

Connect



Long service gets royal recognition

An AWE scientist was named in the Queen's Birthday Honours list for his almost 60-year service to the UK's nuclear deterrent programme.

Brian Lambourn, who joined AWE in 1957, received his award from HM The Queen in a ceremony at Buckingham Palace late last year (pictured). The MBE is awarded for outstanding achievement or service to the community, which has had a long-term, significant impact and stands out as an example to others.

On receiving his award, Brian said: "It was a very great honour to meet the Queen and it was a lovely and memorable day. It was all very well ordered at the Palace. All the recipients had a briefing by a very tall, distinguished looking gentleman. He explained what we needed to do, including giving a demonstration of the correct way to bow and to curtsy.

"It's quite something to drive through the gates of Buckingham Palace and on into the quadrangle. We only just got there in time, because of the closure of the M4 and A4, and congestion everywhere else!"

● Find out more on pages 4 and 5



Jonathan Brady/PA Wire

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VIP trip to Christmas lecture

Young physicist **Sreenithi Bhuvaneshwaran**, of Reading's Kendrick School, won a VIP trip to the Royal Institution Christmas lectures as part of her prize for winning AWE's Young Scientist of the Year award.

Sreenithi was accompanied by her physics teacher, Eileen Sheppard, and is shown here meeting the lecturer, **Dr Saiful Islam**, at the event in December.

CHRISTMAS LECTURES

PAST FUTURE PRESENT

Photo: Paul Wilkinson

Reduction in hazard risk

The Office for Nuclear Regulation (ONR) has revised the extent of the area around the AWE Aldermaston site within which local emergency planning is required to protect the public in the unlikely event of a radiation emergency.

The ONR has concluded that there has been a "reduction in the hazards and risks of a radiation emergency at AWE Aldermaston" resulting in a decrease in the size of the emergency planning area.

This means that the revised emergency planning area (EPA) (formerly known as the Detailed Emergency Planning Zone) is no longer a circle from the centre of the site, but is now a land area that

varies from 2 km to 3.5 km, defined by roads, footpaths, field boundaries and rivers. The area includes the villages of Aldermaston, Inhurst, Baughurst, Pamber Heath and the town of Tadley.

Information about what to do in the unlikely event of a radiation emergency at AWE is laid out in the Radiation Emergency Preparedness and Public Information Regulations (REPPiR) leaflet which is available on our website.

● To view a map of the new EPA go to www.onr.org.uk/documents/2016/aldermaston-map.pdf and AWE's REPPiR leaflet can be found on our website.

Big tick for Connect

I would like to thank everyone who completed our online survey last year.

We were very pleased with the results that showed 60 per cent of you always read *Connect* and 59 per cent think the content has improved! And 60 per cent said you'd be interested in AWE communicating via social media. Local resident **Emily Brooker** won the iPad mini 4 after her entry was chosen at random. Well done Emily! To give feedback on *Connect*, email us at connect@awe.co.uk

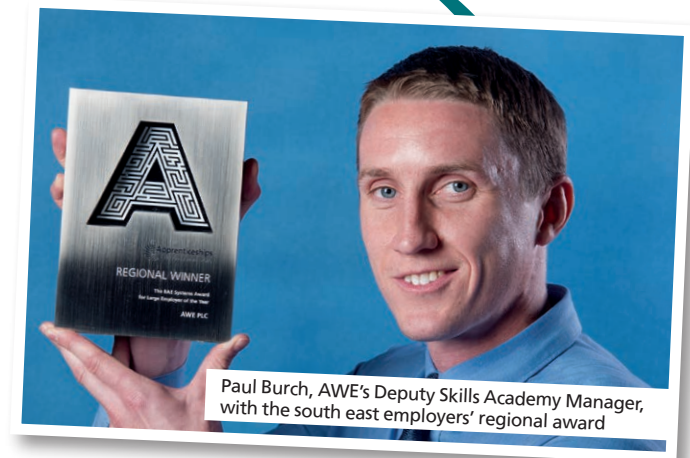
AWE recognised as leading apprenticeship employer

AWE is named in the prestigious Centrica Top 100 Apprenticeship Employer list, which recognises excellence in businesses that employ apprentices.

The company was recognised as among the best in the country at the National Apprenticeship Awards in London on 20 January. The list is compiled each year by the National Apprenticeship Service.

Welcoming AWE's inclusion, Kathryn Marshall, AWE's Director of HR, said: "AWE has been nurturing and developing young people for nearly 65 years. More than 4,000 men and women have completed their apprenticeships with us and many have worked their way up through the company into senior leadership roles.

"Apprenticeships offer people of all ages and backgrounds an opportunity to learn and develop skills. Developing the nation's future talent is a high priority and, in 2017, we are almost tripling the number of apprenticeship places available. We are also introducing a range of completely new



modules, such as Finance and Project Controls, Supply Chain Management, Laboratory Technician, and Human Resources, to our successful electrical, engineering and manufacturing programmes."

Skills and Apprenticeships Minister Robert Halfon, said: "Apprenticeships work. They give people of all ages and all backgrounds the ladder of opportunity to get paid experience in work and a top class qualification at the same time.

"The National Apprenticeship Awards ensure apprenticeships get the prestige they deserve, while shining a light on the fantastic work that both apprentices and their employers do."

● To find out more about AWE's apprenticeship scheme and the new programmes that are on offer, go to www.awe.co.uk/careers

More police on patrol around our sites

In the last issue of *Connect*, the Ministry of Defence Police (MDP) told us all about Project Servator. In short, the project aims to bring our communities and police together to create a safe environment.

To do this, the MDP use various policing tactics and operations across Aldermaston and Burghfield and in the local communities.

Last year, this project proved successful with a

33% drop in criminal activity and a number of offences disclosed and offenders dealt with.

Due to its success, a dedicated MDP Project Servator team has been formed and during 2017 you will see an increase in police operational activity in and around the AWE sites.

Should you or your family see anyone acting suspiciously, please report it by ringing **01189 826 286** (MDP control room).

SECURITY SPOTLIGHT

AWE's Security team here updating you with our regular security blog.

Security events continue to be prevalent in world news, from cyber threats to governments and organisations, through, sadly, to terrorist attacks against innocent victims.

We review threats to AWE's interests in order to protect our sites from any emerging issues. This could include people acting suspiciously in the local community or asking inappropriate questions about AWE, its sites and its people. It might include those seeking to take photographs, or looking at using technology, like drones, to find out more about what goes on at AWE.

While we, and the Ministry of Defence Police (MDP), actively look out for suspicious activity, we need your help. Please report anything that causes you concern, however trivial you feel it may be, by ringing the MDP control room on **01189 826 286**.

Brian celebrates 60 successful years at AWE

Brian Lambourn will celebrate his 60th anniversary at AWE in April, after receiving an MBE last year for his service...

Internationally renowned, Brian's work, together with that of others, has advanced understanding in the complex area of shock wave dynamics and some of the physics of nuclear warhead safety.

Of his career at AWE, Brian, from Tadley, said: "AWE has shaped my life in many ways, professionally and personally. I am greatly honoured to receive this award, it feels like the pinnacle of my career. It enhances the

pleasure of having worked at AWE for so long with so many highly accomplished people."

Graeme Nicholson, AWE Director of Programme, said: "This award is richly deserved. Brian's contribution to the challenging scientific fields of hydrodynamics and shock physics is unprecedented."

● Brian, 84, still works two days a week at AWE.

"AWE has shaped my life in many ways, professionally and personally. I am greatly honoured to receive this award, it feels like the pinnacle of my career"

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OVERTIME	
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Nat. Insurance	2 0 6
HTS	1 16 6
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Superannuation	4 14 8
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"A great honour..." Brian receiving his MBE last year

Jonathan Brady/PA Wire



PAST FUTURE PRESENT

Brian's first ID picture at AWE

It was all so different back then...

When Brian started working at Aldermaston, it was called the Atomic Weapons Research Establishment (AWRE) as it was known before the 1980s. Brian graduated with a degree in physics from Birmingham University in 1953 and worked for the Admiralty Research Laboratory before joining AWRE in April 1957 to work on the effects of shock waves in materials. Together with others, his work has brought theoretical insight into the exacting world of shock wave dynamics, which underlies so much of the physics that underpins nuclear warhead

safety. Brian has an international reputation as an expert on equations of state for explosives and detonation propagation. Brian has witnessed huge changes throughout almost six decades at AWE. He said: "When I started in AWRE in 1957, the world was different. One major difference, was that it was a man's world. "Much less than 1% of the middle and senior staff were women. One of them was the manager of the housing department. In those days there were AWRE housing estates in Tadley, Baughurst, Basingstoke, Newbury and Reading." Brian continued: "Back then, each area had one or more messengers to take round the post. We also had a tea lady who

brought a tea trolley with cakes around at 10.30am and 3pm. "Your grade determined whether you shared or had your own office, the type of desk (single or double pedestal), the size of the carpet, if any (a strip, a carpet with a gap around the outside or a fitted carpet), and whether you had a hat stand. How times have changed! "But it worked, because you respected the technical abilities of your leaders and aspired to get promotion, so that you could get a bigger desk! "The one thing that hasn't altered is the nature of doing research. The tools have changed, but the joy of suddenly understanding something that you have long been studying, is still just as great. It compensates for all the hard work that is necessary between the moments of joy."

- ▲ Brian's first payslip
- ▶ Brian with his MBE



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"Engineering has really changed" – Amy Lambden

'Dare to be different' – apprentice's challenge to schoolgirls' career aims

An AWE engineering apprentice has told BBC Radio 5 live that women should "dare to be different".

Amy Lambden, a 21-year-old from Thatcham, was interviewed on the national radio station to promote the AWE apprenticeship scheme.

Amy, who is in her fourth and final year of an electrical engineering apprenticeship, said she actively encourages other young women into science, technology, engineering and

mathematics roles. She said there is still a misconception about what engineering is: "When we do outreach programmes to local schools, we ask pupils what they think engineering is. A lot of the answers are about cars and buildings and that's it. But it's so much more – engineering has really changed over the last 10 years."

Amy said she joined the AWE scheme because: "I dared to be different."

"A lot of people don't, because they worry about stereotypes and

about what other people will think, but I wanted to take a different path," she said.

Applications for the AWE apprenticeship scheme opened on 14 December and stay open for six weeks, for apprenticeships starting on 4 September 2017.

For more details on the scheme, go to the apprenticeship opportunities page.

● To hear more of Amy's BBC 5 live interview go to www.bbc.co.uk/programmes/p04j3gv1



Ex AWE apprentices visit the Aldermaston site for the first time since they completed their apprenticeships in the 1950s, 60s and 70s

Old hands return to where it all began

Nearly 50 veteran AWE apprentices took a walk down memory lane by returning to where they started their careers as young men in the 1950s, 60s and 70s.

The veterans visited workshops at the AWE Skills Academy and watched a 1954 recruitment video, which some of them starred in.

In the 1950s and 60s, apprentices at AWE had the option to board close to the site and many built up lasting friendships.

Former AWE apprentice Paul Harvey, who joined the scheme in 1958 and was a former Chairman of the AWE Apprenticeship Association, said: "My career began at AWE. It was the best start I could have had and set me up for a very successful future career in the pharmaceutical industry."

Norman Apperley, an electrical engineering apprentice between 1959 and 1964, realised he wanted to work with computers while at AWE and after his apprenticeship he spent the rest of his career at a leading PC manufacturer. He said: "The AWE apprenticeship was very good and varied and taught me very early on about the importance of computers. I could tell even then that computers were the future thanks to AWE."

The modern AWE apprenticeship

scheme has been running for nearly 65 years and 11% of the workforce are ex-apprentices. In 2017, AWE is almost tripling the number of apprenticeship places available.

● For more information about the AWE apprenticeship scheme go to www.awe.co.uk



Veteran apprentices watch a 1954 AWE recruitment video

Giles has vital board role

AWE engineer Giles Hartill has been appointed Vice President of the Institution of Mechanical Engineers (IMechE) Trustee Board to lead the digital marketing and communications committee – a privileged and vital role for the charity.

Giles is one of four Vice Presidents on the Trustee Board and his focus will be developing the IMechE's digital infrastructure globally as well as sitting on the audit and risk committee – ensuring effective and efficient administration of the charity.

Also a Fellow of the IMechE, Giles said: "Being involved with the IMechE has given me a great sense of the wider world of science and engineering – updating me with industry developments and giving

me the chance to network with a broad range of engineers.

I've always been keen to promote science and engineering to the next generation and this is at the forefront of IMechE's strategy as well as AWE's mission.

"I hope, in doing my role, that our important work in supporting national security becomes even more widely appreciated, in industry and academia."

President of the IMechE, Jon Hilton, said: "I am delighted to welcome Giles on to the Trustee Board. It is particularly nice to see a previous representative of the Young Members Board coming back on to the Trustee Board in his own right."





It's only rocket science! Charlie with his rocket, which achieved a launch height of 250 metres

Rocket boy Charlie puts some fizz into pupils' lunch hour

The sky's the limit for budding scientist Charlie Willmott who has won an award from AWE as part of its AWESome Education initiative.

Charlie, 11, is a former pupil at North Waltham Primary School. For the past two years, he has organised and run a weekly science club for fellow pupils during his lunch hour and has even launched his own rocket successfully.

North Waltham's Head Teacher, Jeff Maidment, said: "Research shows the importance of capturing pupils' imagination at primary school. We are keen to continue working with AWE to feed pupils' enthusiasm to learn more about science. It was AWE graduates and their hands-on experiments who inspired Charlie to start up his science club, which has been extremely popular with his fellow pupils."

Charlie has now begun his secondary education. He was presented with his award at North Waltham Primary School's end-of-year leavers and award assembly.

Scientist shortlisted for award

AWE Scientist Dr Alison Baxter has been shortlisted as a finalist in the Cogent Skills Nuclear STEM Ambassador 2017 award for her dedication to inspiring young people to follow careers in science.



Alison, a specialist in DNA and environmental monitoring, was nominated for the national award for her outstanding support in leading a range of projects in local schools and colleges.

Alison has co-ordinated STEM (science, technology, engineering and mathematics) days aimed at the sixth form students at Queen Mary's College and pupils from local secondary schools.

She also assisted the college to set up a programme of activities, known as STEM Sellers – which sees A level students using their skills and enthusiasm to inspire younger learners at local schools by devising and delivering science experiments for them.

Engineering key to tackling catapult challenge

Students from eight schools and colleges designed and built marvellous medieval machines during the annual AWE School's Engineering Challenge.

The teams were each given the same items with which to build a working model of a trebuchet – a large-scale catapult used to hurl projectiles during sieges.

Each team's machine was then assessed for distance, power and accuracy and the students were quizzed on their engineering design and general physics knowledge.



Overall winners were Park House School and Sports College, with Robert Mays School second and Bulmershe College in third. Other schools taking part were Kendrick

School, Little Heath Secondary School, St Gabriels School, Trinity School and Performing Arts College and Kennet Secondary School.

The event is organised by AWE graduates with a physics, chemistry and engineering background, supported by apprentices from the AWE Skills Academy.

● AWE Chief Executive Iain Coucher presents the trophy to winners Park House School and Sports College. Also pictured is Cllr Jane Stanford-Beale.

Programme seeks to close the skills gap

AWE is working closely with educational charity Basingstoke Consortium to support employability in the local area through its work on the Skillstree programme.

Richard Dorney-Savage, Chief Executive of Basingstoke Consortium said: "Skillstree seeks to help prepare young people for

working life, by working with local businesses and community groups to deliver practical workshops, challenges, employer visits, work experience and mentoring.

"It helps to bridge the gap between the skills needed by businesses and those that young people have when they enter the

world of work."

AWE has a particular focus on programmes designed to raise the profile of science, technology, engineering and mathematics (STEM) and its input is highly regarded by staff and students in the local area.

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Pupils celebrate the role of women pioneers in science and technology

Pupils from nine local schools gathered at Hurst Community College in Tadley for an interactive day of fun and competition to mark Ada Lovelace Day, an annual event to raise the profile of women in science, technology, engineering and mathematics (STEM) and celebrate their achievements.

The event was run by a project team from the AWE Women's Network (AWEWN) who were the inspiration behind a very successful day.

The AWEWN team was supported on the day by graduates, apprentices and AWE's STEM ambassadors. By exploring the historic achievements of women in STEM, the aim was to inspire the youngsters and get them thinking about what they could achieve in the future.

Ada Lovelace was a 19th-century English mathematician and writer, best known for her work with Charles Babbage to create and program the world's first general purpose computer, the analytical engine, the precursor to modern programming.

Each school team researched famous female scientists and engineers and chose who they thought had made the greatest impact over the past 200 years. The teams then made up a display themed around their selected individual and were asked questions about their work by the judges. Throughout the day, students could take part in a variety of STEM-related activities, experiments and demonstrations.

Prizes, presented by AWE's Head of Engineering Kerry Barker, were awarded to the teams judged to have the best exhibits. Graduate manufacturing engineer Frederica Sheehan-Greatorex said: "We were impressed by the quality of the exhibits. The feedback was 100% positive and they all loved the demonstrations and experiments! We hope it inspires a new generation of scientists, engineers and technologists."



Engineers inspire youngsters with ingenious demonstrations

AWE graduates and apprentices wowed 300 pupils from nearly 30 schools across Hampshire and West Berkshire at an annual event to motivate children into taking up science, technology, engineering and mathematics (STEM).

Our team used interactive demonstrations and cutting-edge technologies at the 2016 TeenTech event in Basingstoke, to inspire young people to become future scientists and engineers.

AWE Analytical Chemist Stuart Dunn said: "TeenTech is a great event for kids from all over to interact with one of the largest scientific sites in the area, and for employees to encourage young people to follow STEM careers."



Pupils at St Nicholas school taking part in TeenTech

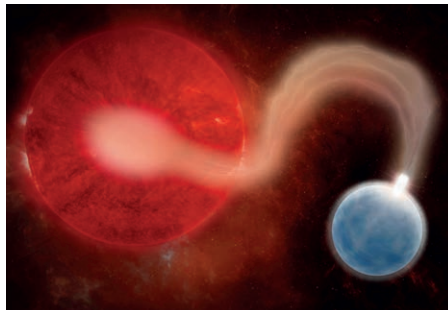
Orion illuminates the strong shock of falling on a white dwarf

Scientists from a large international collaboration have succeeded for the first time to generate a strong shock, in laboratory conditions, that takes place when matter falls at very high speed on the surface of extremely dense stars called white dwarfs.

Understanding how stars behave and interact with each other is crucial to research in astrophysics and the universe at large.

To perform this spectacular astrophysics experiment, the scientists made use of the world-leading powerful Orion laser facility at AWE to evaporate a millimetre-size target and produce a hot plasma flow during an extremely short duration – less than 100 nanoseconds (1 nanosecond equals 1 billionth of a second). There are as many nanoseconds in one second as there are seconds in about 30 years!

The experiment led by Professor Gianluca Gregori of the University



Artist's impression of a magnetic cataclysmic variable. In these systems a "white dwarf", an extremely dense star, attracts mass from a low-mass companion star (a main sequence or red star) due to its gravitational pull. This accreted material produces a high-energy burst of radiation when it reaches the surface of the white dwarf at its magnetic pole.

Image: Animea/F Durillon, CEA

of Oxford was undertaken as part of the Orion collaborative academic access programme.

Speaking about his experiment to investigate the physics of an unusual class of binary star, Gianluca said: "The Orion campaign has provided a vital piece of the jigsaw in the understanding of how strong shock waves behave. There are always three key ingredients that need to be considered each time a shock occurs. First, the shock compresses

the ambient medium and its density increases. Second, the temperature rises. Third, some of the stored energy is radiated away."

Supported by the MOD, the peer-reviewed academic access programme allows UK-led teams to work on Orion using the wider capabilities of the facility to pursue their collaborative academic research programmes. The application process is highly competitive and has been significantly oversubscribed since the first call for proposals in 2013.



Bakers make plenty of dough for charity

AWE's dedicated cake bakers (and eaters!) raised a fantastic £6,400 for Macmillan, smashing last year's £2,000 total, at the AWE World's Greatest Coffee Morning.

More teams, from Burghfield and Aldermaston, took part this year and there was a competition for the best bake. The judges had a

thoroughly good time tasting the entries and were highly complimentary about them.

This was also the first year the apprentices held a cake sale, with Stefan Ressle taking first prize for his magnificent marble cake. The AWE Community Committee made a donation of £500, which brought

the overall total to £6,400.

A big thank you to everyone who took part to raise awareness of Macmillan and its amazing work. The money raised exceeded all the organising team's expectations and everyone who baked or ate cakes, or bought raffle tickets, helped to make the events such a success.

Whiteboard gift to foster youngsters' interest in science

Willink School pupils have welcomed a new smartboard to the classroom thanks to a donation from AWE's Community Committee.

Head Teacher Peter Fry said: "Interactive whiteboards enable our staff to make full use of up-to-date technology and provide students with an even more innovative, inspiring and engaging learning experience. This will help prepare them for the world of work and build on their understanding of science, technology, engineering and maths – the STEM subjects. We are really pleased to develop our close connection with AWE in this way and look forward to a continued partnership."



Church bells ring again thanks to AWE support

After months of silence, the sound of church bells has returned to the West Berkshire village of Mortimer.

In 2015, St John's Church discovered that their 120-year-old bells were in need of repair. The bells were installed in 1896 and had not been structurally updated since.

Responding to a request for community support from the church, AWE donated the time of two apprentices to help professional bell hangers, Whites of Appleton, and local ringers, carry out repairs to the timber bell frame and overhaul some of the ringing fittings.

After almost three months of work, the bells were rung at a church service.

Andrew Slater, the steeple keeper at St John's Church, said: "We'd like to thank AWE for donating the time of apprentices Tom and Kieran. Their hard work helped us to undertake this project. The task was completed as planned and we rang all six bells for the Sunday service for the first time in over a year. With luck, the bells will ring out for the next 120 years without major maintenance."

AWE apprentices Thomas Dowson, from Basingstoke and Kieran Monger, from Tadley, helped turn and repair the six bells at the top of the 100ft bell tower. This meant Whites of Appleton could replace rotten timbers before hoisting the bells back up into the bell chamber.

Thomas said: "This was a great opportunity for me to learn new



AWE apprentices Kieran, left, from Tadley, and Thomas from Basingstoke have helped repair six bells at St John's Church in Mortimer.

skills and to handle bells that are more than 120 years old. It feels really good to be able to give back to the community in this way."

Marcus Hutchings, AWE Skills Academy Manager, said: "Events such as this illustrate how dynamic an apprenticeship at AWE is. AWE is committed to

being a good neighbour and working with local communities is really important."

St John's Church is also raising funds to make roof repairs.

● For more information about the AWE apprentice scheme, go to

www.awe.co.uk