



The
Welding
Institute

100
YEAR
ANNIVERSARY

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1. Foreword

2023 marks the centenary of The Welding Institute, during which time we have grown from our relatively humble beginnings to today's internationally recognised Institute, supporting thousands of Professional Members as they journey through their careers.

We are proud of the achievements of the Institute over the past 100 years and are delighted to be able to invite you all to celebrate this milestone with us.

This short publication, far from being a complete history of the Institute since 1923, provides a snapshot of some of our achievements as well as input from some of our Members on some ground-breaking innovations and developments.

You will find details of the history of The Welding Institute, including a look at the inaugural meeting of what was then known as 'The Institution of Welding Engineers.' We have also included details of everybody that has held the position of President and highlighted how we have been providing professional engineering support for a century.

This booklet also highlights the training available through TWI's international Global Academy and investigates how The Finniston Report of the 1970s-80s nearly changed how The Institute operates forever, in addition to insightful reports on some noteworthy work, and more. We hope you enjoy reading through these articles and would like to thank all of those who gave their time to help create and compile the content.

Of course, we would also like to thank everyone who has contributed to the success of The Welding Institute over the past 100 years, without whom we would not be where we are today. However, it also a time to look forward and plan for the next 100 years as we continue to deliver support to our Professional Members across the world.

Dr Claire Kimpton CEng

2. 100 Years of The Welding Institute

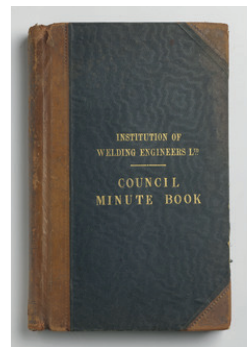


Created as a professional engineering institution in 1923, The Welding Institute was originally known as ‘The Institution of Welding Engineers.’ It was created to support the development of Members in the fields of welding, joining and allied technologies, and now serves as a voice for industry, providing authoritative guidance to bodies such as the British Standards Institution, the Engineering Council and the UK government.

As a licensed member of the Engineering Council, the Institute allows for the assessment and nomination of Professional Members to become Chartered Engineers (CEng), Incorporated Engineers (IEng) or Engineering Technicians (EngTech).

Foundations

The foundation of the modern Institute as we know it today began in 1923 with the creation of ‘The Institution of Welding Engineers.’ Created following a meeting of 20 men at the Holborn Restaurant in London on 26 January that year, the Institution united acetylene welders with those engaged in electric arc welding and was formally registered in February 1923 with registration under the Companies Act.



The Institution set out a range of aims to ‘advance and develop the science and practice of welding.’ This included activities such as the reading of papers and lectures, the drawing up of recommendations and regulations for the welding industry, the establishment of welding schools, and the promotion of related legislation. In addition, the Institution sought to create a network of branches to unite professionals within the industry and help take steps for the development of the science of welding.

The next ten years saw the income of the Institution grow to £800 per year, with the number of Members reaching 600.

Library

The Institute has included a library since the 1930s, acting as a custodian of industry knowledge and creating a link between practical and academic findings.

The library has remained a constant thread ever since, both for the Institute and TWI Ltd, making knowledge available through its catalogue of around 4,000 books, 50,000 journal issues, 10,000 standards and 30,000 unpublished reports.

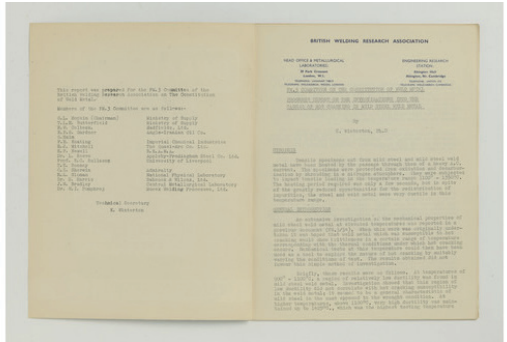


The library's archive stretches back to the 1920s and is still regularly used to inform and educate with the assistance of staff who are all information professionals, willing to answer enquiries and provide information searches that are complete, relevant and free of bias.

Many of the physical assets held by the library have now been digitalised, allowing access for a wealth of information that was previously difficult to access or even unavailable to many.

Merger

12 years after forming, in 1935, the Institution merged with the British Advisory Welding Council to become 'The Institute of Welding.' This amalgamation allowed for a 'wider and more comprehensive programme of work' to be undertaken, while also meeting the 'pressing demands of all branches of engineering for guidance in welding matters.' This merger also meant that companies could now become Members of the Institute as well as individuals, paving the way for what would later become TWI Ltd's Industrial Membership.



Welding Research



With this new, broader scope, the Institute's Welding Research Council was created in 1937 to provide 'status and recognition for the valuable work of the research committees and the standing of their personnel.' This year also saw a three year grant awarded by the Department of Scientific and Industrial Research to support welding research.

Despite this new scope of work, the Institute didn't have its own laboratories, so work was primarily supported by UK universities.

Split

In 1946 the Institute was forced to split, as professional institutions were debarred from being able to also act as research institutions. This led to the creation of the British Welding Research Association (BWRA) as a separate entity to The Institute of Welding.

1946 was also the year that the BWRA bought Abington Hall near Cambridge for £3850. This is still the site of TWI and The Welding Institute's headquarters today, but the operation was much smaller back then, with the



welding shop operating from the stables adjoining the hall and fatigue research taking place in a former army hut on the site. The BWRA also owned a property at 29 Park Crescent in London, which became the metallurgical laboratory, with the butler's pantry serving as the polishing room and the machine shop situated in the coachman's quarters.

Two years later, in the Institute's silver jubilee year of 1948, a Grant of Arms was awarded to the Institute, with the coat of arms depicting the making of a joint with heat along with the Latin motto, 'out of two, one.'



Training and Certification

Things continued apace with The Institute of Welding for the next few years, but a growing demand for training courses on welding design and construction led to the creation of a course on the welding of pressure vessels in 1957.



This first course, held at a property near the Imperial College of Science and Technology in London, can be seen as a forerunner to today's TWI Training, with 100 people applying for the course's 40 places. This first course quickly led to more courses being organised and, by the early 1960s, the school had hosted more than 300 visiting lecturers.

In 1965, the School of Applied Non-Destructive Testing was created by the BWRA and the Non-Destructive Testing Society of Great Britain. This new school pioneered formal training in areas including ultrasonic weld testing and radiographic interpretation, which led to the foundation of what would become CSWIP, the Certification Scheme for Welding and Inspection Personnel and TWI Certification.



Reunification: The Modern Institute is Created

In 1968, The Institute of Welding and the BWRA were merged once more, with the realisation that their activities would serve industry better as a 'single voice for welding technology.' It was in the March of this year that 'The Institute of Welding' was renamed as 'The Welding Institute' – creating the modern Institute as it is today.



Since then, the Institute has continued to serve its Members and support their professional development while promoting the welding profession to subsequent generations.

3. The Inaugural Meeting of The Institution of Welding Engineers

Although 2023 marks the hundredth anniversary of the official formation of The Welding Institute (originally known as The Institution of Welding Engineers), the actual history of the Institute dates back around a year earlier with an inaugural meeting held in 1922.

It was on 26 January 1922 that 20 men gathered together at the Holborn Restaurant in London to discuss the establishment of a new welding society.

This meeting, which was convened by Mr Charles Raggett, saw 16 of the men sign the Memorandum of Association, of whom just seven described themselves as 'engineers.' The other nine signatories were mainly drawn from commercial management staff of welding supply manufacturers and merchants – although one was certainly an M.I. Mech.E.

The triumph of this meeting was not just in establishing a new institution, but also in bringing those from acetylene welding together with their competitors from the field of electric welding.

Proceedings from this inaugural meeting discussed the creation of a, "comprehensive welding society" and the decision to form a new society, which gained support from a range of individuals and firms alike.

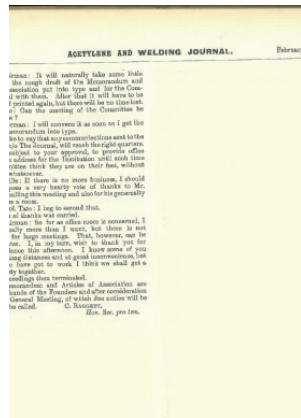
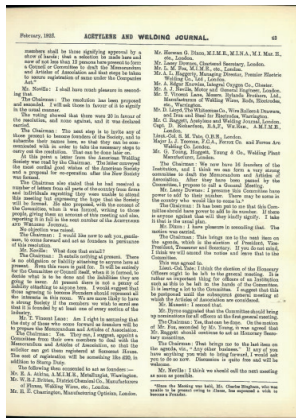
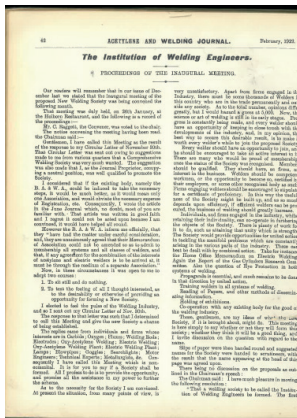
With a desire that, "every welder should have an opportunity for keeping in close touch with the developments of the industry," it was hoped that those joining would take an active interest in the newly proposed society.

It was also stated that these welders should seek a "certificate of proficiency" and that disseminating information, promoting the industry and training welders was also of importance.

The meeting not only invited those present to become founders, but also noted recognition from the American Welding Society who sent their "cordial good wishes."

This important meeting then went on to discuss further matters for later consideration, before coming to a close.

While small in number, this meeting set the ball rolling for what would become today's internationally-recognized Institute.



Proceedings reproduced courtesy Acetylene and Welding Journal

4. The Welding Institute Presidents: 100 Years of Influence



The Welding Institute has been represented by 58 presidents since its formation in 1923.

Well-respected experts in their fields, the Institute presidents take up the honorary role to help develop and expand the influence and reach of The Welding Institute.

The Current President

Professor Dame Julia King, Baroness Brown of Cambridge DBR FREng FRS, became the 58th president of The Welding Institute in September 2022. As the first ever female president of The Welding Institute, Baroness Brown's appointment represents a significant milestone in the history of the organisation.

Having gained an MA in Natural Sciences from the University of Cambridge and a PhD in Fracture Mechanics, Baroness Brown has made significant contributions to the STEM industry, leading to accolades including the Grunfeld, John Collier, Lunar Society, Constance Tipper, Bengough, Kelvin and Leonardo da Vinci medals; as well as the Erna Hamburger Prize and the 2012 President's Prize from the Engineering Professors' Council.

Baroness Brown's contributions are not just academic and professional, but also philanthropic, with her involvement in chairing the Science and Technology Select Committee, the Carbon Trust, STEM Learning Ltd and the Adaptation Committee of Climate Change Committee.

Alongside gaining knowledge in her field, she has shared her expertise with students and peers, with roles including a decade spent as the Vice-Chancellor of Aston University, being the Principal of the Engineering Faculty at Imperial College, London, and holding senior business and engineering posts at Rolls-Royce plc.

Full List of Welding Institute Presidents 1923-2023

Term of office Name

1923-25	Sir R Rylands-Bart	1971-73	Prof Sir John Baker, OBE FRS
1925-26	Charles Bingham	1973-75	A Robert Jenkins, CBE JP
1926-28	Professor F C Thompson	1975-77	Sir Ralph Freeman, CVO, CBE
1928-29	Lewis J Yeoman	1977-79	Sir Leonard Redshaw
1929-30	A L Haggerty	1979-81	M M Pennell, CBE, FRS
1930-31	L M Fox	1981-83	Sir Dennis Rooke, CBE, FRS, FEng
1931-32	W R J Britten	1983-85	Sir Hugh Ford, FRS, FEng
1932-33	A E Shorter, MBE	1985-87	D R Lomer, CBE
1933-34	E A Atkins	1987-89	Rt Hon Lord Gregson
1934-35	C W Hill	1989-90	Sir Monty Finnieston, FRS, FEng
1935-37	Sir Alexander Gibb GBE, CB	1991-93	Sir Robert Easton, CBE
1937-42	Sir William Larke, KBE	1993-95	J G Collier
1942-44	Sir Ralph Freeman	1995-98	Prof Sir B Crossland, CBE, FRS, FEng
1944-46	W W Watt, CBE	1998-00	Professor B G Neal, FEng
1946-47	A Dyson	2000-02	Prof B Mellitt, FEng
1947-48	J L Adam CBE	2002-04	Prof R Boucher, CBE, FEng
1948-49	J H Patterson	2004-06	Prof M F Burdekin, FEng FRS FWeldI
1949-50	O V S Bulleid, CBE	2006-08	Rt Hon the Lord Trefgarne PC
1950-51	C S Milne	2008-11	Richard Sadler FEng FWeldI
1951-52	Howard J Thompson	2011-14	John Baxter, FEng FRSE FWeldI
1952-54	A Robert Jenkins JP	2014-16	Bertil Pekkari HonFWeldI
1954-55	R G Braithwaite	2017-19	Steve Dearden
1955-56	R G Weddell	2019-22	Dave Holmes
1956-58	Sir Charles S Lillicrap, KCB, MBE	2022-	Baroness Brown DBE FRS FRAeS FInstP CEng FEng
1958-59	J Strong		
1959-60	E Seymor-Semper		
1960-61	E Fuchs		
1961-62	H West		
1962-63	W Barr, OBE		
1963-65	L Redshaw		
1965-66	Prof J G Ball		
1966-67	Nicol Gross		
1967-68	J F Lancaster		
1968-71	Sir Kenneth Hague		

5. Providing 100 Years of Professional Engineering Support



Over the past 100 years, The Welding Institute has evolved from relatively humble beginnings as an institution, uniting just 20 acetylene welders with electric arc engineers, to becoming the leading engineering institution for the support of welding and joining professionals.

Being appointed as a Professional Engineering Institution was a landmark in the history of The Welding Institute, with a licence being granted by the Engineering Council.

The Engineering Council

The Engineering Council is the UK regulatory body for the engineering profession, holding national registers for over 228,000 engineers and technicians. The Engineering Council oversees the governance, awarding and retention of the standards of professional competence, ensuring that governments, employers and wider society can be confident in the knowledge, experience and commitment of those holding professional registration titles.

The Welding Institute and the Engineering Council

The grant of a licence to the Institute from the Engineering Council in 1996 means that The Welding Institute can assess candidates for inclusion on the national register of professional engineers and technicians, covering the titles:

- Engineering Technician (EngTech)
- Incorporated Engineer (IEng)
- Chartered Engineer (CEng)

Over 42.5% of Welding Institute Members are professionally registered. The Institute works closely with the Engineering Council and is licenced to carry out the process of accreditation and approval of educational programmes.

The Engineering Council acts as a regulator for the engineering profession, setting the standards required for professional registration, including the criteria for the accreditation and approval of education programmes. This provides students, employers and society with the assurance that these approved programmes meet the standards required by the engineering profession.

The Benefits of Professional Registration and Membership with The Welding Institute

Professional registration and membership of The Welding Institute provide a number of benefits:

- **Professional Recognition:** Professional registration shows others that you are competent as a result of the skills that you have demonstrated to the Engineering Council and, in turn, can lead to professional recognition from peers including employers, employees and clients.
- **International recognition:** Professional registration status is an internationally recognised title.
- **Exposure to career opportunities:** Professional registration includes membership benefits that can help you to progress within your career. For example, with the new exclusive Jobsite, which provides access to around 550 trusted companies offering relevant jobs in the welding, joining and allied technologies industries.
- **Build new networks:** Professional registration allows you join a growing community, connecting you with peers, colleagues and other likeminded professionals.
- **Industry Influence:** Professionally registered engineers or technicians can take on

responsibilities to support the development of other professionals. The knowledge and experience you gain from this offer you greater influence within your industry.

Don't just take our word for it – hear from Institute Members:

“The fact that my experience is peer-reviewed speaks volumes. Not having a full bachelor's degree could automatically make me exempt from some job roles. However, having IEng status shows that I can still work at that level using my experience.” - Carl Lavis IEng MWeldI IWS/EWS

“I believe it is important to be acknowledged by my peers; mainly for recognition of competence, commitment and evidence of expertise” - Jade White BSc BEng (Hons) CEng MWeldI EWE/IWE

6. TWI Training and The Welding Institute



As a forerunner to today's Welding Institute, The Institute of Welding originally established a School of Welding Technology in response to an overwhelming demand for courses on welding design and construction.

This first course, held in 1957 on the welding of pressure vessels, took place at a property near the Imperial College of Science and Technology in London. This course can be seen as a forerunner to today's TWI Training, with 100 people applying for the course's 40 places and quickly leading to more courses being organised until, by the early 1960s, the school had hosted more than 300 visiting lecturers.

Not only did the Institute grow as a community with the increased number of candidates showing up for the courses, but the growing number of courses (as well as the variety of programmes introduced) connected us more with the needs of industry and our audience.

In 1965, the School of Applied Non-Destructive Testing was created by the BWRA and the Non-Destructive Testing Society of Great Britain. This new school pioneered formal

training in areas including ultrasonic weld testing and radiographic interpretation, which led to the foundation of what would become CSWIP, the Certification Scheme for Welding and Inspection Personnel and TWI Certification.

TWI has gone on to expand across the UK, opening offices and laboratories in Middlesbrough, Aberdeen, Port Talbot and the Advanced Manufacturing Park, South Yorkshire, as well as gaining a presence around the world including in North America, China, Southeast Asia, India and the Middle East.

In addition to the added offices and laboratories that are now in place around the world, we have more recently introduced online courses that are not only tailored to the get the best from our senior lecturers' knowledge but can also be made available bespoke for you. Online courses have multiple positive factors to them, such as time and cost savings and making the content available for study wherever and whenever you need.

TWI Training has grown since it's most formative years as part of the Institute to now include a wide variety of international training diplomas and courses such as BGAS-CSWIP, welding specialist, technologist and engineer – IIW/EFW levels, global scheme for the certification competence of NDT personnel, accredited to ISO/IEC 17024 and ISO 9712 and IOSH, NEBOSH, etc.

Hence, as the Institute has continued to serve its Members and support their professional development while promoting the welding profession to subsequent generations, there is still plenty of scope to learn new skills through TWI Training, fulfilling yet another of the original goals of The Welding Institute.

7. The Welding Institute and 'Operation PLUTO'



Recent research into The Welding Institute has unearthed some previously unidentified, yet interesting connections between the D-Day landings, the Institute, and the start of what became the entire modern offshore oil and gas industry.

Background

To set the scene, we need to go back to 1942 when The Welding Institute was known as The Institute of Welding and plans were beginning for what would become ‘Operation Overlord,’ the Allied military operation that began on 6 June 1944 (D-Day) and led to the successful invasion of German-occupied Western Europe during World War II.

D-Day itself saw 160,000 troops crossing the English Channel and landing on the beaches of Normandy, soon to be followed by more Allied troops and vehicles in the following days and weeks. In order to maintain the momentum of the invasion following the first landing, it was necessary to keep forces supplied with fuel for their vehicles.

Supply and Demand?

Coastal tankers could have been used, but they can be delayed by poor weather, are exposed to attack from the air, and need to be offloaded onshore into vulnerable storage tanks.

As the British War Office estimated lubricants, oil and petrol would account for over 60% of the weight of supplies needed by the expeditionary forces, subsea pipelines were seen as the best solution.

At this point in the 1940s, submarine pipelines had been used by ports and over short distances, but they had never before been deployed in the tidal conditions and over the distances required to span the English Channel. To add to the challenge, the entire pipeline needed to be deployed in a single night so as to reduce the possibility of enemy or tidal interference as the pipes were laid.

Creating and deploying these pipelines quickly and effectively was the challenge to be met by Operation PLUTO (Pipeline Under The Ocean or Pipeline Underwater Transportation of Oil).

An engineer visiting the Petroleum Warfare Department at the time proposed the use of a single, continuous length of armoured pipeline that was similar to a subsea communications cable with the core and insulation removed, yet able to withstand high internal pressures. The use of additional lines would increase capacity and it was felt using high pressures would allow for different types of fuel to be carried.

‘Hais’ and ‘Hamel’

Operation PLUTO led to the creation of two different pipeline designs, ‘Hais’ and ‘Hamel,’ named for their inventors.

The Hais solution used an existing undersea telegraph cable design to create a 2-inch pipe made from extruded lead. The lead was surrounded by a layer of asphalt and paper that had been impregnated with vinylite resin. This layer was covered in steel tape, followed by a layer of jute tape and asphalt impregnated paper, before a final protective layer of 50 galvanised steel wires and a camouflaged canvas cover. Several tests were carried out on the Hais pipe and it was decided to increase the diameter to 3-inches, thereby increasing the amount of petrol that could be pumped compared to the 2-inch pipe. This pipe could be coiled in the hull of a pipe-laying ship ready for deployment, but because lead was in short supply, an alternative pipe was sought that used cheaper and more readily-available materials.

The chief engineer of the Burmah Oil Company, Bernard J. Ellis, proposed the use of mild steel to create an alternative, flexible 3.5-inch diameter pipe, and teamed up with the Iraq Petroleum Company's chief engineer, H. A. Hammick, to create the 'Hamel' pipe.

Unlike the Hais pipe, the Hamel pipe was too stiff to be coiled up and deployed by ship, so, instead, it was wound around a buoyant steel drum (so it would not twist along the longitudinal axis) called a 'Conundrum' (or 'Conun').

It is this conundrum-deployed Hamel pipe that has ties to the Institute of Welding, as it was joined using flash butt welding, with Stewarts and Lloyds supplying 40-foot (12 metre) lengths of pipe and designing, constructing and operating two factories at Tilbury to weld them into 4,000 foot (1,200 metre) long segments.

Research Expertise and The Institute of Welding

The creation of the Hamel pipe has its roots in research work undertaken by a committee of The Institute of Welding started in 1938. This research assessed flash butt welding, electric arc welding and oxy-acetylene welding as methods for joining pipes, and was reported in a paper on 'Pressure Pipe Welding' that was mentioned in the Institute's quarterly transactions of 1941. This was quickly followed by two more papers that became the important underpinning work upon which the Hamel pipe solution was built.

But this was not just a fortunate coincidence, as the Institute of Welding acknowledged Stewarts and Lloyds in relation to work to develop flash butt welding. Both flash butt welding and oxy-acetylene welding can also clearly be seen in a film from the time about the development of the Hamel pipe, with both techniques researched having been assessed for pipe welding by the Institute.

It is clear that The Institute of Welding was involved in the core of early development work (nowadays covered by Technology Readiness Levels 3-6), with this important research enabling Stewarts and Lloyds to manufacture Operation PLUTO's Hamel pipelines.

Operation PLUTO Pumping Stations

Camouflaged pumping stations were established at Sandown on the Isle of Wight and at Dungeness on the Kent coast. These pumping stations were disguised as seaside villas and cottages, old forts and amusement parks, while lorry drivers were told to call from public phone boxes to receive their delivery instructions.

At the other end of the pipelines, the Sandown pipe was to be connected to the port at Cherbourg and Dungeness was to be connected to the port at Ambleteuse (later changed to Boulogne). Maintaining the Walt Disney theme of Operation PLUTO, the Sandown pipeline was codenamed 'Bambi' and the Dungeness pipeline, 'Dumbo.' Meanwhile, a fake oil dock was built across 3 acres at Dover, codenamed Operation Fortitude and even 'inspected' by King George VI, and the Supreme Allied Commander, General Dwight D. Eisenhower as well as ground forces commander, General Sir Bernard Montgomery.

Deployment and Operation

The deployment of Bambi began on 12 August 1944, with the Hais pipe being deployed first, followed by a Hamel pipe on 27 August. However, both of these first attempts suffered failures. Finally, on 22 September, a Hais pipe was successfully deployed,



delivering 56,000 imperial gallons (250,000 litres) per day. On 29 September the Hamel pipe solution was successfully installed, but an increase in pressure from 50 to 70 bar on 3 October caused both pipelines to fail – Hais due to a faulty coupling and Hamel due to a sharp edge on the ocean floor. Bambi was cancelled the next day, having delivered just 935,000 imperial gallons (4,250,000 litres) of fuel.

Dumbo was more successful, with a Hais line deployed and beginning operation on 26 October 1944, where it remained in operation until the end of the war. The Hamel pipe was adapted with the Hais solution added at each end and the pipeline was extended to reach Calais by November so as to take advantage of better railway connections there. By December, nine 3-inch and two 2-inch Hamel pipelines along with four 3-inch and two 2-inch Hais pipelines had been laid, providing 1,300 tons of petrol per day. As was expected, the Hamel pipelines required some repairs during service but the Hais pipelines did not break during service, although plans to increase the pressure to carry aviation spirit as well were scrapped. Dumbo's 17 pipelines were finally shut down on 7 August 1945, having carried 180 million imperial gallons (820 million litres) of petrol.

In total, Operation PLUTO successfully delivered around 8% of petroleum products from the UK to the Allied forces in North West Europe at an estimated cost of £4,428,000.

85% of the pipeline was salvaged and scrapped between September 1946 and October 1949, the value of the recovered lead and steel (not to mention 75,000 imperial gallons of fuel still in the pipelines) exceeded the cost of recovery at an estimated value of £400,000.

Outcomes

There has been some debate among historians as to the value of Operation PLUTO for the war effort, especially the less-than-successful Bambi pipeline.

However, the impact of the work undertaken for the operation can be felt reverberating down the decades since, not least with the establishment of pipe welding, pipe coiling and large scale subsea pipeline laying.

These core technologies, developed in part due to the work of The Institute of Welding, enabled offshore oil and gas exploitation, which became a cornerstone of the work of the Institute and TWI in the 1960s and 70s.

While the focus of those involved in Operation PLUTO was to help win World War II, they could not have possibly have known that their innovative work would lead to future peacetime applications that progressed the oil and gas industry over the coming decades.

8. Abington Hall, The Welding Institute and the Military



Operation PLUTO (See previous article) is not the only connection between The Welding Institute and the war effort during World War II.

The British Welding Research Association (BWRA), a predecessor to today's TWI Ltd, purchased Abington Hall in 1946 for £3850, with the surrounding land becoming the headquarters for both TWI and The Welding Institute.

Before this purchase by the BWRA, the land had been used by the military during the Second World War, with both British and overseas troops being billeted on the site as well as at the nearby village of Abington.

The Bertram family, who had been in residence at the Hall when the war broke out, moved to live in Devon during the war years, leaving Mr Raymond Lane in charge as bailiff. Mr Lane himself served in both World Wars, first in the army and then as an RAF plotter based at nearby Duxford.

The Military Arrives

Rumour had started to spread through Abington that the army was going to be stationed in the area and, before long, lorries began to arrive and tents were erected in preparation for the arrival of the troops.

The London Irish Rifles Regiment were the first troops to arrive in the area, having walked from Cambridge station after coming back from Dunkirk. They were followed by the Royal Medical Corps, the Royal Artillery, the Royal Engineers, Lancers, Signals, the Canadian troops, Cameron Highlanders, and the Lothian Border Tanks Regiment. The tank regiment parked their tanks down Church Lane in Abington before heading off to join the fighting in the Middle East. The tank regiment was inspected by the Duke of Gloucester while stationed in the area, where they dammed the river so they could test running their vehicles through three to four foot deep water.

While the troops found themselves camped out under canvas during the war, the officers were billeted in the Old House and Abington Lodge, as well as at Abington Hall itself. Hetty Pavitt (née Cutter), who lived in the area at the time, recalled delivering newspapers to the officers at Abington Hall, having cycled across the nearby meadows.

In addition, there were a number of Polish soldiers stationed at the Hall and camped in the gardens of the Old House for a short while, who were remembered as being “polite and well liked.” Canadian troops also passed through for a weekend of rest and recuperation, where they played softball, and a group of Belgian soldiers also passed through before heading off to help relieve Brussels. Meanwhile, Italian prisoners of war were put to work in the village and on nearby Grange Farm.

The U.S. 8th Army also spent time stationed in the grounds of Abington Hall ahead of the onset of D Day, with reports saying they enjoyed drinking in the local pubs – The Railway Inn at Pampisford, The Princess of Wales and The Crown. The Three Tuns pub in Abington was, however, the preserve of the officers in the area.

The Crown pub also acted as the section HQ for the local Home Guard, who manned a gun point to defend a bridge behind the Old House, while England cricketer Frank Woolley commanded an RAF searchlight battery at the park.

The War and the Local Community

Aside from the many troops who were stationed at and around the Hall, there were a number of incidents that impacted the local community. Air raid shelters were erected in the gardens of local people and there are reports of a bomb landing on the bridge between Great and Little Abington, another striking the road at the entrance to Abington Hall and a third bomb landing on the nearby



North Road. Fortunately nobody was hurt by these bombs, but V1 and V2 rockets were sighted overhead by villagers.

Of course, a number of men went to fight in the war – joining the RAF, Army and the Royal Navy, some of whom lost their lives while fighting. The local GP, Dr Wilson, also did his bit locally, training the Red Cross in first aid.

Clearing the Site

At the end of the war, the site was initially cleared by the Royal Pioneer Corps before a small group was formed to continue this work. Mr Tom Patten was released from his military service in November 1945 and joined this group to clear the site on June 1946 as the BWRA moved into Abington Hall.

Of course, as mentioned above, some of the army buildings were repurposed for use by the BWRA while other items, such as a searchlight battery on the site, were decommissioned. The upper floors of the Hall were converted into flats and the history of TWI and The Welding Institute at Abington near Cambridge had begun.

9. Revisiting a Small Part of The Welding Institute’s History



71 years ago, in 1952, former wartime Minister for Food, Lord Woolton opened a new Fatigue Testing Laboratory at TWI’s Abington site.

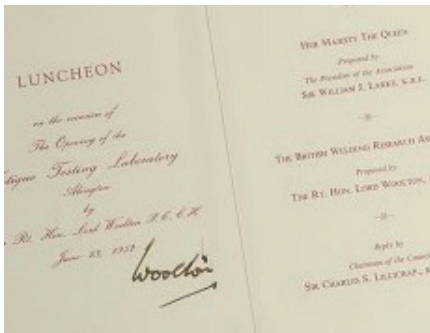
Lord Woolton used a ceremonial gavel to open the laboratory and it was this distinctive piece of history that was returned to The Welding Institute by David Natzler, who was passed the small wooden hammer by his friend.

David's father, Pierre Natzler, had been involved in welding all his life and had good relations with The Welding Institute. Therefore, David kindly decided to honour his father by bequeathing the gavel to The Institute.

The gavel includes an inscription on a silver plate which reads, "British Welding Research Association Used by the Rt Hon Lord Woolton P.C. C.H. to open the Fatigue Testing Laboratory at Abington – 23rd June 1952."

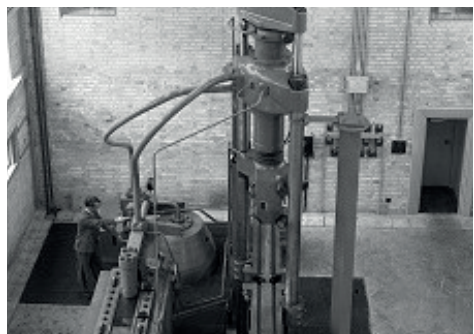
A Unique Build

The fatigue laboratory was built specifically to house a large Lösenhausen fatigue machine, with a 5 ton crane being brought in to help with the installation. The 200 tonne machine was the largest fatigue machine in the world at the time. While the Lösenhausen machine was remarkable for the period, the fatigue laboratory structure itself was also ground-breaking.



The fatigue laboratory was one of the first buildings globally to be built using Plastic Design Theory, which was developed in the 1940s. Plastic Design Theory was an original approach to the design of steel-framed structures following research carried out under Cambridge University's leadership. Professor John Baker carried out the research via a British Welding Research

Association Committee on the Load Carrying Capacity of Frame Structures. This research led to a 1948 amendment to BS 449, related to 'The Use of Structural Steel in Building.' Plastic Design Theory allowed design loads in steel framed structures to be more



accurately calculated and, consequently, permitted the use of smaller sections for beams and columns, leading to a more economical use of steel. As a result of this, the fracture laboratory was claimed to be 50% lighter than an equivalent conventional structure.



While the Lösenhausen machine was certainly the catalyst behind the build of the new facility, the laboratory also housed other prominent pieces of equipment, including the ‘Jacks Rig,’ which was built by former TWI Chief Executive Bevan Braithwaite and is still in use today!

Fatigue Laboratory Work

The Lösenhausen machine was used on a number of projects in the decades following, including for a programme testing the fatigue properties of joint designs, which led to an innovative new design standard. Leading to aid knowledge of fatigue-based failure in engineering components and structures.

The End of an Era

After 61 years of service, the fatigue laboratory was demolished in 2013 to make way for the building of new facilities at TWI’s headquarters near Cambridge. While the Jacks Rig was moved into the newly built engineering hall, the Lösenhausen machine

was eventually taken out of service and replaced with newer rigs to perform industrial fatigue tests.

However, with the return of the gavel that was used to open the original fatigue laboratory, there remains a strong bond to the heritage of The Welding Institute that demonstrates the foundations of the work carried out on fatigue research and expertise.

10. The First Welded Pressure Vessel?



As we celebrated the 100th anniversary of The Welding Institute, we spoke with some of our Professional Members about their career memories, uncovering some interesting stories from the past.

We received a message from long-standing friend and Member of the Institute, Fellow CEng Alan Gifford, who went on to tell us the story of what could be the world's first-ever welded pressure vessel - as well as kindly donating a unique replica of this piece of engineering history to The Welding Institute!

Here, Alan tells us the story in his own words:

“We all take welding, especially of pressure vessels, almost for granted, but there had to be a first one to be welded and pressure tested.

“Back in 1961, I was welding engineer at International Combustion Ltd (ICL), one of the UK’s seven boilermakers, and they were licensees of the multinational American company Combustion Engineering (CE) with its headquarters in Stamford, Connecticut. CE, as indeed was ICL.

“CE’s main boiler plant was in Chattanooga, Tennessee, and it was deemed desirable that I went asap to learn how they had such a massive output of both boilers and super heaters.

“On my visit to their laboratories I went past a small cylindrical pressure vessel mounted on a steel plinth. From memory it was about 5’0” long and 30” in diameter with two semi ellipsoid ends. I enquired what it was and was told it was the first all-welded pressure vessel ever made. Corbin Chapman, the then chief metallurgist at CE, gave me, as a memento, a very small replica of the vessel mounted on a wooden base. There was a plaque attached which reads:

CE
First All Welded Boiler Drum
Tested May 2, 1930
CE Combustion Engineering
Energy Systems Worldwide

“I retained this as a desk ornament through the next 45 years whilst I followed a variety of welding associated roles in the company until I retired in 1993 and it came home with me, still sitting on my desk. As I now approach 94, I felt it needed to be preserved and so sought more information on the item. Throughout my career I have maintained contact with one of the welding engineers who I met on that first visit – J C Campbell. I emailed him and asked if he knew any more about the manufacture of the vessel.

“He responded to say, ‘It was on display when I started at CE in 1950 and was hand stick welded by a guy called Amaziah Jones Moses –who went on to become VP/GM of the Chattanooga plant. It was hydro tested to failure. The welds did not fail but the manway cover on one of the ends leaked first - at well over the calculated pressure,’ adding, ‘you have made my day full of nostalgia!’ I believe it was done under ASME observation, but not approved by them at that time.

“So, as The Welding Institute celebrates its 100th year of life, it seemed right and proper that I should donate there - otherwise it would probably be in a dustbin when I am no longer the keeper!”

- Alan F Gifford CEng FWeldI

We would like to thank Alan for taking the time to tell us about this first-ever pressure vessel and for passing us this unique piece of welding history.

11. The Welding Institute and the Finniston Report

The Finniston Report (also known as ‘The Report of the Committee of Inquiry into the Engineering Profession’ or by its title, ‘Engineering Our Future’) nearly changed how the engineering profession operated in the UK with regards to professional institutions.

Commissioned in 1979 by the then Labour government’s Department of Trade and Industry, the report was a reaction to the dissatisfaction felt by the engineering industry to the Council of Engineering Institutions (CEI).

Industrialist, Monty Finniston was tasked with canvassing opinion from 100 of Britain’s engineering firms as well as visiting Canada, Denmark, France, Japan, The Netherlands, Sweden, the United States, and West Germany to assess their approach to the profession. In the end, the committee’s 17 members only visited 33 UK engineering firms, whose opinions were not included in the report as they were deemed confidential. However, the international investigations found that the status of engineers was higher in these other countries than in the UK. Finniston’s findings also found that the state was involved in the registration of engineers in all of the international countries, unlike in the UK, where it was handled by private institutions.

Finniston’s remit also included a review of how well professional institutions and the CEI were meeting the needs of engineers and technicians, along with the role played by institutions in educating and regulating their members.

The report was asked to consider whether the statutory regulation and licensing of engineers – as was the case in other nations – would be beneficial to the engineering industry in the UK.

The investigations were carried out in the light of concerns over a shortage of engineers in industry and a demographic decline in the number of 18-year-olds who could enter the profession in the early 1980s.



Welding Institute Member Opinions and Evidence

The outcome of the Finniston Report was of interest to The Welding Institute at the time as we sought affiliation with the CEI. In addition, The Institute was among the bodies that were asked to submit evidence and opinions to the Finniston Inquiry.

In October 1977, a working group was created to prepare the Institute's evidence, as shown by the minutes from a Welding Institute Professional Board meeting on 26th October where it was decided to send, "factual information concerning its constitution and activities together with opinions on the various points covered by the Inquiry's terms of reference."

The earliest thoughts from the Board included those of board member, Dr Nichols who, "said that he thought the advantages of limited registration and licensing greatly outweighed the disadvantages and the Professional Board agreed to recommend to Mr Gallagher's Working Group to reply to this effect."

However things were not entirely clear-cut as, "Mr Boyd said that a related problem was that the Technician Engineer and Technician Boards of the ERB, on which he was the Institute's representative, were also being asked to make submissions to the Committee of Inquiry," with meeting notes showing, "it appeared that the Technician Engineer Board was on the whole disenchanted with its experience of working in an organisation ultimately controlled by the CEI and would be recommending that the ERB be set up as a totally independent organisation with its own Royal Charter. However, it did not appear that the Technician Board would share this view and The Welding Institute could clearly not support two conflicting policies."

While these conflicting views were considered, a Professional Member Survey was circulated to, "secure a picture of the way in which the classes of membership are distributed in respect of job function," adding, "provision was made for comment on the objectives of the Finniston Inquiry as an alternative to the framing of specific questions or propositions. It was considered that comment so rendered could be given more weight than a 'yes/no' or 'for/ against' vote."

As a result, Members ranging from apprentices to Technology Fellows were invited to offer their opinions on the Finniston Inquiry. There was a respectable number of respondents to the request, with the findings offering a good snapshot of the thoughts and concerns of The Welding Institute's Members at the time.

A February 1978 report collated the findings, determining that, "the strongest thread in the web of arguments submitted concerned the current lack of status for the industrial engineer, expressed in terms of salary (compared with overseas engineers, and with the non-engineering professions), significance of title and public esteem. This is held to affect the manufacturing sector in particular, spokesmen for which believe that their counterparts in public service or consultancy are more generously accommodated.

There would be considerable support for the concept that engineers be rewarded commensurately with the wealth they create.”

The February 1978 report continued, “There is concern that whereas professionalism is equated with institution membership and is thus allied to academic attainment, the academic preparation of the engineer is inadequate for the demands of modern practice, especially in the field of welding technology. In this respect, both the teaching syllabus and the quality of student intake were mentioned in the unfavourable sense.”

However, the report continued, “On the other hand the need for the Welding Institute to secure CEI affiliation is quite widely urged. The end result is generally seen as beneficial to the recognition of welding technology and the standing of Professional Members. The latter point was sharply defined by those working for employers who give credit for chartered status in their career structure. That this implies open acceptance of the associated academic level is much less certain; perhaps not all of the implications of affiliation are fully understood.”

Registration of engineers was also discussed in the findings, as the report noted, “There is considerable interest for the registration of engineers, most often mentioned in regard to public safety but, perhaps, also held as an additional means of establishing status. One comment made the critical point that it would be essential to define the technical reasons for each particular case for which registration was advocated, so that requisite knowledge could be stated.”

But this did not mean that the findings were unanimous, as the report revealed, “Another submission, however, argued eloquently against the setting up of registration/licensing as a government operation; seen to be doomed to bureaucratic muddle, injustice and unnecessary expense. There was more than a hint of awareness that individual subscriptions would be augmented by further outgoings, to add to the union subscription which Members were paying ‘because of the failure of institutions to uphold professional status.’ Nonetheless, institution control of registration would be looked for.”

There also seemed to be a sense of dislocation between higher management and welding engineers at the time, with the report showing, “Higher management appreciation of the work of the welding engineer drew some criticism, although possibly less than might have been expected. Those not in the direct line of management can feel a sense of isolation, but more general misgiving concerns the lack of encouragement for qualification. One comment, obviously based on broad knowledge, referred to a parallel situation in respect of welding technicians; it was suggested that few who had made the effort to obtain the City and Guilds 265 welding technicians certificate had been able to secure advancement to technician level.”

Finniston’s Inquiry had also asked for thoughts on recruitment, with The Welding Institute finding that, “Industrial difficulties with the quality of recruitment intake were, however, acknowledged. This was said to affect apprenticeships and entry to the design

office, and retraining schemes were thought to be producing an unwelcome dilution of skill.”

The report concluded, “Finally, while the overall burden of comment supported the notion that institutions should be highly influential in the sphere of qualification and professional standards, the more radical view that these matters needed a new approach was also clearly expressed. This was linked with the suggestion that the terms of reference of the Finniston Committee were too restrictive.”

The thoughts of the membership were collected and submitted to Finniston’s Committee of Inquiry along with details of membership regulations, the 1976 annual report, details of training courses, and publications. A Professional Board meeting on 16 March 1978 saw Dr R D Johnston comment that he, “felt that the Institute had put forward an extremely well presented submission, though it had to be remembered that it would be one of many to be considered by the Finniston Committee.”

The collection of views from The Welding Institute’s Members was not just of benefit to the Finniston Inquiry, as noted by Professional Board Chairman of the time, Mr FW Copleston, who believed that, “the Finniston Inquiry had provided more information and facts than had been available before,” adding, “It would be desirable to review the whole activity of the Institute in the light of this information and he suggested that senior officers be asked to prepare... documents concerning likely developments in education, training and membership over the next 5 years.”

Finniston Report Recommendations

The final report from the Finniston Inquiry was delivered seven months late (on 16 November 1979) due to the volume of evidence that had to be considered (and dissent among committee members), eventually being published by Margaret Thatcher’s Conservative government in January 1980.

The final report actually recommended that the CEI be abolished and replaced by a new statutory Engineering Authority. This was deemed necessary by Finniston as the CEI had failed to promote engineering adequately or influence UK policy, as well lacking a central purpose for its members. Some CEI members felt that it was too slow to implement change as many decisions required the unanimous consent of all 16 members.

Finniston felt that the new Engineering Authority should assume the responsibility of regulating admission and membership from the individual institutions and that membership grades should be aligned to the educational level of members, corresponding to higher national certificate, bachelor’s degrees and master’s degree levels. Finniston also criticised the level of education offered by British universities when compared to those in Western Europe, recommending that specific engineering degrees were introduced (BEng and MEng) as a foundation for chartered status.

The Institute Reacts

The submission of Finniston's report was not the end of The Welding Institute's involvement as we were invited to offer comments on the findings. A meeting was called on 31 January 1980 to "prepare the Institute's comments on the report of the Finniston Committee" and a working group was set up to draw together the Institute's comments for submission to the Department of Industry by 1 April 1980.

Despite later concerns (raised at the Conference of Branch Representatives on 5-6 June 1980) that, "there had been very little time for consultation in preparing the Institute's submission to the Department of Industry," the Institute's comments were submitted to the Department of Industry as well as being passed to the CEI and various Members of Parliament.

A document presented at a Professional Board meeting on 27 March 1980 collected the thoughts of The Welding Institute in regard to Finniston's report.

The Institute accepted the need for an alternative to the CEI with the creation of the Engineering Authority. However, concerns were expressed over the composition of the Authority, believing that, "the Authority should be the expression of the engineering profession and not of the Government." It was also felt that, "the prime responsibility of the Authority must be to act as an 'engine for change' in order to secure a shift in attitudes towards engineering," but that the "ultimate responsibility for setting standards for education and training and for accreditation" would "more appropriately, efficiently and economically be performed by existing institutions." This view came from a belief that these aspects "can only be adequately judged by experts" from institutions.

The Welding Institute agreed with the idea of a statutory register but expressed "grave concern" over the idea of making registration independent of institution membership, stating that, "the recommendations with respect to registration will tend to have the effect of depriving the institutions of the means and authority to fulfil the responsibilities specified." The Institute also argued that those listed on the ERB register should be transferred from the CEI to the Engineering Authority so as not to humiliate those engineering technicians who were currently registered and sow unnecessary division in the engineering workforce.

With regards to accreditation of engineering degree courses, The Institute believed that this should be carried out by the institutions, "acting as agents for the Engineering Authority, rather than directly by the Authority itself."

The Institute did support Finniston's assertion for the continuing formation of engineers as developed by the Institute's School of Welding Technology and School of Applied non-Destructive Testing, but raised concerns that, "the structure of a first degree course does not take measure of the depth of specialist knowledge that is sometimes involved and brings into question the availability of teaching resources."

In summary, The Institute accepted that institutions had a continuing role to play, but had reservations over registration being “entirely independent of the institutions,” as it was felt this would “weaken their authority and deplete their resources.” It was also felt that institutions should retain their role in the education, training and accreditation rather than simply advising the Engineering Authority. The Authority itself should assist the institutions without a “domineering or interfering attitude” that would “cause resentment which would be injurious to the Authority itself.”

The Welding Institute also stated that the Finniston Committee’s recommendations “tend to transfer too many of the proper functions of the institutions to the Engineering Authority,” yet felt that the Authority had an important role to play on promoting engineering as a career in schools and helping to persuade university engineering students that a career in manufacturing “provides job satisfaction fully comparable with that derived from a career in research or design.”

Awaiting a Response

Although Professional Board Chairman, Mr Copleston “believed that the Institute had forwarded a very positive and well-prepared contribution” to Finniston’s findings, it was now a matter of waiting for a final outcome.

This impacted the work of The Institute’s Policy Review Committee, especially given that the future of the CEI itself was now in question. The structure of the Institute’s Professional Board, the future role of the Institute and the training programme on offer were all forced to wait for the outcome of Finniston’s recommendations.

There was, however, still an air of discontent over some of Finniston’s assertions, with a Mr Newman commenting that, “he was unable to accept the comment in Finniston that the weakness of the engineering industry was due to the incompetence of its engineers,” with a report noting that, “he considered that the fault lay with unsatisfactory conditions at work.”

Several draft charters were submitted and amended in relation to the Finniston Inquiry over the following months, with acting Chair of the Professional Board, Professor Budekin stating on 19 March 1981 that, “the existing Charter of the CEI could only be terminated with the consent of 75% of the existing 185,000 Chartered Engineers, hence the necessity for securing their consent to the new arrangements if a damaging confrontation were to be avoided.”

Outcomes

In the end, the Conservative government opted not to follow Finniston's recommendations and instead retained the independent and self-regulating nature of institutions. Despite Finniston's objections, it was decided that the Engineering Council was established to oversee the profession under royal charter (rather than via parliamentary legislation as would have been the case with a statutory body).

The CEI also rejected Finniston's findings and instead recommended that three new bodies were established; one for register engineers, one to promote the profession and change the national attitude to engineering, and one to act as a voice to influence national policy towards the profession.

Of the institutions that were part of the CEI, some supported Finniston's report and others rejected it, opting for continued self-regulation.

Legacy

Despite the original rejection of Finniston's recommendations, some of the ideas outlined in the report did end up coming into being.

The government replaced the CEI with the Engineering Council that still operates today and the Engineering Council instigated common record-keeping systems for continuing professional development (CPD) for engineering institutions, bringing the profession in line with accountants, town planners and surveyors who were, at the time, the only other professions to require the formal recording of CPD.

Finniston's recommendation to implement schemes to increase the number of engineering and science students, as well as to attract more women and young people to the profession, were realised, including with the 1984 'Women into Science and Engineering (WISE)' campaign. This work has continued over the following decades with a survey in the year 2000 showing that 72% of respondents rated engineering or science as a good career choice for women, compared to just 56% at the time of Finniston's report.

Chartered engineer status was restricted by the Engineering Council in 1992, so only applicants with BEng or MEng degrees were accepted. At the same time the industry has become more accessible and is now seen as more desirable than at the time of Finniston's report, with salaries increasing in some sectors.

Perhaps most tellingly of all, the Engineering Council's Hamilton Report, released in 2000, found that Finniston's report had been unfairly labelled as being dirigiste (whereby the state plays an overly directive role that is contrary to a merely regulatory nature). In the end, Sir James Hamilton's report decided that Finniston had actually recommended very little legislative control over the engineering profession. However,

Finniston's report marked a monumental time for the engineering profession and the role of Institutions.

Meanwhile, Monty Finniston's association with The Welding Institute did not end with the submission of his report as he went on to become the President of the Institute between 1989 and 1990!

12. Professional Profile: John Kell



EUR ING John Kell MBE CEng FWeldI has personal ties to TWI and The Welding Institute that go back longer than most, having actually lived on the site of our headquarters at Abington Hall from when he was just four years old!

John's history with the Institute began when his mother took the role of housekeeper at the organisation's newly-built conference centre in 1968. The conference centre and upgrades to Abington Hall were implemented to provide student accommodation for those attending welder and NDT training courses at TWI, plus conference facilities. Abington Hall also included the British Welding Sports and Social



Club facilities, complete with a bar, darts boards, a full-sized snooker table and a golf putting green.

Living in the flat on the top floor of Abington Hall, John recalls long days playing games around the grounds of the estate with his older brother. With a grandfather who was a marine engineer and who served in The London Scottish Regiment and was injured during the notorious first day of the Somme during World War One, and a father who spent over two decades as a career soldier with the Royal Tank Regiment and Royal Mechanical and Electrical Engineers, it is no surprise that John took an interest in engineering as well as in the military.

Of course, the ties between Abington Hall, the military and The Welding Institute date back to at least 1946, as the end of the Second World War saw the army, who had used the Hall during the war, vacate the premises and the forerunner to today's TWI, The British Welding Research Association, buy the hall for £3850. Indeed, the first fatigue research activities on the site took place in a former army hut under the guidance of Dr Richard Weck.

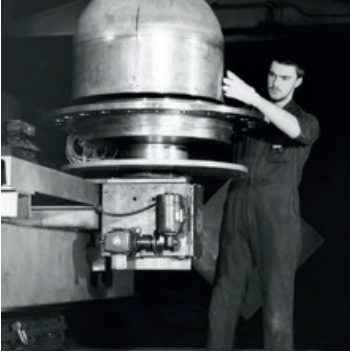
TWI Career

Living nearby to South Lodge, Dr Weck was someone John and his family knew well, with the former Director General of BWRA and The Welding Institute even providing John with books for his university studies. John studied for a manufacturing systems engineering degree at Portsmouth and worked as a design engineer for Lufthansa in Hamburg as part of his sandwich degree course.

By this point, John had already built up his engineering experience close to home after joining TWI as an apprentice in 1980 under the direction of training supervisor Ray Hood. Having sought to go into the technical drawing office, time in the machine shop led to John joining the electron beam (EB) department instead, where he operated an EB welding machine under the supervision of Tibor Szluha, all while doing part-time studies and being allowed day release for training, where he gained his ONC and HNC qualifications.



TWI's head of EB at the time, Dr Alan Sanderson, encouraged John to progress his academic career further, so he headed back into full time education at Portsmouth University in 1989. While he took some summer work at TWI to earn extra money during his studies in 1990 and 1991, John was back with the EB department at TWI

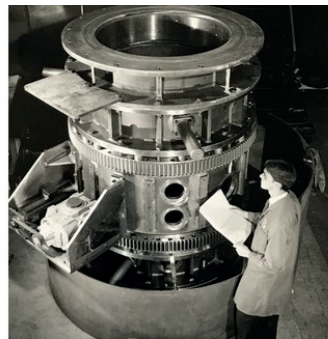


in 1993. Now a Senior Project Leader working on out-of-vacuum EB and equipment build projects for nuclear waste containment vessels, and offshore pipeline fabrication projects.

A period of time between 1999 and 2001 saw John leave TWI and head over to Milwaukee in the USA, where he worked for a Tier 1 automotive company as Senior Advanced Manufacturing Engineer, supporting new joining process development, lean manufacturing process implementation and 3D discrete event simulation and robotic modelling. On his return to the UK, he undertook running his newly

formed manufacturing consultancy, before his career once again led him back to TWI for seven more years, this time as business development manager for the automotive and motorsport sector.

John's working time at TWI encompassed around two decades and included time in the machine shop, the electron beam department, the manufacturing support group (where he worked on the 3D modelling of production lines and was part of the Welding Engineer Helpdesk), and as a business development lead and manager for TWI's automotive operations.



Working across the oil and gas, nuclear, aerospace, automotive and defence sectors, John's time at TWI saw him travel to South Africa, Sweden, France, Germany, the United States, New Zealand, Mexico, Canada and Japan as well as spending time working out in the North Sea!

While he now works as a principal R&D specialist for the government, John's association with The Welding Institute has continued.

Professional Membership, Chartered Engineering and the Next Generation

John was previously the Chairman and a committee member of the Eastern County Welding and Joining Society (1995-2007) as well as being on The Welding Institute's Education Committee, and now is in his second term as a member of the Professional Board. He originally became a Professional Member of the Institute during his time

at TWI, starting at technician grade and progressing on completion of his engineering degree.

His membership set him on the way to becoming a Chartered Engineer, which John notes is an important measure of engineering competence, providing validation and a level of assurance to employers.

John explained that he would readily recommend engineering as a career, professional engineering institution membership and chartered status to others, as it not only differentiates you in the workplace, but is also useful for securing further professional and personal development, industrial contact networking, and can end up in one securing higher value and rewarding career opportunities. With some employers preferring engineers with chartered status, this move can offer career and social mobility for young people.

Indeed, John remains keen to use his expertise and experience to guide and promote engineering as a career, including as a Major - Officer commanding 3 Company Cambridgeshire Army Cadet Force, where he helps promote STEM.

Career Advice

His varied experience makes John perfect for offering advice to any young people who may be considering a career in engineering. Even as industry seems to transition from a hardware to a software-based focus, there is still a need for engineers and technicians as well as those employed in design, innovation and research and development.

Looking back on his own career, John revealed that he wished he had been more confident dealing with senior managers in his early days as a technician, but is also keen to stress the value of his apprenticeship.

Having taken time doing an apprenticeship as well as studying for a degree, John recommends the apprenticeship route for those who may not be as inclined to progress a degree, as it provides a working knowledge of a role that may only be shown in theory at university. This knowledge can prove invaluable as you progress through your career, even up into management, as you will carry a real understanding of life on the 'shop floor'.

Whichever route you choose, it is clear that engineering has given John career fulfilment and professional recognition, while The Welding Institute has remained a staple for most of his life!



