

WARWICKSHIRE

Industrial Archaeology Society

WIAS

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FROM THE CHAIRMAN

I could not have imagined that my next Chairman's Notes would be written during the worst pandemic experienced in the UK for many years, with no obvious end in sight. It has been a worrying time for us all, and has exerted its own pressures on the way in which WIAS has functioned during this crisis, and the way it may operate in the future. This newsletter explores that current experience, and outlines plans for the coming months. Inevitably, with an unknown path for the Covid-19 pandemic, all these may be subject to change, although we hope the autumn programme outlined below will stand firm.

As we have previously advised, our committee has agreed with Warwick School that we shall not hold any 'live' meetings at the school at least until January 2021 and, in the meantime, we shall keep the matter of our return under review with the school's management. This also means that the planned programme of meetings from January 2021 must remain provisional, subject to some form of (government/school) clearance about the viability of (?socially-distanced) gatherings of clubs and societies. We will keep the membership updated.

However, we are pleased to announce that we have arranged a series of on-line meetings for the autumn season, using the Zoom system when we would otherwise have been meeting at Warwick School, that is at 7:30 pm on second Thursday of each month, 10th September, 8th October, 12th November and 10th December. We envisage that these meetings will have a duration of around one hour.

Prior to the pandemic, I sense that many of us were not even aware of

the existence of Zoom meetings, but they have become a familiar feature of communication during the crisis. Fear of the unknown – particularly in the world of IT – is familiar to many of us, but I hope the notes for Zoom meetings outlined below – meticulously prepared by Victor Lobb – will ease those fears.

For those without screen access, this is an opportunity perhaps to share the evening of the second Thursday of the month with a friend or neighbour who does have such access.

The details of the planned programme are shown opposite.

Guidance for attendees of WIAS on-line ZOOM meetings.

- You will be sent an invitation by email that will include an invitation link and the allocated **meeting number** and **password**.

- You can request to join the meeting by clicking on the **'invitation'** link in the email.

- This will prompt you to access the process that gives you access to the meeting: please follow the on-screen instructions.

- The meetings are scheduled to begin at 7.30 pm, but to enable all those wishing to join to do so, we shall open the meeting at 7.00 pm. We recommend that you ask to join the meeting as soon as possible after 7.00 pm.

- *As an alternative, you could pre-install and activate a free Zoom account on your PC, tablet, smartphone, iPad etc. Activation is by an email they will automatically send you, and once installed you will have your own personal "meeting room" number. You can then join the WIAS meeting by entering the allocated **meeting number** and **password**.*

- You can use a PC, Mac, iPad or smartphone to participate. Smaller screens limit the number of people that you can see. For example, if you are using an iPad, you may be able to only see nine people at a time, on gallery view. If you have the choice it would seem to be better to use a device with a larger screen (computer, lap-top).

- Zoom's security system places invitees wishing to join the meeting in a **'virtual waiting room'**, from which the host admits them to the meeting.

- In order to improve sound and video quality for the group, the host will **mute** all attendees upon admittance.

- You are recommended to:

1. turn off your video camera so that the focus stays on the presentation and the speaker.

2. set your viewing mode to **'Speaker View'**.

- Attendees are invited to submit questions using the Zoom **'Chat'** facility; the host will monitor and relay these to the speaker.

PROGRAMME

10 September 2020: Informal AGM (formal AGM deferred to 9/9/21) and Roger Cragg talk
The Dale Dyke Dam.

8 October 2020: Alain Foote
Industrial Archaeology Highlights of a round-the-world trip in January and February 2020.

12 November 2020:
John Berkeley OBE
E Crossley & Son, Aircraft Constructors of Banbury.

10 December 2020: Martin Green
Shaping the Fabric of Victorian Leamington Spa: The life and work of G.F.Smith, brickmaker, builder and surveyor.

NEWSLETTER

Meeting Reports

February 2020: Members' Evening

Twenty's Plenty

The first meeting in what will now be our on-going venue, The Halse Pavilion, was enjoyed by all despite some car parking issues. Moreover, it once again highlighted the range of interests and expertise that reside in the membership.

George Sayell and **John Berkeley** opened proceedings with the surprising history of a WW1 aerodrome in Norfolk. Recalling the previous month's talk on zeppelins, Sedgeford aerodrome was built in 1915 as a satellite and night landing site for the RNAS base at Great Yarmouth, especially to intercept zeppelins. Also used as a training base, with high casualties, the aerodrome closed in 1919 but its buildings remained, some featuring in a local archaeology society's survey a few years ago.

A motley collection of aircraft, shown in contemporary photographs, used the base which also became a decoy site during WW2. Of more current interest was the reuse of some hangars by a number of local businesses. One housed a Land Rover dealership and others were found incorporated into light industrial units. The wooden roof trusses seemed to have lasted well. The site is now a chicken farm and inaccessible to the casual visitor. Subsequently, when needing to know the dimensions of a hangar a local contact offered to go and measure one only to find nothing but a pile of rubble. Here yesterday, gone today.

Peter Bolton, before taking us to chew a toffee in Hunnington between Bromsgrove and Halesowen, offered the chairman a possible timing system for future 'twenty's plenty' evenings. Heath Robinson would have quailed before constructing the device used by one Shirley Walloon that ended by igniting a thunder flash! Not in the Halse Pavilion please.

Harry Vincent started Bluebird Toffee, originally known as Harvino, in Hunnington in 1889. The local railway station closed in 1964 but opposite can still be found the elegant headquarters of Bluebird built in 1926 and still used as offices. The words Harry Vincent Ltd are still visible over the portico. Elsewhere other buildings remain including the staff canteen and houses that formed part of the model village built by Vincent after the examples of fellow confectioners Cadbury and Fry. The Blue Bird emblem remains on some ironwork alongside a notice of planning applications for demolition and conversion to housing. The company closed in 1989 when it was bought by Needlers and production was moved to Hull. Needler Bluebird was subsequently acquired by Ashbury and the name has now been discontinued.

John Brace took a typically wry look at the remains of a malt kiln in Alcester. Malting or drying grain to preserve it through the winter is also the process used to prepare the grain feedstock, usually barley, used to brew beer. The Alcester kiln consists of two brick lined pits, one larger than the other, sunk below ground level and linked by a tunnel. The superstructure is unknown. The kiln is probably medieval, possibly with Roman antecedents. It has been moved to its present location in Malt Mill Lane within a retirement complex. Its preservation is a good recommendation for active local archaeology.

John Willock, cradling what looked like a small air

cooled motorcycle engine, looked quizzically at the audience and asked: what is this? Not many knew. It was a Heywood air compressor. The brainchild of a Worcestershire Wizard whose Heywood Company was based in Redditch, the highly efficient two stage compressor was attached to Rolls-Royce Merlin engines, driven from a camshaft, to provide compressed air. On Spitfires this typically operated flaps, air brakes and cocked the eight Browning machine guns, on the Lancaster bomber the brakes. Heywood compressors were fitted to the Merlin engines powering some 22 different aircraft. It was not unique. BT-H compressors were used on Hurricanes and the US Packard built Merlins had Bendix compressors. A simplified description of how the little powerhouse worked, not least the pressures achieved, made it clear that Henry Royce and his successor engineers were not the only ones to whom we should be thankful for providing the tools for Europe's salvation in those far-off days of 1940.

Martin Green next took us on a picturesque stroll off the Foleshill Road by way of Cross and Canal Roads and from the bucolic charms of the Edgewick Poultry Farm to the remains of Alfred Herbert's empire. Not only were machine tools made here but there was a thriving textile business in hosiery and elastic webbing like that found in Leicester. A possible research project mooted the Chairman. Returning to Herbert, Arthur Astrop's review of Coventry's machine tool industry coupled to some aerial views was a handy guide to follow.

A few buildings remain. The single storey laboratory with its glazed brick internal walls and beamed roof is now a car repair workshop, but the nearby office building with Albert Herbert's apartment above it has been demolished. Next door 'Atritor' still makes the powder handling equipment pioneered by Herbert. In a multi-cultural neighbourhood the Lady Herbert Memorial Surgery has survived, possibly housing a car repairer but well-guarded by 'Tiny'! The AH Social Club is now a Sikh Temple but the 'AH 1938' boss remains visible. A Foleshill Trail Leaflet is a good guide for any visit.

Peter Riley ran through the recent changes and improvements that have been made to the WIAS website. This is now a most comprehensive guide to the Industrial Archaeology of Warwickshire with a wealth of information, both current and historical. It more than fulfills the objective of providing any visitor from Mars or Manchester with a suitable itinerary for exploration and education about our very diverse home county.

Martin Wolston ended the evening with a puzzle. A mystery machine, small, hand operated with a hopper that included an agitator. Well made with detailed castings that suggested volume production, it would appear to be something agricultural and dating from around 1886. The various photographs led to a general discussion as to the possible uses to which it could be put. After many plausible suggestions someone asked where it could be inspected. The discovery that it was in the United States put paid to any thoughts of a field trip. We were left with the general idea of the small-scale treatment of something.

Altogether an informative and entertaining evening.

March 2020: Ian Whittle

The Life and Work of Sir Frank Whittle.

Whilst the story of Frank Whittle and the development of the jet engine is probably familiar, to a greater or less extent, to many, hearing the story from the inside was both a privilege and a pleasure.

Ian Whittle, like his father, has flying in his blood. From a flying scholarship in 1952 and a subsequent RAF career, which included flying Meteors and Hunters, he was a pilot with Kuwait Airways and Cathay Pacific before retiring in 1994. He still has his pilot's licence.

Jet propulsion was not invented. It is a natural phenomenon arising from Newton's third law of motion – for every action there is an equal and opposite reaction. In practical applications the turbojet was proposed by Barber in 1791 but, unsurprisingly, could not be built; Elling in 1903 did build a working gas turbine but only achieved some 3% efficiency.

The turbine cycle differs from the familiar Otto cycle of petrol and diesel engines and was described as suck – compress – squeeze – expand – blow. It is achieved by a machine comprising three elements: compressor – combustion – turbine.

By the 1920s the industrial gas turbine promised, potentially, to compete with the established steam turbine but these were heavy pieces of equipment, beyond contemplation as an aircraft engine.

Frank Whittle was born in Coventry in 1907. He seems to have been fascinated by flight from an early age. When he was only four there was a tin toy aeroplane that flew around the gas mantle light. A possible early lesson in action and reaction. Whittle was present, aged 9, when an aeroplane landed on Hearsall Common. And he got so close that when it took off the slipstream blew his cap from his head.

The family moved to Leamington Spa where his father, Moses Whittle, had a small engineering business where the young Whittle developed his practical skills alongside his academic work at Leamington College for Boys. He was an avid reader and made good use of the Leamington Library.

His fascination with aviation led him to join the RAF at 16 as an apprentice. He excelled in mathematics and built many model aircraft. The top five apprentices were offered places at Cranwell, the RAF's officer and pilot training establishment. Whittle was sixth but fortuitously one of the five proved to be colour blind and so he was in. Whilst at Cranwell Whittle wrote a thesis (in 1928) on future developments in aircraft design and proposed the gas turbine as a possible prime mover for its theoretical potential at high altitudes with targets of 40,000 feet and 500 mph. He also qualified as an above average pilot and was posted to 111 Squadron to fly Hawker Siskins.

Whittle continued to develop his theories and others were also working on gas turbines at RAE Farnborough. A sympathetic CO must have caught something of Whittle's enthusiasm and sent him to discuss his ideas with the boffins at the Air Ministry. Their conclusion was not yet, largely due to inadequate materials to withstand the high temperatures and stresses. Nevertheless, it was remarkable access for a newly commissioned Pilot Officer who, prodded by a friend from the Central Flying School, took out a patent in 1930. This development was picked up, notably by the Swedes and then the Germans. At this time Whittle developed other concepts including the high-bypass configuration and reheat.

In 1934 Whittle's patent needed to be renewed but a lack of funds meant it expired. However, the RAF did regard

Whittle as something of a protégée with many inventions and developments to his credit. The question of what to do with him was answered by sending him to Cambridge, after his distinction in the Officer's Engineering Course at RAF Henlow, to read Mechanical Sciences. He graduated with first class honours after only two years followed by a further postgraduate year.

Whilst at Cambridge Whittle was contacted by a former Cranwell colleague, Rolf Williams, who was now an entrepreneur partnered by another ex RAF man J C B Tinling with a view to exploiting Whittle's jet engine concept. An enthusiastic technical report by a consulting engineer, M Bramson, led to funding by the merchant bank O T Falk and the formation of Power Jets Ltd to which Whittle was seconded by the RAF.

Lacking any manufacturing capabilities, Power Jets began an association with B T-H in Rugby, long established steam and gas turbine manufacturers. Simultaneously, RAE at Farnborough revived their activity in the field and the German pioneers, Von Ohain, and Oestrich were active.

With B T-H producing the hardware, Power Jets made considerable progress and an engine first ran on 12 April 1937. Declared 'secret' by the Air Ministry subsequent developments towards a successful flight were not made public.

However, it was known that in Germany the Heinkel He 178 did fly in 1939 but its engines were totally unreliable only giving some six minutes flying time. In the UK, Gloster were tasked with building the UK's first jet-powered aircraft and the Gloster E28/39 powered by a Whittle jet first flew for 17 minutes on 15 May 1941 and was cleared for 10 hours flying time. The jet aircraft had arrived.

In 1941 a Whittle W1 engine was sent to the USA where the National Academy of Science had condemned the gas turbine engine as unsuitable for aeronautical applications. This spurred US development programmes.

Meanwhile, the larger W2 engine was developed for the Gloster Meteor, a twin-engined fighter aircraft and the first operational jet plane. The German Me 262 does not have this distinction. Furthermore, it was most unreliable and killed lots of its pilots.

Ian did not go into the detailed history of the efforts to bring his father's engine into volume production by the Rover car company nor the subsequent successful collaboration with Rolls-Royce before Power Jets was nationalised in 1944.

In the early post-war years several Power Jets projects were cancelled including the LR1 Turbofan engine and the W2/700 reheat engine planned for the supersonic Miles M52 aircraft. Rolls-Royce Nene and Derwent engines (productionised Whittle engines) were sold to Russia with unfortunate consequences. First, fury from the USA where these engines were classified secret; secondly because Russian built copies powered the Mig 15 fighter that caused havoc during the Korean war.

The drawings for the Miles M52 were sent to the USA where they were developed into the Bell X1 and first broke the Sound Barrier.

Frank Whittle, who had suffered three nervous breakdowns before the end of the war, was promoted to the rank of Air Commodore, knighted and granted a gratuity of £100,000. He retired from the RAF and eventually moved to the USA where he died in 1996.

He will be always remembered as the father of the jet engine.

WIAS During Lockdown

The society has continued to function during lockdown and the following article – published in AIA Newsletter 194 – describes some of the issues raised by the experience. Coupled with this go my thanks to all who contributed to the e-mail correspondence and submitted material for the website. It really eased my task of seeking to keep WIAS in the minds of our members and friends. I should particularly like to thank WIAS webmaster Peter Riley who tirelessly loaded information arriving from several different directions at once, and developed the Virtual WIAS link on the website. John Willock, utilising both his expertise and experience, produced several articles on the motor and aircraft industries, and several correspondents took us into previously uncharted territory of ‘offbeat’ TV Channels and YouTube. **Martin Green**

LOCKED DOWN BUT NOT LOCKED OUT: RESPONDING TO THE COVID-19 CRISIS

By Martin Green, Peter Riley and Victor Lobb, Warwickshire Industrial Archaeology Society.

One of the great strengths of the industrial heritage movement has been the role played by local industrial archaeology and industrial history societies. Amongst these societies, there is great variety in the nature of the contribution each makes to the cause, whether through meetings, fieldwork and visits, publications (including online), the maintenance and presentation of industrial heritage sites, or simply providing a much-valued opportunity to share mutual interests. Each of these activities usually relies on the dedicated work of enthusiasts (often small in number), and each society's income is largely derived from membership and meeting fees, publications revenue, and visitor charges.

The oft-quoted challenge of an ageing membership with no obvious candidates emerging to take on the responsibilities of running the society has prompted a lot of debate, and let us hope that the recent AIA initiative to overcome this via ‘The Young Members’ Board’ produces the desired response.

To have the onset of the Covid-19 virus on top of these long-term trends has done little to lift the spirits, but all societies have given thought to an appropriate and achievable response, providing some light in the (apparently) unremitting gloom.

Warwickshire Industrial Archaeology Society is perhaps not particularly well known amongst fellow industrial archaeology/history societies, but we are a thriving society, with meeting attendances averaging 60-70 people prior to lockdown. These meetings are our strength, providing expert lectures, together with the (important) social contact amongst kindred spirits, and the history of the society is very much defined in terms of the range of topics covered in these meetings since we were formed in 1989.

So the lockdown came as a real shock, presenting a distinctly unwelcome challenge to the key element of our work. We have a (mainly) elderly membership, several of whom fall into the ‘vulnerable group’ category, so we had to cancel meetings for the foreseeable future. The probability that, if not the restrictions, then the medical advice will discourage attendance at meetings for some months, encouraged us to consider other ways of both maintaining the engagement and enthusiasm of our members, and managing the Society's affairs.

It was notable that attendance at our regular monthly evening meeting in March, shortly before the ‘lockdown’, was around a third less than we would have expected, and we have not held any ‘physical’ gatherings since. Indeed, the regular venue for our meetings may not be available for some time, and may be subject to a level of ‘social distancing’ which would be very different from our usual environment.

Fortunately, the society is also blessed with a committee that remains positive, with a few possessing unquenchable optimism! How could we respond? Were there even any unforeseen benefits that might emerge from this unprecedented experience?

It was soon apparent that the best way to keep in touch

was by email and through the society website, which already had a good following. Initially all members with email were sent updates about what the society was doing. Then the website was updated with new pages, the first providing a series of films, mostly with an IA theme. Members were invited to contribute their own offerings and a short film about a 1937 visit by a family from the USA to relatives in Warwickshire received over 350 viewings in the first 2 weeks. This page proved extremely popular. Secondly a page called ‘Virtual WIAS’ was created to supply information on any subject members cared to contribute. These have been many and various and generated much discussion, some quite lengthy, on a wide variety of subjects, ranging from clutch manufacture in the automotive industry, through brickmaking at Napton, to pie-making in Warwick!

The contributions were mostly received by email and vetted/edited where necessary before being added to the web page. As a result, many new pages have also been created on the society website which at the height of lockdown was receiving over 800 visits per week. Much of this material was not in the nature of ground-breaking research, but rather a means of creating links and offering ideas that might be followed up by visitors to the website.

The committee were also conscious that a small proportion of the membership did not have access to email. To remain as inclusive as possible it has been arranged to add some of the contributions and photos received to an expanded version of the quarterly society newsletter which could then be mailed to these members.

So thoughts turn to what might lie ahead. The likely continuation of the presence of the virus, even if less virulent than previously, throws doubt on the willingness of members to physically gather for a monthly meeting. Will the Zoom lecture soon become the ‘new norm’?

What is the likely impact on membership - and income - in the longer term? How does one decide the annual membership rates for a series of Zoom meetings?

The one thing that the crisis has created is time – time to sort out all those bits of research that lie in box files up in the attic; time to finally scan (some of) those 35mm slides; time to relate work experiences to a wider audience. This has meant that more individuals have felt willing to contribute material – and to comment on pieces that have been posted by others. Long may this continue.

Questions for the future also include attitudes to recreation, and whether our recreational habits - and those of the rest of the nation - change significantly? Will travel horizons be significantly reduced? Could there be a greater focus on the local community, with growth in interest in local history – including industrial history – perhaps encouraged by Walks and associated leaflets? Could this represent an opportunity for WIAS to become more involved in local communities?

Perhaps most significantly of all, the lockdown has encouraged us to think about ways in which the industrial heritage of our area might be brought to a wider audience. This has been a challenging but ultimately a very rewarding experience.