposed to have said that as a scientist he was merely "thinking God's thoughts after him". Even if he did not say it in exactly these words, this expresses an attitude exactly in line with this verse. It is a very useful way of looking at all scientific investigation and it fits in well with today's lesson.

Something to read from history

On 25th May 1328 (or was it the 26th ? No one seems quite sure!) an English scholar and philosopher named William of Ockham (or Occem) escaped from prison in Avignon, France and ran away to Munich. It was his endeavour to find the truth that had got him into trouble.

William of Ockham was a thinker. He loved to think about all sorts of things, and although he sometimes got things wrong, he was keen to find out the truth in all sorts of areas of human experience. It fact, nowadays he is still famous for an idea he was fond of using about how we think about the reasons for things we experience. The idea is called "Ockham's Razor" and today it is usually stated in a form something like this: "the simplest explanation for something is the most likely to be correct." Ockham would probably not recognise either the name "Ockham's Razor"[2] or the idea as I have just stated it to you. What he actually said was:

"Nothing ought to be posited[3] without a reason given, unless it is self-evident[4] or known by experience or proved by the authority of Sacred Scripture."[5]

Some of William's ideas are so complicated (and not necessarily right!) that we don't need to go into them here but the one quoted above is very sensible and it is important too because it shows us why he got into such trouble.

William was a monk of the Order of St Francis[6] (a Franciscan) and one of the things he thought about was what we call Communion or The Lord's Supper. The pope, who claimed to be head of the church, taught that at this service the bread and wine turn into the actual body and blood of the Lord Jesus Christ. William subjected this idea to scrutiny in line with the quotation above and he found that he disagreed with the pope profoundly – and I expect you can think of the reasons. Such an idea is not reasonable, self-evident or known by experience. Nor is it proved by the authority of the Bible. William wrote his thoughts down but disagreement with the pope was not allowed. William was summoned to Avignon in France, where the pope lived at the time, to explain himself.

While he was there he got into even more trouble and this time he landed in prison on another issue. To us now it seems perhaps a less important matter than the one for

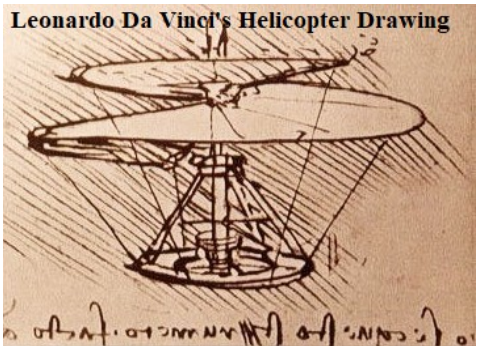
1 See the lesson for 15th November.
2 Not used until the nineteenth century.
3 put forward as fact or as a basis for argument.
4 An axiom.
5 Quoted from William of Ockham, *Stanford Encyclopedia of Philosophy*; see plato.stanford.edu/entries/ockham, p. 9. The reference given therein is "*Sent*. I, dist. 30, q.1." https://creation.com/william-of-ockham
6 To find out more about Francis see the lesson for 3rd October.

which he was already under suspicion, but to the pope it was *very* important. William was a Franciscan. Franciscans tried to live as they understood apostles had done, without any belongings of their own, in poverty, depending on what people would give them. The pope lived in a very different way altogether. You can see the remains of the palace he lived in at Avignon in the picture above.

Yet the pope claimed to be the successor of the apostle Peter! Surely, he should be living, not in pomp in a palace, but in poverty like a Franciscan said William! Here was an issue that was not primarily theological like what happened to the bread and wine in the Lord's Supper. It touched directly on the pope's luxurious life-style. No wonder William had to escape along with others who thought like him. Together they made their way to the court of the Holy Roman Emperor, Louis IV of Bavaria, who protected them and where William spent the rest of his days.

Some two hundred years later another young monk read William's writings and found them very inspiring. His name was Martin Luther and he was to light the flame that sparked the Reformation of Christianity in much of Europe, allowing the light of the gospel to shine there once more.[7]

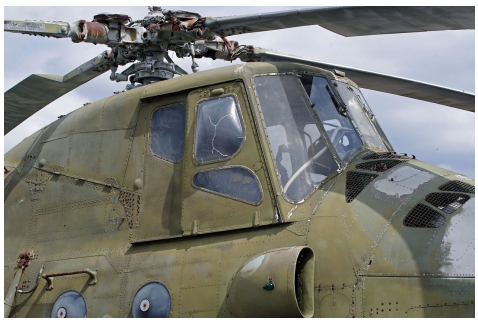
Something to investigate from science



Igor Ivanovich Sikorsky was born on 25 May 1889 in the Ukraine which in those days was part of Russia. Mr Sikorsky was a pioneer in aircraft design and his best known achievement was the development of the helicopter.
As a child, young Igor was educated at home by his mother. He loved her lessons on art and was fascinated by Leonardo da Vinci. His mother also gave him the stories of the French novelist Jules Verne to read and he devoured these, reading *Clipper in the Clouds* (which features a helicopter-like flying machine) when he was ten or eleven. By the time he was twelve he was already experimenting with rubber band powered helicopters of his own. Fired by the achievements of the American Wright brothers who had achieved heavier than air flight in 1903 and also by the lighter than air airships of Count Zeppelin in Germany, he decided to become an aviation engineer. As early as May 1909 he was experimenting with helicopter designs but gave up the attempt due to his lack of finance and experience.

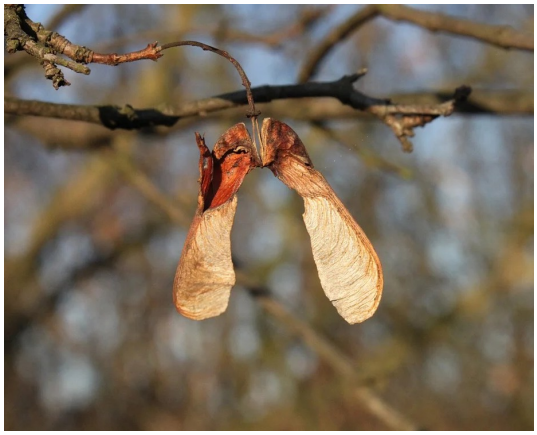
The aviation research and production factory Igor Sikorsky set up in Kiev produced aircraft used in the First World War but then came the Russian Revolution. The revolutionaries threatened to kill many talented engineers and scientists and they threatened Mr Sikorsky too. He fled to Paris and then to the USA where he spent the rest of his life.

In the USA he went on to found the Sikorsky Aircraft Corporation which developed flying boats in the 1930s. He designed and flew the first successful American helicopter in 1939 which was later modified in 1942 to become the first mass produced helicopter.



7 Older children can read more about William of Ockham here: https://www.gotquestions.org/William-of-Ockham.html and here: https://creation.com/william-of-ockham

Have you ever collected "helicopter" seeds like this one? If you have you will probably have enjoyed watching them spin down to the ground. Now is *not* the best time of year to find these natural helicopters although if you are walking in the woods you may find some of last year's lying about.



If you make a paper helicopter[8] you will be following Kepler's advice – advice with which Mr Sikorsky would have agreed – to think God's thoughts after Him.

Something to do

Fly a helicopter! Flying a helicopter is tricky because it is not self balancing.[9] Try this simple experiment which will give you a taste of how flying a helicopter feels.

You will need a large ball – the bigger the better – and some help from a couple of friends. Get your friends to stand either side of you and help you stand on top of the ball. If they hold your hands, one each side, you will probably be able to balance. When you are ready, get your friends to let go. Now you have to balance on your own. For how many seconds can you do it?

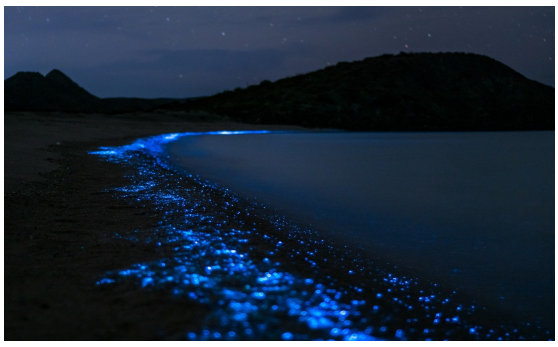
Something to think about

"Truth in politics is optional — Truth in engineering is mandatory." Igor Ivanovich Sikorsky.

Older children might like to consider what Mr Sikorsky meant by this statement. What experiences in his life do you imagine might have prompted him to make it?

Fish for dinner?

Do you remember learning about Plankton on 10th February? On 25th May 1952 a Frenchman, Alain Bombard (1924-2005), set out to cross the Atlantic Ocean in an inflatable boat with almost no provisions or fresh water. He wanted to find out whether it was possible to survive at sea on a diet of fish and plankton. He had a sextant for navigation and he also had a crude home made net through which he strained the sea water to catch the plankton. He set out from Monaco with a friend who went with him as far as Tangiers and then continued alone. He reached Barbados on December 23rd.



Members of the Kon Tiki expedition (see April 28th) had experimented with eating plankton, the microscopic creatures that cause luminescence or "sea sparkle" in warm sea water. Some of them liked it but one Kon Tiki crew member found it repulsive. Alain Bombard certainly lost a lot of weight (25 kilograms or nearly 4 stone) and was in such poor shape when he arrived that he had to have a short stay in hospital. However, subsequent research by the French navy

8 If you want to copy the idea in paper there are two methods here:
https://www.exploratorium.edu/science_explorer/roto-copter.html (printer required)
https://www.buckhursthillprimary.co.uk/make-a-paper-helicopter (no printer needed)

9 You can watch how the pilot learns how to do it here: https://www.youtube.com/watch?v=KG3XH0gucAk .

confirmed that a shipwrecked sailor even with just an inflatable raft had a good chance of survival if he followed Alain Bombard's methods.

If you made a fishing game on 28th April this would be a good opportunity to play with it. If you didn't – why not make one now? See 28th April for instructions. Nowadays dried plankton has become popular as a health food and also as a sea-flavoured spice to add to other dishes. It can even be used as a raising agent for bread although I could not find a recipe![10]

Map Work

You can trace Alain Bombard's journey on a world map or a globe using the place names highlighted in green.

10 Interesting information can be found on plankton here: https://creation.com/planktons-powerful-pogo .