

Dear Member

Welcome to your May Newsletter, which I hope you will enjoy reading. We are almost halfway through the year and no real signs of Summer; I do hope it arrives soon. Be nice to sit in the warm shade to read the Newsletter but then by the fire with a cup of tea is just as good. Whatever the weather I hope you enjoy your read. The Four Mathematicians is particularly interesting. Do come and hear all about Graham's search for Nell Gwynne, places are filling fast and this will be your only chance to hear this story unfold. But first...

## **Bosworth Hall Hotel Walled Garden Tour – Thursday May 2nd**

For our first guided tour, we were grateful for a dry, calm day after a wet month. We met at the information board by the water tower where Robert welcomed the group and introduced Rod Proudman, retired Head Gardener of Bosworth Park Infirmary. Rod was accompanied by his daughter Louise who grew up in the walled garden. Robert gave a brief introduction to the walled garden to put it into its historical context. It was



clear from Rod's information that the walled garden was such an integral part of the Infirmary, whereby for many years, its fresh produce kept the patients fed. (A lot of produce even went to other hospitals). Standing just inside the Frameyard, Rod gave an informative explanation of its workings. Many people wouldn't have been aware of its existence or its size. Many questions were asked and answered en route and as we walked into the surrounding gardens, Rod explained how things looked during his time and what has changed. As we neared the fountain, we were surprised by a muntjac deer which suddenly appeared and then disappeared at great speed! Our next tour will be on Thursday September

5th where Rod will re-create a time gone by with his first-hand expert knowledge. Look forward to seeing you. Shown above are a group of members with Rod (pictured right) enjoying their tour.

Ingrid

## **Meeting Report Hatting in Atherstone. John Whitehead**

Another first this month as John Whitehead is a new speaker for the Society. John is a very busy man with a



large number of interests and commitments. We have had to wait a few months to be able to hear his lecture. John began by explaining the origins of Atherstone and Mancetta, Mancetta was an important town to the Romans as it was on the main north to south of England road. Watling Street runs through Atherstone and it is thought that Atherstone was originally a Roman settlement known as Manduessedum which grew into Aderstone by the time of the Domesday book in 1086, The name likely originated

from the Old English Aedelred's tun 'tun' meaning farmstead or town. It is also believed that it was also close to the site of Queen Boudica's last battle when she and her troops were finally defeated by the Romans. In

that battle 70,000 Britons were killed along with a smaller but still significant number of Romans. Despite much work by archaeologists the burial site has not yet been discovered. The map below shows how Atherstone straddles the Watling Street or A5 as it is now known.



Johnn brought with him several hats which he showed to the audience. One was a Tilley hat made in Canada had an interesting history. The hat was eaten by an elephant, passed through the elephant and arrived safely and intact! Tilley hats (shown below left) are very well made.



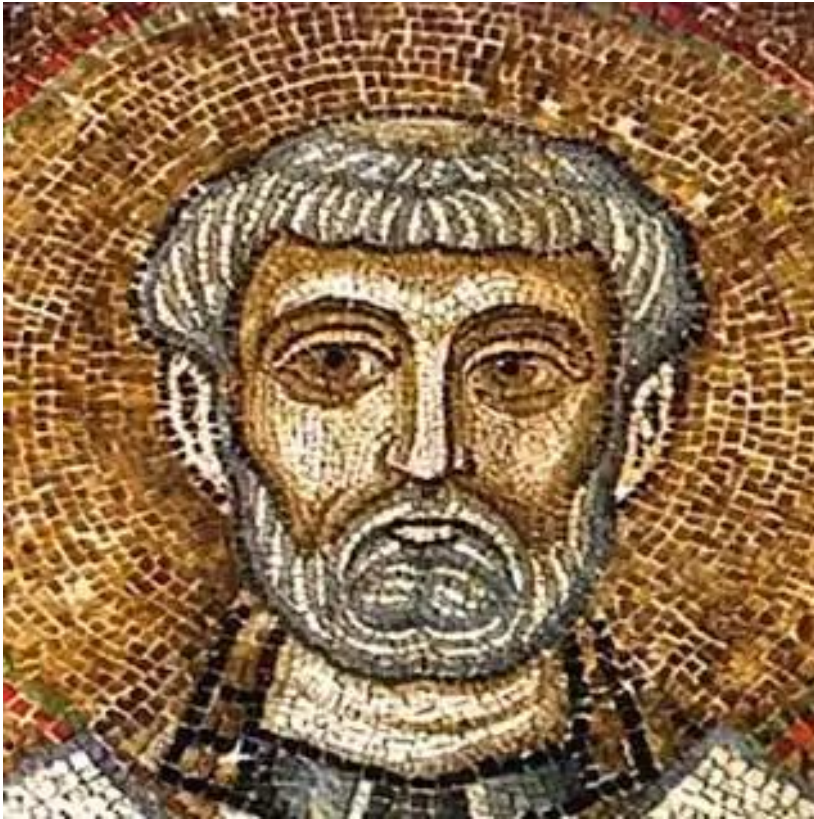
Raccoon Hat much favoured by Davy Crocket of the three ears (a left ear, a right ear and a wild frontier – sorry I could not resist) shown right. Hats began by people simply placing animal skins on their heads to protect them from the elements. It can be imagined that the first hats may well have been simply organic material, leaves, bark even woven grass, to keep out the sun and rain.

It was interesting to note that the ancient Greeks and Romans only allowed freemen and citizens to wear hats. Slaves were not allowed to wear hats unless they became freemen and that is where a hat became the badge

Sadly, the first ever hat and its wearer have been lost to the mists of time but the earliest hat is believed to have been worn around 3000 BC and was a type of



of a freeman. Any slave gaining their freedom was given a hat to wear in recognition of their new status. In the Victorian era the situation was different as slave owners purchased thousands of hats for their slaves. Slaves were valuable and it was worth keeping them in good condition, this created a boom in the towns making hats, Atherstone benefiting indirectly from the slave trade.



Many hats are made of felt. It was Clement of Rome (shown left), the Fourth Pope who is credited with the discovery of felt. Crossing the Alps he was most uncomfortable with blistered feet as he trudged along. He found some wool and stuffed his shoes with it. It is not recorded if his feet were more comfortable. When he completed his journey and went to remove the wool he discovered that it had been turned into felt by his sweat and the action of his feet pounding the wool.. Today felt is produced by matting, condensing, and pressing fibres together. Felt can be made of natural fibres such as wool or animal fur, or from synthetic fibres such as petroleum-based acrylic or acrylonitrile or wood

pulp-based rayon. Blended fibres are also common. Natural fibre felt has special properties that allow it to be used for a wide variety of purposes. It is fire-retardant and self-extinguishing; it dampens vibration and absorbs sound; and it can hold large amounts of fluid without feeling wet. It is most likely that felt production began in Central Asia and there are Mongolian tribes who build their Yurts out of felt.

Atherstone's fortunes were very much in tune with the hat making industry. Throughout history men and women have worn hats for a variety of reasons. Some for protection as we have heard and some for embellishment. Fashions change and for example before World War 1 many women wore huge hats with feathers and all sorts of attachments. After the war women turned to a much smaller tighter fitting hat. Makers of hats used ribbons and materials traded from Milan and the name milliner has its roots in that practice.

John took us through a complete history of hats manufactured in Atherstone from Stove pipe hats to bowler hats to gamekeepers deerstalker hats. The bowler hat was worn by management and supervisors whilst workers wore caps. John explained that during the Second World War almost every women in Atherstone not involved with childcare was working in some way in the hat industry making military headwear. We learned some of the manufacturing techniques, one where blocks are used to force the raw material (possibly felt) into moulds to form a hat. At the end of WW2 every man was given a de-mob suit and a trilby hat, another boon for Atherstone hat manufacturers. Sadly after the 2<sup>nd</sup> World War hats became less and less popular and added to competition from abroad forty hat manufacturing factories had closed by 1970. By 1990 there was one factory left which closed in 1998.

Some of the factories are still standing as are the houses where many of the workers lived, small houses ordered in yards. John has agreed to help arrange a Summer Visit to Atherstone, and it is hoped we will be able to organise a visit next year. With a cream tea of course. As usual I have left out much of the detail and the answers to many questions posed after the lecture. It was thoroughly enjoyed by us all.

## Next Month: The story behind the book, play and Musical

Here is your chance to hear Graham narrate his research story. Graham will be interrupted by songs from the Folk Musical, performed by the original cast of internationally known artists. It's not the musical but it is how the book and the musical were created. Members free, cream tea £9.50 per person. Don't delay!



## How I found Nell Gwynne!

**Graham Hopkins**, the author of “Nell Gwynne – A Passionate Life” and “Nelly – A Folk Musical”; shares his intriguing, inspirational, and emotional search for Nell Gwynne.

A search that covered two continents and consumed gallons of tea. Specially commissioned for the Market Bosworth Society – this is a one time chance to hear this musical story.

Also performing will be Emily Jane Brooks, (a “D-Day Darling”), Kip Winter & Dave Wilson (who perform professionally as Winter Wilson). ...

**Come to Bosworth Hall,  
former home of the Dixie Family,  
Lords of the manor for  
almost 300 years.**

**A “ONE-OFF” EVENT THAT’S NOT TO BE MISSED!  
Tuesday 18th June commencing at 2:00 PM**

**Members Free! Cream Teas £9.50 each.**

**Book via [info@marketbosworthsociety.com](mailto:info@marketbosworthsociety.com)**

**Teas by Bacs payment (Market Bosworth  
Soc. sorting code 82-11-07 account 00452350)**

**MARKET  
BOSWORTH  
SOCIETY**

All enquiries  
[info@marketbosworthsociety.com](mailto:info@marketbosworthsociety.com)



Members book via [info@marketbosworthsociety.com](mailto:info@marketbosworthsociety.com) cream teas must be paid for by BACS (see contact details below for information)

## Time for a quiz!

I thought you may like a change from the Kings and Queens of England and as it is May and the weather is warming up let us visit another and averagely warmer country. Here is a chance to see what you know about Pompeii.

- 1 What we know about the destruction of Pompeii comes from an eyewitness account written by Pliny the Younger. Where was he at the time?
- 2 When was Pompeii founded?
- 3 On which Italian bay is the volcano Mount Vesuvius located?
- 4 Where was the main centre of public life in Pompeii?
- 5 What city is Pompeii near to?
- 6 The Villa di Poppaea at Oplontis, in the present-day town of Torre Annunziata, had been home to the second wife of which emperor?
- 7 Pompeii wasn't the only city destroyed. What was the name of the other city?
- 8 On the day before the eruption, what were many Pompeians doing?
- 9 In what year did the eruption occur?
- 10 Who else was worshiped at the Pompeian Temple of Jupiter?
- 11 What is the name for the deadly 'rivers' of death made up of gas and volcanic ash and rock that can move at about 100 miles per hour?
- 12 What is the name of the volcano, which buried the town in an eruption?
- 13 .People from Pompeii had access to all of the things that the Romans thought necessary to civilised life. There are temples, theatres, a forum, houses and public baths. What amenities did they NOT have?
- 14 During the reign of which Roman Emperor did the eruption of Vesuvius occur?
- 15 Archaeologists are still working in the ruins of Pompeii, and will be doing so for some years to come. Most of what they are doing now is to conserve and restore what is already on show. Why?
- 16 The eruption occurred in the year 79 AD. How is the year 79 expressed in Roman numerals?
- 17 Enormous quantities of artefacts have been recovered from the ruins, but there are some especially poignant items that really bring home to you the dreadful events of the eruption. How have they been commemorated?
- 18 How close is Pompeii to Vesuvius?
- 19 One type of art very popular in Pompeii involved painting murals and stories directly onto the walls. What is a more common name for this?
20. In what year was Pompeii first rediscovered?

## Market Bosworth Free Church

Many of you will know that the building of the Free Church is in need of renovation and a few age related problems need to be remedied. So far the church have done an amazing job of identifying the tasks but even more so in raising funds to enable work to be done to a professional standard. Here is news of a fund raising event that we might all enjoy. Please contact Marion on **07779929096** for tickets.

**THURSDAY JUNE 20TH,**  
**RAISING FUNDS FOR CHURCH**

# SUMMER

*concert*

*Harmony*  
Community Choir

DOORS OPEN AT 630 PM FOR A 7PM START  
AT FREE CHURCH, MARKET BOSWORTH

**MUSIC | WINE & NIBBLES**  
**£10 TICKET, ADVANCE TICKETS ONLY**

CONTACT MARION 07779929096

The flyer is decorated with a sun in the top left, a hand in the top right, and a floral border at the bottom. The text is primarily in red and blue, with the word 'SUMMER' in large, bold, blue letters. The choir's name is written in a cursive font on a musical staff. The event details are enclosed in a purple-bordered box.

## Dixie Grammar School Old Boys & Girls W. Baynes.

I think it's true to say that mathematics would not be the average pupil's favourite subject. Basic arithmetic was hard enough for most of us but when it came to  $(A = \pi r^2)$ , what on earth is all of that about? However in the late 1940s and early '50s the Dixie Grammar School had two exceptional maths. teachers, Deputy Headmaster Morley G. Webb and A. P. Bowran. They inspired many of their pupils to fully understand their own love of numbers. I would like to tell the story of just four such boys. I doubt if many readers will recognise



Dougherty and Wood in 1950.

their names but each of them have had an impact on many, many lives. I will begin with the story of a lad from Kirby Muxloe, John Nigel Briggs. John was born on September 10th, 1934, and started at Dixie in 1944. One of his fellow pupils recalls him as being “a quiet, studious kind of boy. Not one for sports who tended to keep himself to himself”. He did however have a sense of “fun” and if you were his friend in 1944 the chances were that you were going to be his friend in 2000! The photograph above shows, Briggs,

Dougherty and Wood in 1950.

We know little about his academic achievements at school other than that he received the School Certificate Prize at Speech Day in 1949 and that he had a keen interest in mathematics. Whilst at school he became very good friends with Brian Hill, John Dougherty and Tony Wood about whom more later. After presenting the obligatory book (Applied Electricity) to the School Library, John left school in 1951 and began a five year apprenticeship with BTH in Rugby. British Thomson-Houston, since 1928 part of Associated Electrical Industries, produced items such as electric motors and generators, steam turbines, electricity meters and a

product some of you may remember, Mazda light bulbs! Two examples of Mazda lightbulbs are shown left.



During the First World War BTH produced electrical equipment for the navy, and during the Second World War concentrated on electrical components for aircraft engines, munitions etc. In 1937 Frank Whittle's company built the first prototype jet engine at the BTH works in Rugby.

During his time with BTH John moved around many of the various parts of the company gaining a wide experience of design and manufacturing. He worked for four days a week at the factory and one day on release to the Rugby College of Technology and Arts where he gained a BSc. in Engineering from Imperial College London. At the end of his apprenticeship he was called-up for National Service and spent the next two years in the Army. In 1957 John was stationed at the Royal Military College of Science at Sheringham, Norfolk, as a member of the Staff. John always kept in touch with what is now the UK Defence Academy and was a life-long member of the Defence Electronics Society. After National Service he returned to Rugby and started work in the section devoted to the development of Radar systems.

In the early 1960s this department was moved to the large AEI factory on Blackbird Road in Leicester where John very quickly became a major member of the design team working initially as a circuit-design engineer on continuous wave defence radar, microwave moisture meters and marine radar. For nearly 20 years he was in charge of design, trialling, manufacture and all international marketing of civil 'marine aid to navigation' racons (**radar beacons**). He also marketed instrumentation tracking radars and safety radars for gunnery and missile test ranges. He was particularly associated with the development of the racon Sea Watch 300 series pf solid state radar transponder, providing safety information to mariners worldwide. The Sea Watch 300 range of radar beacons are compact transponders, proven to be fully capable of providing a reliable service on

navigational stations of all kinds including buoys. Arrival of an interrogatory signal from a horizontally-polarized 3cm X-band marine radar causes the racon to transmit an amplified reply pulse. The receipt of this coded reply pulse by the radar results in a characteristic 'paint' being displayed, readily providing both the range and bearing of the beacon.

Some of John's time was spent at the AEI factory at New Parks in Leicester. This site was adjacent to the A47 Hinckley Road into Leicester and some readers may remember the radar dishes located on the roof of the building. They were quite a feature of the journey into the city. Working for John at this time was a young apprentice, Graham Rawlings. It was many years later, at a Dixie Grammar School Association Reunion, before Graham realised that his "boss" had been a former pupil too. He recalls when the apprentices were ordered up onto the roof to clean and repaint the radar dishes. They refused and this almost caused a strike!

April 1961 sees the first of several patents issued to AEI listing John Briggs as the inventor. The DGSA has copies of five such documents in its archive the most important of which is dated 1981 and is for "A Navigation Radar System".

So what is radar and why is it so important? Radar is an acronym meaning **RA**dio **D**etecting **A**nd **R**anging. It is a device which measures not only the time it takes for a pulsed signal to be reflected back from an object but also its bearing relative to your position.

Marine Radar mainly functions as an anti-collision aid. It also provides information about the whereabouts of neighbouring vessels, coastal outlines, the entrances to ports and harbours etc. Radar is a legal necessity for the safe navigation of merchant ships, and within vessel traffic services is indispensable to the operation of major ports and harbours. If you have ever taken a "Ferry across the Mersey" or travelled from Dover to Calais the chances are that your safe exit and entry to those harbours was controlled by one of John's Racons.

He was a member of the Leicester Industrial History Society, and wrote a textbook on marine radar, and later carried out research into the history of the Tube Works at Desford. So much more could be said of his career and other achievements. Through all this, John did not lose his love for his home, his garden in which he spent so much time, his friends, his interest in railways— and alongside him always Betty. John was in his forties when he married Betty Palmer and they shared the house in which he had lived as a child and his growing years. He lived for all of his life in that same house. He kept in touch with many of his school-day friends, in particular the Rev. Brian Hill and Dr. John Dougherty, two of his fellow sixth form maths. pupils. Following a DGSA 'Fifty years since joining Dixie reunion' in 1994 about two dozen of them would meet for lunch every other year. Various reports tell us that these were very "jolly" affairs.

1994 was a special year for John for that was when retired and he resolved to spend more time working in the garden that he loved so much. However it was not to be! He was persuaded to write down all he knew about the design and use of marine radar systems, a mammoth task. The result was the publication of 'Target Detection by Marine Radar', widely regarded as the textbook on this subject. A review at the time of its publication states that "*The precision with which targets are positioned on the radar screen and with which their progress is tracked or predicted depends on how definitely they have been detected, therefore a whole chapter has been devoted to the issue of accuracy. The various international regulations governing marine radar are examined, a brief historical background is given to modern day practice and the book closes with a discussion of the ways in which marine radar may develop to meet future challenges.*" Following his retirement John continued marine radar related consultancy work for GEC-Marconi, the Maritime and Coastguard Agency, the Royal Ocean Racing Club, and the International Association of Lighthouse Authorities among others. John was a Companion of the Nautical Institute and has published a number of papers in their Journal of Navigation.



Around 2008 John suffered a severe stroke and became bedridden. According to those who visited him at this time he remained cheerful and appreciative of their lasting friendship. Towards the end of his life he moved to the Grey Ferrers Nursing Home where sadly he died on 27th November 2016. His funeral service, held on 12th December, was conducted by his school pal and lifelong friend Rev. Brian Hill.

Let me now introduce you to Dr. John P. Dougherty.

John Peter Dougherty (pictured below) started at Dixie in 1945. As with so many who joined in the 1940's we learn nothing of them until the publication of a School Magazine began in 1950. We learn that in 1951 John is by now a Prefect. At the beginning of the Spring Term of 1951 the new Games Teacher, Frank Mugglestone, started a Cross Country Running Team and John was a keen member.



It was a sport he enjoyed throughout his life. His fellow pupils recall that he was hard working and studious but a fun loving chap devoted to Mathematics. Fortunately he had two teachers in Mr. Webb and Mr. Bowran who were able to encourage this love of numeracy. Mr. Bowran's wife once told me that John and another couple of Maths pupils would come to their home at weekends for "Tea and a Maths. Chat". Apparently they would be so engrossed that they lost all sense of time! It was clear that John was going to do well in his favourite subject.

In 1952 he won the GCE Advanced level Prize, was awarded the Headmaster's Good Conduct Prize and was instrumental (no pun intended!) in starting the School's Music Club under the direction of Mr. B. O. Daws, the Physics teacher. The chief medium for music-making was a gramophone and meetings were held fortnightly. The system adopted was for each programme to be selected, arranged and introduced by a different person.

When it came time for John to present his selection he included a piano performance of Beethoven's Sonata in F (Op. 10, No. 2). That was when we first discovered that he was an accomplished pianist. (It seems that mathematicians are often talented musicians. Mr. Webb also played the piano as does the current Headmaster, mathematician Richard Lynn.) Also in 1952 he was awarded a State Scholarship and in the following year he got an Open Exhibition to Sidney Sussex College, Cambridge, resulting in far greater financial support for his further education. He was made Head Boy, was still helping to run the Music Club, still enjoying his Cross Country Running and was an active member of the Debating Society. At the School's Sports Day that year he won the Senior Boy's Long Jump setting a new record of seventeen feet nine and a half inches! I believe that record still stood when the School closed in 1969.

John's career at Cambridge University is best described in his obituary notice from the Pembroke College Gazette; *"He obtained Firsts in all Parts of the Mathematical Tripos, and in 1957 he went on to do a PhD in the Ionosphere Section of the Cavendish Laboratory in Cambridge. In September 1959, while John was finishing up his PhD, he met Donald Farley, who had just obtained a postdoctoral fellowship at the Cavendish. They both became interested in studying the scattering of radar signals from the ionosphere. Their idea was that the scattering was affected by plasma - gases of charged particles - in the ionosphere. But at the time plasma physics was in its infancy; and John and Donald had to learn how to do plasma kinetic theory to derive what came to be known as the plasma dispersion function - which accounted for the power and spectrum of scattered radar signals in terms of the plasma temperature, density; and composition. Their work resulted in two papers being published in the Proceedings of the Royal Society in 1960 and 1961 and set John off on a lifetime's work on plasma physics, which would result in his founding the Journal of Plasma Physics in 1967 (for which he acted as editor from 1967-94) and publishing (with Phillip Clemmow) Electrodynamics of Particles and Plasmas (Addison-Wesley, 1969).*

*In 1961, John became a University Assistant Lecturer in the Department of Applied Mathematics and Theoretical Physics (rising to a full Lectureship two years later), and at the same time a Fellow of Pembroke, where he would act as Director of Studies in Mathematics from 1961-77. He combined a signal devotion to his students - holding supper parties for them in the house in Bottisham that he shared with his wife Margaret (whom he married in 1964) - with visiting positions all over the world: at the University of California San Diego (1970, 1976-77, 1979), Cornell (1970), the Université Libre in Brussels and the Institut Badan Jadrowich in Warsaw (both 1988), the University of Oregon (1993), and various universities in Australia (1999)."*

Whilst searching on the internet for something totally different I stumbled across this - "Nonlinear low-frequency waves in dusty self-gravitating plasmas. A scientific paper presented by Victoria V. Yaroshenko and Frank Verheest, Sterrenkundig Observatorium, Universiteit Gent, Krijgslaan 281, B-9000 Gent, Belgium. Dedication:

It is a pleasure to dedicate this paper to Dr J. P. Dougherty on the occasion of his 65th birthday."

*"John was made Stokes Lecturer by the University of Cambridge in 1983, and a Senior Lecturer in 2000. From 1981-96, John acted as Assistant Director of Studies in Mathematics at Pembroke; he was made a Life Fellow in 1996, having acted as Tutorial Bursar from 1989-91. From 2002-2009, John acted as Editor of the Pembroke Gazette. As well as his contribution to life at Pembroke, John made a huge contribution to the running of the Mathematics Faculty (serving as Secretary (1971-73) and Chairman (1991-92) of the Faculty Board) and of the University, for which he acted as Member of Council of the Senate (1983-86) and as Chairman of the University Centre Management Committee (1985-96). In this last capacity, he helped to save the University Centre from plans to demolish it, as well as successfully running a business which had an effective turnover of over £1m a year.*

*Music and running played a central part in John's life. Blessed with perfect pitch, he was an accomplished pianist, with a particular love for Scarlatti and Villa Lobos. When Colin Gilbraith, the then Bursar, acquired a Steinway grand for the Old Library John inaugurated it with great panache at the end of the following College meeting. John's completion of an unfinished Schubert piano sonata was broadcast by the BBC (and played by James Gibb) in 1969. John was an enthusiastic cross country runner, acting as Senior Treasurer of the Cambridge University Hare and Hounds Club from 1973-96."*



John maintained a close connection with his old School through his membership of the Dixie Grammar School Association, rarely missing one of the Annual Reunions. In 2004 he addressed the gathering congratulating the Association on reaching its twenty-first birthday before cutting the celebratory cake, (pictured left). He could be seen on many occasions chatting excitedly with friends from his schooldays, Rev. Brian Hill, Tony Wood, Anne Jones and lots of others. He took a keen interest in the development of the re-opened School and discussed this at length with the Headmasters. He last attended a reunion in 2012. The following year he sent his apologies as his health was beginning to fail. Sadly John died in April 2015.

A notice was sent to Members of Pembroke College advising them that on Sunday, November 15th, 2015 "The distinguished pianist Joseph Middleton will give a concert in the Old Library at 9.00pm this evening. As this concert is in memory of Dr John Dougherty (the Fellow who played an inaugural concert in the Old Library to celebrate the purchase of the Steinway), the concert will be free to all Pembroke members. Please

*do come along to hear the concert, enjoy the refreshments, and celebrate the memory of a fine pianist and mathematician.”*

We know nothing of the musical abilities of our next mathematician, Prof. Peter D. Roberts OBE., CPhys., FinstP.

Peter Roberts joined Dixie in 1958 according to the entry in the School’s magazine.

In 1961 he was a regular member of the Chess Club and in 1964 he was awarded the GCE “O” Level prize when he passed in all eight subjects. In October 1970, after completing a PhD in Theoretical Physics at London University, he joined the staff at the Atomic Weapons Establishment, (AWE), Aldermaston, attracted by the variety and quality of the science being undertaken there. His first role was in the Design Mathematics Department where he was involved with design aspects of the UK underground test programme from the mid-1970s and also the use of lasers to study weapon physics. In 1981 he was promoted to Individual Merit Scientist and in 1984 he became Superintendent of Physics Design.

Following this, in 1988, Peter was promoted to Head of Design Mathematics, with responsibility for the underground test programme, warhead physics design, code development and material property data. His career has included stints at the Ministry of Defence where he advised on technical aspects to inform defence policy, and time in AWE’s manufacturing directorate, looking at improvements to the design and manufacturing process for the warhead. During the 1980s, Peter (now Professor Roberts) and Prof. Steven Rose used conditions created in UK nuclear tests to explore and identify the energy scale required for the successful operation of ICF (inertial confinement fusion) capsules independently of other workers in the US or elsewhere. Yes! Peter was working with his colleagues to achieve Nuclear Fusion. The dream of unlimited power!

What Is Fusion? Fusion describes what happens when the nuclei of light atoms, such as hydrogen, overcome the repulsive electrostatic force that keeps them apart. When the nuclei get close enough, the force that binds protons and neutrons together, ‘the strong force’, takes over and pulls the nuclei even closer together so they “fuse” into a new, heavier helium nucleus with two neutrons and two protons. The helium nucleus, also known as an alpha particle, has a slightly smaller mass than the sum of the masses of the two hydrogen nuclei, and the difference in mass is released as energy according to Albert Einstein’s famous formula  $E=mc^2$ . The energy is released in the form of the alpha particles, high-energy neutrons, and other forms of energy such as electromagnetic radiation.

Nuclear fusion is different from nuclear fission, where the nuclei of heavy elements like uranium are split, forming two lighter elements, the process used in today’s nuclear power plants. In both nuclear reactions, the elements themselves change and become new elements and in the process, a small amount of mass is converted to a large amount of energy.



In 2010 Peter was awarded the Glazebrook medal (pictured left) by the Institute of Physics for his “outstanding leadership in the design, physics and safety of nuclear weapons.” The award is made annually for outstanding and sustained contributions to leadership in a physics context. The medal is gold and is accompanied by a prize of £1000 and a certificate. In December 2011 he was

promoted to the position of AWE’s Chief Scientist, a role he took up after impressing colleagues and senior managers alike as Head of Plasma Physics, where he led the commissioning of Orion, the replacement facility for AWE’s HELEN laser. Work began on the construction the Orion Laser Facility in 2006 and its first shot was fired in 2010. The building houses a large neodymium glass laser system and a target chamber, and it is the biggest experimental facility of high-energy density physics in the UK.

Orion plays a key role in AWE's core mission to support the safety, reliability and performance of nuclear warheads throughout their lifecycle under the UK's ratification of the Comprehensive Test Ban Treaty (CTBT), which bans live testing. It can replicate the extreme temperatures, pressures and densities found at the heart of a nuclear explosion for the study and understanding of the physics phenomena that occur in these environments.

Orion Laser (pictured below) also dedicates a proportion of its time for collaborative academic research in the

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UK and internationally, which is managed through an academic peer-review process by the Central Laser Facility at the Rutherford Appleton Laboratory. Academic research ranges from the conditions relevant to inertial fusion energy, planetary and solar physics, high-energy particle acceleration, black holes and much more.

In 2012 Peter was awarded an OBE in the New Year's Honours List. He said: *"This is a great honour, and I'm also really pleased that our contribution at AWE is recognised*

*and appreciated in this way. I'm also grateful to those who nominated me and those who supported it through the approvals process in MOD and the government."*

On December 16th, 2022, scientists at Lawrence Livermore National Laboratory in California announced that they had achieved the 'holy grail' of fusion research. In an international collaboration, that included colleagues from the UK's Central Laser Facility, for the first time they have been able to produce more fusion energy than energy input into the experiment. The National Ignition Facility (NIF), California, is a huge laser facility roughly the size of a football stadium. The laser facility uses 192 laser beams to initiate fusion reactions, using laser driven inertial confinement fusion (laser fusion) experiments. Fusion has the potential to provide a near-limitless, safe, and clean source of carbon-free energy. Fusion energy could complement renewables by filling supply-gaps and move us away from fossil-fuels. It could also help in replacing a considerable fraction of the over £2.8 trillion per year fossil fuel industry. Yes, a pupil from the Dixie Grammar School played his part in that success. Our thanks to Professor Peter Roberts OBE for his stellar work, we are proud of you.

And so we come to an announcement:- The Illustrated Leicester Chronicle, "Saturday 13 April 1940, at the Clifton Nursing Home, Fosse Road Central, Cockayne – on 8th April to Olive Elizabeth (nee Adams) wife of Ernest Cockayne, a son."

Prof. E. J. Cockayne

That's how we were informed of Ernie's arrival. The family lived in Braunstone, an area on the outskirts of Leicester which, following the 1944 Education Act, came within the catchment area of the Dixie Grammar School. So, eleven years later, in 1951 when young Ernie passed the Eleven Plus Examination he was awarded a place at Dixie. He joined the School in September that year and soon began to make an impression. Shown left is Ernie when a Professor.



It would appear that Ernie loved playing Soccer and was a keen supporter of Leicester City F. C. He was dismayed when he discovered that it was no longer taught at Dixie. In the spring of 1951 the new games-master, Frank Mugglestone, had changed over to Rugby Union! Rumour has it that Ernie rebelled, refusing to play rugby. It is alleged that this action led to many periods of detention as punishment. However, in spite of this, he was a keen sportsman becoming one of the first boys to play tennis


when the addition of extra tennis courts made this possible. At the Sports Day in 1952 he is listed as coming third in the Junior Sack Race!

Academically he did even better in that first year coming top of his class and winning the Form Prize, which was presented to him on Speech Day. He repeated this performance the following year. In 1956 he won a “GCE “O”Level Prize” for passing the examination in more than five subjects.

By now he was playing cricket for the School’s First Team and is described in the match reports as “an improving batsman, having made 109 runs this season and taken two important catches”. Playing for his House, the Captain described him as being “consistently good”.

In 1957 he was made a Sub-prefect. He retained his position in School’s cricketing First Team and although he continued to improve he had developed a tendency to be ‘impetuous’! His presence on the field of play was now being felt as a bowler as well. At the Sports Day that year he came third in the senior High Jump competition. In 1958 he was promoted to a Full Prefect, won three prizes at Senior Level for his GCE results and was awarded the Headmaster’s Good Conduct prize for his time at Dixie. That was the year that he played and beat Mark Cox in the Nottingham Hard-court Tennis Championship. Mark of course went on to play for G. B. in the Davis Cup. Ernie left Dixie in 1958 having secured a place at St. Catherine’s Society, Oxford. Yes, that’s right, St. Catherine’s Society. Let Ernie explain.

*“Oxford University is divided into Colleges for the purposes of residence and individual teaching, although lectures are on a University basis, so that for example Mathematicians from every college will attend the same lectures. Each undergraduate is attached to one college throughout his career. There are at present 22 colleges for men and 5 for women students. In addition to these is St. Catherine’s Society (St Catherine’s College shown left) which, with the exception of residential accommodation, has the same facilities as the colleges, i.e., Lecture Rooms, Libraries, Dining Hall, Common Rooms, Sports and cultural clubs, playing fields, etc. It was founded in the nineteenth century as an institution for students whose financial means were inadequate for college life but who could afford to study and live in lodgings.”*



*With the introduction of State and Local Authority Scholarships the reason for the existence of the Society was removed and the University had decided to replace it by a new college, St. Catherine's College, which was to have four hundred undergraduate members, about the same number as the Society but with two important differences. There will be an equal division between Science and the Humanities and in the new college three hundred undergraduates will be in residence.”*

The initial work commenced in 1958 when the architect, Professor Arne Jacobsen, was appointed and the formidable task of raising £2,400,000 began. Mainly responsible for the success of the scheme was the Censor. (Principal) of St. Catherine's Society and Master-elect of the New College. He was seen at frequent intervals appearing in the “Brains Trust” on television. By 1960 he had raised an impressive £1,700,000 towards the requisite sum. By this time Ernie was the president of the Junior Common Room at St. Catherine’s and was invited to the ceremony of the laying of the Foundation Stone of the new College which was to be performed by the Queen. Afterwards he was invited to take coffee with the Queen and Prince Phillip in the Junior Common Room at Trinity College. Let Ernie describe the proceedings.

*“Her Majesty the Queen arrived in Oxford on November 4th, 1960, at approx. mid-day. Accompanied by H.R.H. the Duke of Edinburgh, she first drove to the Town Hall where the Royal Party received an official welcome to the City from the Lord Mayor and from there proceeded to the University Sheldonian Theatre where the University, represented by the Chancellor, a certain Mr. Harold Macmillan, M.P., greeted the Royal visitors. The Queen had expressed a wish to meet some undergraduates. Accordingly, after lunch in*

*Trinity College, both she and the Duke had an informal chat with about twenty students including the Head of the undergraduate body of each college and representatives of the major University Clubs. I had the good fortune to be invited as President of the Junior Common Room of St. Catherine's Society. We stood round in a semi-circle and were presented first to the Queen, then to the Duke. We then split up into groups and coffee was served. I found myself in a group of five with the Queen discussing the controversial modern design of the new college. Another group were laughing heartily at a torrent of witticisms from the Duke. All too soon the Royal Party left and I had to rush across the town to the site of the college. I arrived a mere couple of minutes before the Royal car. The Queen was met by Mr. Bullock, Master Elect. Then the Fellows of the new college and some principal benefactors were presented to Her Majesty in a marquee, open at the sides, to enable an enthusiastic crowd of undergraduates and friends to see the proceedings. The presentations having been completed, the Queen inspected the five feet square model of the college and had a few words with the architect. The stone was consecrated by the Society Chaplain and then lowered into position by the Queen with the aid of a pulley system. St. Catherine's College was born. The Royal Party re-entered the cars and drove off amid the cheers of the crowd."*

Continuing his sporting activities Ernie was elected President of the College's Table Tennis Club having won the Oxford Table Tennis Tournament and was chosen to play for Oxford University against Cambridge University in 1960. In the School magazine of September 1963 we learn that "Cockayne, E. has been awarded his M.Sc. in Statistics for a thesis he submitted to McGill University, Montreal. He is now in the University of British Columbia, Vancouver, where he plays tennis for the University. He hopes to stay on to read for his Ph.D." That is exactly what he did! Having obtained his Doctorate he accepted the role of lecturer in the Department of Mathematics and Statistics where he worked until he retired. He may not have found the international fame of Thomas Simpson but it would appear that he was very good at his job. Here are a few comments from his former pupils:-

*"Excellent when I had him as a young lecturer 46 years ago. Turned me round from an F in Calculus to an A. Very helpful, clear, friendly."*

*"Easily the best maths teacher I have ever had. I do NOT like maths at all, but I found Cockayne to be a very good teacher and I did well in the course because of it."*

*"A very amusing, bitter, cynical, old man. Very British. Loved him, too bad he's retiring. Doesn't like cell phones."*

*"This guy is hilarious, but don't forget to staple your assignment or he goes berserk."*

Ernie took every opportunity to maintain close ties with his old school through his membership of the DGSA, attending the reunions whenever he could. On his last visit he presented the Association with a Canadian Flag, one of the more unusual items in the Archive. He loves Dixieland Jazz and plays the banjo enthusiastically with a group of friends. There are several of their published recordings in DGSA's Archive. Each year I look forward to receiving his "Christmas Letter", always full of his wit and humour as he keeps everyone informed of how life has abused him during the passing year.

I leave you with an extract from last year's epistle...

*"Retirement (the only job I've been any good at!) is still most enjoyable. The principal reason is that Kieka and I are surrounded by family, wonderful friends and great neighbours. Activities for me include croquet, table tennis (when not injured – i.e. almost never!), frequent short local walks, playing Dixieland Jazz with a great bunch of musicians and probably far too much talking in a variety of social get-togethers. About three or four times a week, I do a minimum of exercise in our local gym, followed by recovery in the hot tub. The most exercised body part is undoubtedly the jaw, which may well be the next body part needing replacement."*

Walter Baynes, Archivist, Dixie Grammar School Association ([www.thedgsa.co.uk](http://www.thedgsa.co.uk))

# Investment Fraud – How to avoid it!



## Investment Fraud & a new Self Help Tool Centre

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Dear resident,

Investments are a favourite trick used by fraudsters to steal your money ... either funds you've put aside 'for a rainy day' or life savings to be used for a dream holiday or your retirement.

Between 2020 and the end of 2023, nearly 100,000 people in the UK fell victim to investment scams, totalling £2.6 billion or £13 million every week. These figures refer only to reported scams, so are likely to be considerably higher.

To learn how to invest wisely and avoid being a victim in this way read the latest tips and advice from Get Safe Online, either in the leaflet attached or in the below link:

<https://www.getsafeonline.org/investments/>

Finally, Get Safe Online has this week launched a new 'Self Help Tool Centre' - nine free, easy-to-use to use tools to help keep you and your family safe, secure and confident when using the internet. It can be accessed here:

<https://www.getsafeonline.org/selfhelpcentre/>

We hope you find these useful.

Kind regards,  
the Get Safe Online team

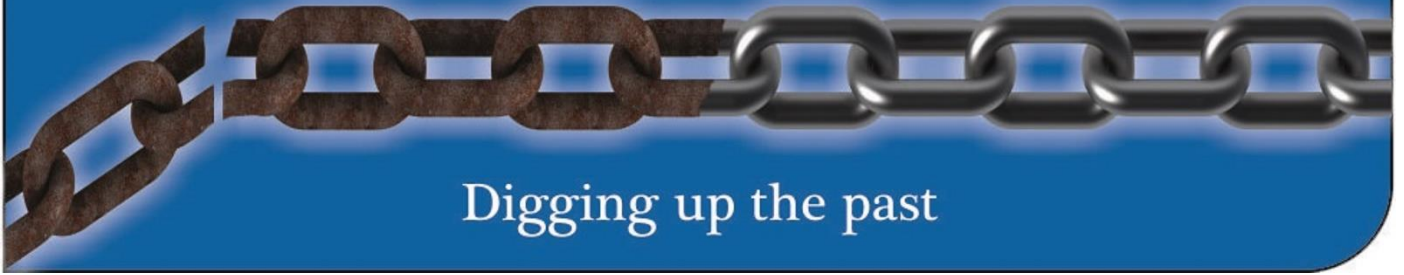
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### Attachments

[May24 Investment Leaflet.pdf](#)

Remember that the Market Bosworth Community Library can get you on-line if you do not have access to the internet at home.

# BOSWORTH LINKS



The Bosworth Links Digs Shenton test pitting weekend was a huge success. Over 100 enthusiastic volunteers dug an impressive 23 test pits across the village! The preliminary results suggest that the original medieval village's 'main street' was along Pump Street, stretching from the hall and the church out into the field to the north. Medieval pottery from test pits along Pump Street may date back to the 11th century. To the west of the brook, most finds were contemporary with the 18th and 19th century houses along Main Street and Sibson Lane. However, a good quantity of medieval pottery from Ivy House Farm does suggest some medieval habitation in the vicinity.

I'm still hoping to get volunteers in to help the lab staff. The lab staff are currently really busy wrapping up another project at the minute so it may be in June. I'll let you know as soon as we have dates.

***Mathew Morris – Lead Archaeologist for Bosworth Links***

If you would like an opportunity to go to the University of Leicester and help complete the washing of the finds from Shenton and have a look behind the scenes, then let me know and I will alert you when the dates are known.

You can see the photographs from previous Digs here [www.marketbosworthsociety.com/bosworth-links](http://www.marketbosworthsociety.com/bosworth-links) and the videos here: [Market Bosworth Society - YouTube](#)

## Grass Cutting – Leicestershire County Council QR code!



<https://www.leicestershire.gov.uk/roads-and-travel/road-maintenance/grass-cutting>.

So, now you know!

**Contact Details** Please see the website [www.marketbosworthsociety.com](http://www.marketbosworthsociety.com) for information or email on [info@marketbosworthsociety.com](mailto:info@marketbosworthsociety.com) or if you would like to call MBS then 07930149408. Correspondence can be sent to Market Bosworth Society, c/o 29 Warwick Lane, Market Bosworth, Leicestershire CV13 0JU.



Membership subscriptions (single £14.00 joint £21.00) can be paid by BACS/Bank Transfer using the following Details. Market Bosworth Society, Virgin Money Sorting Code 82-11-07 account number 00452350. Please place your surname (and the last three characters from your postal code – if permitted) in the reference section. For example mine would be palmer0ju.

If you have any items you would like to preserve for future generations, please contact MBS, or any Committee member.

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Nigel Palmer  
Chairman

## Answers to the Pompeii Quiz

1. Answer: Misenum. Misenum is across the Bay of Naples from Pompeii.

Pliny the Younger was staying with his uncle, Pliny the Elder, who was a Roman administrator in charge of the Navy in the Bay of Naples. He watched as events unfolded, and later wrote detailed letters about all he saw. He also interviewed people who escaped, and his letters are our source for all we know. The letters were rediscovered in the 16th century.

Pliny the Elder realised the danger to the people of Pompeii, Herculaneum and Stabiae, and ordered the launch of the naval vessels to go to their rescue. We do not know how many people were saved because of his actions, but Pliny the Elder died, it is believed from inhaling the fumes from the eruption.

2. Answer: the founding date is unknown. It's believed that Pompeii was founded in either the sixth or seventh century BC, though the exact date is unknown.

3 Answer: Naples. Vesuvius is on the Bay of Naples, but all the options are coastal areas of Italy. The cities of Genoa and Livorno are large seaports, and Salerno is a smaller city on the Gulf of Salerno, the largest town of the well-known Amalfi coast area with its stunning scenic views.

4. Answer: The Civic Forum. This is where Pompeians met for business, religious, and political events. They also spent much of their casual time here. The temple of Jupiter was at the end of the square.

5. Answer: Naples, Italy. Naples is a large city complete with a bay named after it and has several major museums, including one with artifacts from Pompeii and other ancient Roman cities. However, it's often said that the city itself is a vast open air museum .

6. Answer: Nero. Poppaea Sabina was Nero's second wife and he was her third (and last) husband. Otho had been her second husband, whom she had divorced in AD 58; he became emperor himself briefly, during the Year of the Four Emperors, after the death of Nero in AD 68. Poppaea Sabina died in AD 65, possibly as a result of Nero kicking her in her abdomen while she was pregnant, but this remains uncertain. The Villa Poppaea is large and one of the best-preserved of the area.

7. Answer: Herculaneum. Pompeii was overwhelmed by ash and lava, which buried it 20 feet deep. Herculaneum was destroyed by the pyroclastic flow, which buried it much deeper than Pompeii. The flow preserved organic items such as wood and food as well as skeletons. Other smaller towns such as Stabiae were also destroyed.

8. Answer: celebrating a festival. The day before Vesuvius erupted, Pompeians and those living in surrounding communities were celebrating a festival in honour of the Roman god of fire.

9. Answer: A.D. 79

10. Answer: Minerva This was Jupiter's temple, but Minerva and Juno were both also worshiped here. Apollo, Isis, Vespasian, and Lares all had their own temples within Pompeii.

11. Answer: Pyroclastic flows. The prefix pyro- means 'fire' or 'heat'. These heat generated by these flows can incinerate the body and can kill almost instantly.

12. Answer: Vesuvius. The inhabitants had been warned by small earthquakes for quite some time before the eruption. Vesuvius. Archaeological evidence shows that Vesuvius had not erupted for hundreds years, and nobody understood what was happening. Apparently they didn't even have a name for 'volcano' until then, when they named it for Vulcan the God of Fire. There was an earthquake in 62AD, which caused a great deal of damage, and was probably a sign that the volcano was waking up. Vesuvius is regarded as very dangerous; it has erupted many times since 79AD, the last time being in 1944. It will do so again, but who knows when. It is the only active volcano on mainland Europe. There are still many active volcanoes in Italy. Mount Etna looms over Taormina in Sicily and there is often ash in the air as the volcano grumbles away. Another active volcano is Stromboli which is on one of the Aeolian Islands in the Tyrrhenian Sea. Solfatara is near Pozzuoli, and emits steam and sulphurous fumes. It hasn't erupted since 1198. Knowing how dangerous and destructive an active volcano can be, you might wonder why anybody would choose to live near one, but the fact is that the volcanic soil is very fertile and excellent for farming, so people continue to live in hope and take their chances.

13. Answer: Flush toilets. The Romans had running water from aqueducts, but flush toilets had to wait until the 16th century to be invented. They did, however, have all the other amenities listed above and many more, and there are well preserved remains of all these buildings, as well as huge numbers of artefacts relating to them. There are walls still standing, and you can walk around at will, imagining yourself to be 2000 years in the past.

14. Answer: Titus. Titus had only recently succeeded his father Vespasian (both named Titus Flavius Vespasianus) as emperor when Vesuvius erupted. He visited Pompeii and arranged for a relief effort to be organised to give assistance to the volcano's victims, himself donating generous funds of money from the treasury. Titus only reigned as emperor for a little over two years; the building of the Flavian Amphitheatre (Colosseum), which had been started by his father, was completed during his reign.

15. Answer: Large scale excavations stopped in the 1960s. The site covers about 160 acres, and the cost and difficulties of maintaining what is already on view is enormous. About a third of the site is still unexcavated, and looks likely to stay that way for some time. Conserving what has been exposed has always been a problem, with many of the wall paintings discovered in the early years now lost to us, apart from the records made at the time. Italy has such an enormous wealth of ancient remains that there is never going to be enough money to take care of all of them, despite grants from the EU and many charitable bodies. There is no point in exposing yet more of the city when existing buildings have been collapsing and succumbing to other damage.

16. Answer: LXXIX

L = 50, X = 10, IX = 9. Therefore, 50 + 10 + 10 + 9 = 79. LXXX is 80, XCIX is 99 and CXXI is 121.

17. Answer: Plaster casts. People digging in the ruins realised that there were, in the volcanic ash, the impressions of where people and animals were buried. In 1863 Giuseppe Fiorelli realised that he could

preserve these forms by filling them with plaster, and in the museum you can see heartbreaking representations of people with their children, families and chained up animals, who did not manage to get away from the town. The casts contain the skeletons of the victims, the flesh being long since gone. Sheltering inside buildings that could not save them, they must have been terrified. It is thought that they died from the effects of the extreme heat, reaching up to 250c, rather than from being buried.

18. Answer: five miles. Pompeii lies approximately five miles (eight kilometres) from Vesuvius. Other towns located in the same area include Herculaneum and Stabiae, which were also destroyed by the eruption.

19. Answer: fresco. Mythical creatures, gods, goddesses, heroes, and historical recreations were all popular subject matter.

20. Answer: 1599. It was during the building of a channel designed to divert the river Sarno that the first remains of Pompeii were found in 1599. These were mostly walls covered in paintings and ancient writing, one of which clearly displayed the name 'Pompeii'. However, these finds were reburied (!) for reasons that are unclear. Systematic excavation of the site began in late 1470s, revealing that many of the buildings were still intact. In 1819 at the Naples National Archaeological Museum, there was an exhibition displaying some of the artefacts found in Pompeii. Among the visitors was the King of Naples and his family. The King was so embarrassed by the openly erotic nature of many of the paintings that he decided to have them locked away in a secret location, where they would only be accessible to "mature-aged people". In 1863, Giuseppe Fiorelli took over the running of the excavations. Occasionally, archaeologists would find hollows in the ash and, by filling these hollows with plaster, they produced almost perfect casts of the bodies of some of the victims.