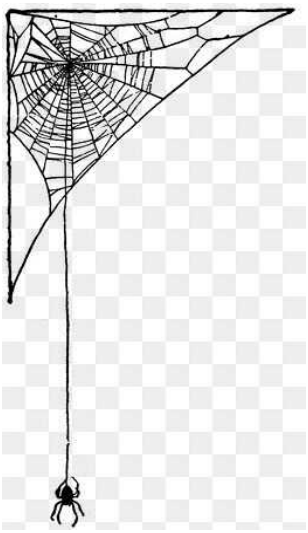
NORTH STAFFORDSHIRE FAMILY HISTORY SOCIETY (MIDLANDS ANCESTORS)
June Quarter 2021

E Newsletter

ZOOM TALKS

Midlands Ancestor are continuing with the online talks . Full details are on the Society's website under Events. Registration for each talk will open 7 days before the event.



IWA - bringing Uttoxeter Canal back to life - YouTube: Talk on You Tube about restoring the Uttoxeter Canal

https://gams.uni-graz.at/context:htx Hearth Tax. Hearth taxes were levied in medieval and early modern Europe, notably in France and the Low Countries, but were not levied in the British Isles until the late seventeenth century

The Staffordshire Record Office is currently closed to the public, but will reopen on Tuesday 13 April 2021. Visits will be strictly **by appointment only**, the number of available places will be very limited and documents must be ordered in advance. Social distancing and hygiene measures will continue to be in place and visitors will be required to wear a face covering during their visit.

Please visit our website to access all the information regarding visiting the Record Office.

Our opening hours will be:

- Monday : closed
- Tuesday-Friday : 10.00am - 4.00pm

Third Saturday of each month : 9.00am - 1.00pm

The newsletter will be added to the web page on the following dates for you to view:

30th September 2021

31st December 2021

31st March 2022

30th June 2022

STAFFORDSHIRE PEOPLE

William Thomas Astbury FRS (also Bill Astbury; 25 February 1898, Longton – 4 June 1961, Leeds)

William was an English physicist and molecular biologist who made pioneering X-ray diffraction studies of biological molecules. His work on keratin provided the foundation for Linus Pauling's discovery of the alpha helix. He also studied the structure for DNA in 1937 and made the first step in the elucidation of its structure.

William was the fourth child of seven, born in Longton, Stoke-on-Trent. His father, William Edwin Astbury, was a potter. He won a scholarship to Longton High School, where his interests were shaped by the Headmaster and second master, both chemists. After becoming head boy and winning the Duke of Sutherland's gold medal, William won the only local scholarship available and went up to Jesus College, Cambridge.

After two terms at Cambridge, his studies were interrupted by service during the First World War. A poor medical rating following appendectomy resulted in his posting in 1917 to Cork, Ireland with the Royal Army Medical Corps. He later returned to Cambridge and finished his last year with a specialization in physics.

After graduating from Cambridge, William worked with William Bragg, first at University College London and then, in 1923, at the Davy-Faraday Laboratory at the Royal Institution in London. Fellow students included many eminent scientists, including Kathleen Lonsdale and J. D. Bernal and others. William showed great enthusiasm for his studies and published papers in the journal "Classic Crystallography", such as on the structure of tartaric acid.

William met Frances Gould when he was stationed in Cork, Ireland with the Royal Army Medical Corps during World War I. They married in 1922 and had a son, Bill, and a daughter, Maureen.

In 1928, William was appointed Lecturer in Textile Physics at the University of Leeds. He remained at Leeds for the remainder of his career, being appointed Reader in Textile Physics in 1937 and Professor of Biomolecular Structure in 1946. He held the chair until his death in 1961. He was elected a Fellow of the Royal Society (FRS) in 1940 and is commemorated by the Astbury Centre for Structural Molecular Biology at Leeds.

In later life he was given many awards and honorary degrees.

William was known for his unfailing cheerfulness, idealism, imagination and enthusiasm. He foresaw correctly the tremendous impact of molecular biology and transmitted his vision to his students, "his euphoric evangelizing zeal transforming laboratory routine into a great adventure". His enthusiasm may also account for an occasional lack of scientific caution observable in his work; he could make speculative interpretations sound plausible.

William was an excellent writer and lecturer; his works are characterized by remarkable clarity and an easy-going, natural manner. He also enjoyed music, playing both piano and violin.

Astbury's work moved on to include X-ray studies of many proteins (including myosin, epidermin and fibrin) and he was able to deduce from their diffraction patterns that the molecules of these substances were coiled and folded. This work led him to the conviction that the best way to understand the complexity of living systems was through studying the shape of the giant macromolecules from which they are made – an approach which he popularised with passion as 'molecular biology'. His other great passion was classical music and once said that protein fibres such as keratin in wool were 'the chosen instruments on which nature has played so many incomparable themes, and countless variations and harmonies' These two passions converged when in 1960 he presented an X-ray image taken by his research assistant Elwyn Beighton of a fibre of keratin protein in a lock of hair that was said to have come from Mozart – who was one of Astbury's favourite composers.

But proteins were not the only biological fibre that Astbury studied. In 1937 Torbjörn Caspersson of Sweden sent him well prepared samples of DNA from calf thymus. The fact that DNA produced a diffraction pattern indicated that it also had a regular structure and it might be feasible to deduce it. Astbury was able to obtain some external funding and he employed the crystallographer Florence Bell. She recognised that the "beginnings of life [were] clearly associated with the interaction of proteins and nucleic acids". Bell and Astbury published an X-ray study on DNA in 1938, describing the nucleotides as a "Pile of Pennies".

William and Bell reported that DNA's structure repeated every 2.7 nanometres and that the bases lay flat, stacked, 0.34 nanometres apart. At a symposium in 1938 at Cold Spring Harbor, Astbury pointed out that the 0.34 nanometre spacing was the same as amino acids in polypeptide chains. (The currently accepted value for the spacing of the bases in B-form of DNA is 0.332 nm.)

William and Bell's work was significant for two reasons. Firstly they showed that X-ray crystallography could be used to reveal the regular, ordered structure of DNA – an insight which laid the foundations for the later work of Maurice Wilkins and Rosalind Franklin,after which the structure of DNA was identified by Francis Crick and James D. Watson in 1953. Secondly, they did this work at a time when most scientists thought that proteins were the carrier of hereditary information and that DNA was a dull monotonous molecule of little interest other than perhaps as a structural component. In 1944, William was one of the few scientists to recognise the importance of work done by the microbiologist Oswald Avery and his Rockefeller colleagues Maclyn McCarty and Colin Macleod. Avery and his team had shown that nucleic acid could pass on the property of virulence in pneumococcus and thus offered the first strong evidence that DNA might be the hereditary material.

Astbury described Avery's work as 'one of the most remarkable discoveries of our time' and it inspired him with the vision that, in the aftermath of World War 2, he would established a new department at Leeds that would become a national centre to blaze the trail for the new science of molecular biology. Writing to the Vice-Chancellor of the University of Leeds in 1945 he declared that 'all biology, is now passing over into the molecular structural phase...In all branches of biology and all universities this thing must come to pass and I suggest that Leeds should be bold and help to lead the way.'

Sadly, not everyone shared his dream. The University Senate allowed him to establish a new department but would not allow him to use the phrase 'molecular biology' in the title due to opposition from senior biologists who felt that, as a physicist, Astbury was encroaching without invitation on intellectual territory that they rightfully considered to be their own. The Senate also granted him premises but these were a far cry from what he had hoped for. His new department was housed in a Victorian terraced house that required substantial conversion, with uneven floors that made delicate scientific equipment wobble, a faulty electrical supply and unreliable plumbing that sometimes led to flooding. To add to his woes, the Medical Research Council rejected his application for funding.

Despite these set-backs, two important developments took place in William's new department. The first was the elucidation of the mechanism by which thrombin acts as a protease to catalyse the formation of the major component of blood clots, the insoluble protein fibrin, from its soluble precursor fibrinogen by Laszlo Lorand, a young PhD student who had fled his native Hungary to join William. Lorand's work was a major discovery in our understanding of the process by which blood clots form.

The second development was a series of new X-ray photographs of B-form DNA taken in 1951 by Astbury's research assistant Elwyn Beighton which the historian of science, Professor Robert Olby has since said was 'clearly the famous B-pattern found by Rosalind Franklin and R. Gosling'. Olby was referring to an X-ray image of B-form DNA that was taken a year later by Rosalind Franklin and her PhD student Raymond Gosling at King's College a year later which came to be known as 'Photo 51' Despite its modest name this image was to play an important role in the story of DNA and a plaque on the wall outside King's College, London hails it as 'one of the most important photographs in the world'. This is because the image shows a striking cross-shaped pattern of black spots made by X-rays as they are scattered by the DNA fibre and when James Watson was first shown Franklin and Gosling's picture, this cross-shaped pattern made him so excited that he said 'my mouth fell open and my pulse began to race', because he knew that only a molecule coiled into a helical shape could scatter X-rays to give this particular pattern.

Franklin and Gosling's 'Photo 51' provided one of several important clues to Watson and Crick -but Astbury's response to Beighton's very similar X-ray images of DNA could not have been more different. He never published them in a journal or presented them at a scientific meeting. Given that Astbury was such a renowned expert in X-ray studies of biological molecules this apparent neglect of such an important clue may seem surprising. One explanation is that, although Astbury recognised the importance of DNA, he did not understand that biological information was carried in the one-dimensional sequence of bases within the molecule but rather, that it resided in subtle and elaborate variations in its three-dimensional structure. Far from making his jaw drop and his pulse race, the revelation that DNA was a simple a twisting helix would therefore have been a disappointment but it is intriguing to speculate on how differently history might have unfolded had Astbury shown Beighton's image to his friend and colleague the eminent US chemist and Nobel Laureate, Linus Pauling when he visited Astbury at his home in Headingley, Leeds in 1952.

Pauling was, at that time, Watson and Crick's greatest rival in trying to solve the structure of DNA and was desperate to obtain a good quality X-ray diffraction image of DNA. In 1952, he had already proposed an incorrect model of DNA based on Astbury and Bell's early work but had Astbury shown Pauling these new images taken by Beighton, it might well have been Caltech, Pasadena and not Cambridge, UK that is today remembered for the discovery of the double-helix. Despite this missed opportunity, Astbury, together with Florence Bell, had made a major contribution by showing that the methods of X-ray crystallography could be used to reveal the regular, ordered structure of DNA.

But perhaps Astbury's greatest scientific legacy was his rather unusual overcoat. In the late 1930s Astbury and his collaborators A.C. Chibnall and Kennet Bailey showed that by chemical treatment, the molecular chains of soluble seed proteins could be refolded to make them into insoluble fibres. The company ICI was so interested in this idea that they built a pilot production plant in Scotland to a new textile fibre called 'Ardil' that was produced by deliberately altering the molecular structure of the main soluble protein component of monkeynuts to refold it into an insoluble fibre in the hope of using this as a cheap and abundant substitute for wool as a raw material in the textile industry. To demonstrate the feasibility of this idea, ICI made an entire overcoat from Ardil which Astbury regularly sported to lectures and in the end, although Ardil did not prove to be the salvation of the British textile industry, it did serve as a powerful illustration of Astbury's conviction that not only could we solve the structure of giant biomolecules such as proteins and DNA using X-rays, but that we might also then deliberately manipulate these structures for our own practical purposes.

This was an idea which truly came of age in the mid- to late 1970s with the rise of recombinant DNA technology by which time William was dead but as his friend and colleague, J.D.Bernal wrote in an obituary to him, 'His monument will be found in the whole of molecular biology'.

More and more churches and chapels are being lost or turned into restaurants or residential properties so this begs the question were do the memorials go?

Are they taken to the mother church?

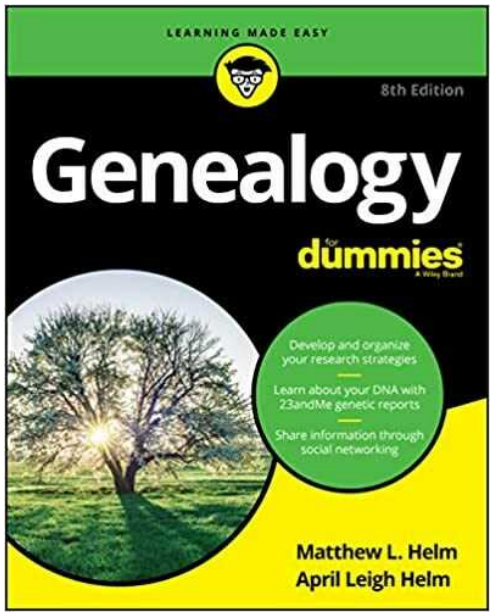
Are they left with the property ?

Are they dumped into a skip?

Can you spare a little time to photograph the memorial located inside churches, chapels etc.

If you feel you can help please email me and I will let you know which churches/chapels need to have their memorials photographed near you.

robecarter@hotmail.com



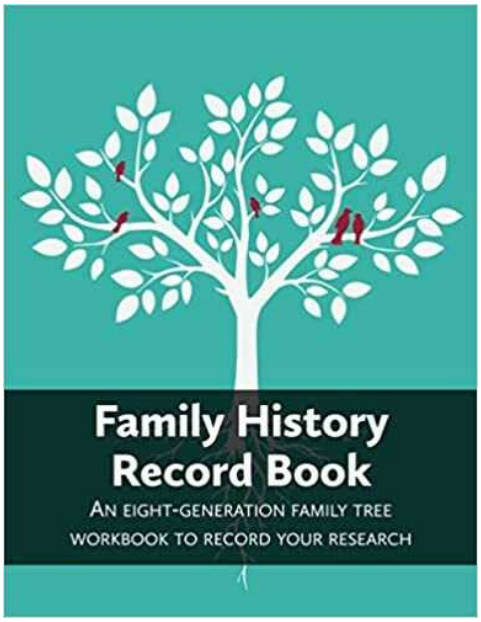
by April Leigh Helm (Author), Matthew L. Helm (Author) (Computers)) Paperback – Illustrated, 26 Sept. 2017

Genealogy For Dummies, 8th Edition covers everything you need to know about starting a genealogical research project—including where and how to find information, how to communicate with other online genealogists, how to leverage social networking sites and apps, how to add digital images to your family tree, and how to build your own site for sharing information. It also explains the use of compiled genealogies, U.S. Census information, and public access catalogs.

Brand new to this edition is content on how to conduct genealogical research on the road, and on how to take this research and integrate it into the data found at home. It also contains new information on DNA research and testing, new geocoding applications to record geographic data into a genealogical database, and other new technologies. The book covers which apps are worth your money, and how to get the most out of them.

- Use the latest tools to research family history
- Create your own site to showcase your family tree, digital images, and compiled genealogies
- Get access to free versions of Legacy Family Tree and Personal Ancestral Files
- Utilize both online and offline research techniques and tools

Follow the clues to uncover your family's legacy—and have fun along the way!



Family History Record Book: An 8-generation family tree workbook to record your research Paperback – 26 Nov. 2020

This *Family History Record Boo*k is an easy-to-use, usefully organised way to record the details of your ancestors as you progress your genealogy research. It provides generous, clear space for recording eight generations of your family – a whopping 255 individuals in total. Available in both paperback or hardback, this is the ideal way to store your family tree for the future.

The book contains:

- a handy set of summary pedigree charts for all 8 generations
- lots of space to record up to 16 pieces of information about all ancestors going back to the 5x-great-grandparents, including dates and sources used
- a cousin calculator chart for working out family relationships

a unique timeline showing the span of more than 100 types of records (for researchers of English, Welsh, Scottish and Irish family history)