

November 27th

These all died in faith,
not having received the promises,
but having seen them afar off,
and were persuaded of them,
and embraced them,
and confessed
that they were **strangers and pilgrims on the earth.** Hebrews 11:13

Weather

When morning broke in London on Saturday 27th November 1703 it showed a scene of utter devastation. Daniel Defoe had described how the furious stormy weather on the previous Wednesday nearly cost him his life when part of a house fell down.¹ He added...

...the wind continued with unusual Violence all next Day and Night; and had it not the Great Storm follow'd so soon, this had **passed** for a great Wind. On Friday Morning it continued to blow exceeding hard, but not so that it gave any **Apprehensions** of Danger **within Doors**; towards night it encreased: about 10 a Clock, our Barometers inform'd us that the Night would be very tempestuous; the Mercury sunk lower than ever I had observ'd it on any Occasion whatsoever, which made me suppose the Tube had been handled and disturb'd by the Children.

We read about the Great Fire of London (1666) in September.² After the fire, the city was rebuilt. Thatch was no longer allowed and all the roofs were of tile, slate or, in the case of churches, often lead. The force of the storm had thrown down chimney stacks that fell into houses. It stripped the slates and tiles off the roofs and blew the sheets of lead into great rolls as if they were paper. A huge wind-driven wave of water caused the level of the Thames to rise by six feet, flooding nearby dwellings. There was much loss of life. The most terrible disasters occurred at sea with hundreds of vessels lost. In the countryside many great trees and whole orchards were blown down and many windmills were destroyed – some by fire as the wind made the wooden gears run so fast that they burst into flames.

It was Defoe's book about the storm which made his name as a writer. He quickly wrote an article in a newspaper asking for people to send him their accounts of the storm. This they did and they made very interesting reading. Defoe selected the most interesting letters, edited them and arranged and introduced them, publishing the results as a book, *The Storm: or a Collection of the most Remarkable Casualties and Disasters Which Happen'd in the Late Dreadful Tempest, Both by Sea and Land*, in the following year. It is largely because of Defoe's excellent account of this storm that we still today think of the storm of 1703 as "The Great Storm" even though there were other terrible storms both before it and afterwards.

In the extract from the book which I have given above I have **highlighted** a few words that are not used in the same way today or which might be unfamiliar. Do you understand them? If not can you find out what they mean?

Something to find out and something to make

Defoe mentions his barometer and his surprise at the low reading. What is a barometer what does it measure, and how does it work? Why does this measurement help us to predict the weather? Use

1 See the lesson for 24th November.

2 See the lessons for 2nd September.

your own science books and encyclopedias to find out.³ The inventor of another very different machine, the metronome, is mentioned in the story below – perhaps you have one? If not use your own books to find out what this machine does.

Something to sing

Younger children might enjoy singing “Who can see the great wind blow?” today as we have been learning about the devastation caused by high winds. I have put the song in today's Optional Resources files along with audio to help you if you don't know the tune. There are also pages to help you make a Beaufort Scale chart to measure the wind in the Optional Resources files for 24th November which you could do today if you did not do them earlier in the month.

Something to read from science history and something to make

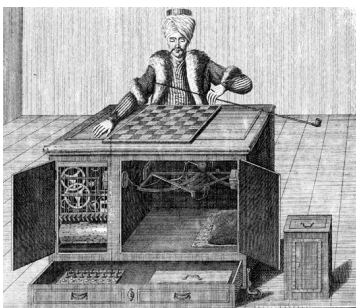
Can you play chess? We learned the basic moves of the game in July.⁴ If you do enjoy playing chess you may even have played against a chess machine or chess computer. This is a chess board with a built in computer. It has special pieces with magnets in them that communicate the moves you make to the computer and generally some sort of screen to show the moves the computer “wants” to make in response to yours. Playing against a chess machine can help you improve your game, especially if there is no one in your family who can play with you regularly. When was the first such chess computer invented? Quite recently you might think, certainly not before the twentieth century. It might surprise you to know that there was a machine that played chess (or so people thought) well before that.



Swiss mechanic, Jean Henri Nicholas Maillardet, (1745–1830) was a creator of mechanical toys. His most famous was the “Juvenile Writer”, a life-sized model of a child sitting at a table with a pen in his hand. Clockwork motors and cams enabled the toy to write messages and draw pictures. It was fascinating to watch and people would pay to watch it perform. By 1928, long after the death of its maker, having crossed the Atlantic as a gift to Benjamin Franklin, it found its way to a museum. By then it was not working and no one knew who had made it. The riddle was solved when the toy was repaired and set in motion for it wrote “*’Ecrit par L’Automate de Maillardet*” (written by the automaton of Maillardet) in the elaborate border of the picture it drew. The “Juvenile Writer” still works and is now in the Franklin Institute in America. You can see from the picture that although its works have been restored, its clothes are still missing!

Maillardet exhibited a number of automata (as these toys are called) such as the “Musical Lady” whose fingers operated a piano keyboard. He took them though Europe in the early nineteenth century displaying them to the public throughout England and as far as St Petersburg in Russia.

After Maillardet's death his mechanical toys were acquired by Maelzel (1772-1838), the inventor of the **metronome**. He took them to the USA to display them to the public along with other similar automata he had collected. One that caused much interest was called “The Mechanical Turk”, a machine that had originally been made to entertain the Empress Marie Theresa of Austria (1717-1780).



Like the “Juvenile Writer”, the Turk was also a life-sized figure and seated at a table. Dressed in a turban and oriental robe, the figure had an arm that moved and could lift the chess pieces into place. On the

rometer you can find instructions here: https://forms2.rms.com/rs/729-DJX-m_300_retrospective.pdf

table in front of it was fixed a chess board. Under the table were some cupboards which could be opened to display a clockwork motion and to store the chess pieces when not in use. Doors at the back could also be opened to enable members of the public to look right through the machine if they wished. When this automaton was on display, anyone could pull up a chair to a position opposite “The Mechanical Turk” and play a game of chess with it. It almost always won.

It was on **November 27th** 1836 that the tour of these mechanical wonders began in Washington D.C. It was a success with the public who loved the “Juvenile Writer” and the other mechanical toys. Perhaps the greatest hit, though, was the “Turk”. No one could understand how a mechanical machine could possibly calculate all the moves to play even a rudimentary game of chess. Famous players attempted to beat the “Turk” but it was not often that they could outwit him. One tried a false move – and to his amazement the “Turk” picked up the misplaced piece and put it back where it had come from. How was it done?

We now know that the “Turk” was a fake! It would not be until 1957 that a computer powerful enough to play chess was invented and it took it about eight minutes to make each move. The “Turk” was an illusion for inside the table a human operator was cleverly hidden so that the moves could be performed in response to those of the challenging player. The special magnetic chess pieces moved markers inside so that the hidden player could see the moves. The operator sat on a sliding seat that could be moved across as the doors of the cabinets below the table were opened to allow viewers to see through. Great care was taken that all three doors were never opened at the same time so he remained unseen by the public.

If you would like to make your own paper moving toys or automata, consult the websites of major computer printer manufacturers who often offer free printable templates and instructions.⁵ You will not be cheating though; your models will all do what they claim!

5 E.g.: <https://creativepark.canon/en/categories/CAT-ST01-0082/index.html> <https://www.creativecenter.brother/en-gb/home/home-category/paper-crafts-origami/do-it-yourself-projects/dinosaur-parasaurolophus>