

Science, Engineering, & Technology Group Summary for 2021-22

This group has had an interesting 18 months as usual. As we came out of post-Covid lockdown late summer 2021 the question was what to do and where to go in light of remaining restrictions. It was felt that visits to manufacturing companies as featured on previous programmes of events would not be welcome so alternatives were sought. Members made suggestions then John collated them and called a meeting to discuss the options and to get the group members to vote on them. The results have driven our programme of events from then until the end of 2022 and will carry us into 2023.

Our first trip was on 25th November 2021 and was a repeat of a previously successful event. We went to the **National Glass Centre** in Sunderland followed by **NELSAM** on the edge of Washington near to the Nissan manufacturing complex. A few photos from both places can be seen below.

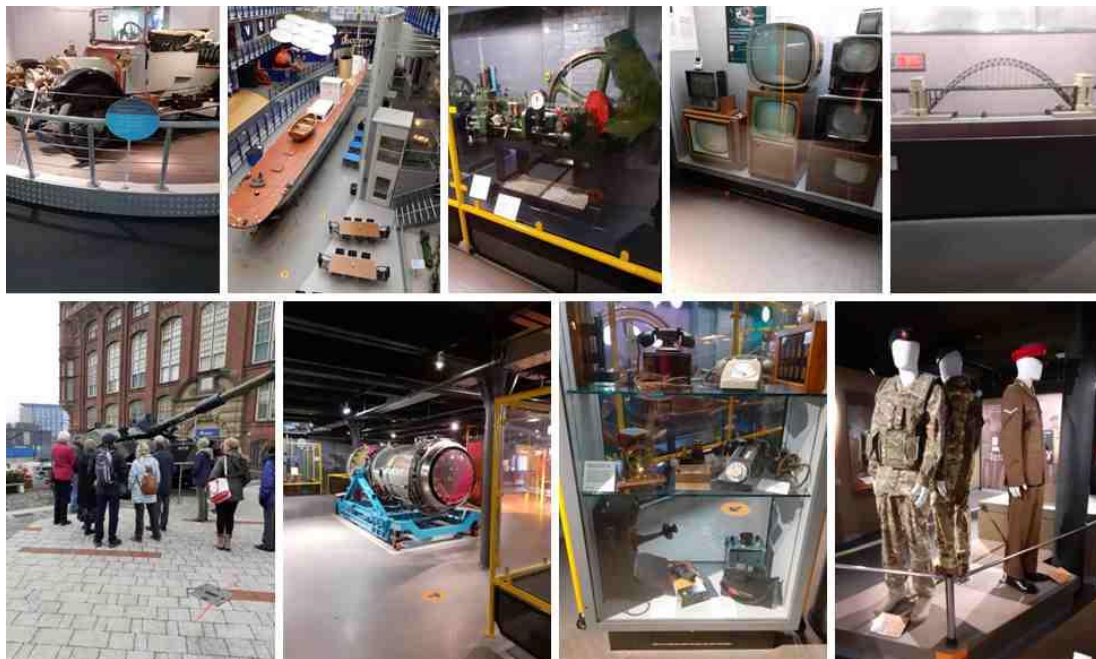
The Centre itself is right on the river Wear not far from the river mouth and on a clear day, as it was the day of our visit, it is a nice place to sit or stand and watch the world go by and the river activity. Most of us opted to watch the free glass-blowing display and also spent a little time watching the intricate flamework that takes place behind glass windows. The glass displays change regularly so there is always something new to see as well as providing a history of the glass industry in Sunderland and the gift shop usually does well out of our group.

After a quick lunch we moved on to NELSAM. Thankfully this wonderful little privately-owned museum has survived lockdown and reopened. There is so much to see there including a variety of Forces and commercial flying machines of many types both under cover and outdoors. As well as various aircraft and helicopters there are also a variety of wheeled vehicles to look at. These include an old car, armoured army vehicles and tanks, and even old fire engines that are almost antiques now. An Ex RAF Avro Vulcan XL319 bomber behind a hanger is a little intimidating but the Northeast yellow Trident brings back memories of holiday flights to Spain and other parts of Europe. If this isn't enough to keep you occupied for a few hours there are also WWI and WWII displays of service uniforms, gas masks, and even a tin of spam. You discover something new on every visit.



3rd March 2022 we went to **The Discovery Museum** in Newcastle to learn about the fascinating Engineering and Technology developed within the region such as the first windscreen wipers, matches, electric lights, steam turbines and steam powered ships. This had been planned for an earlier date but Covid intervened. We started our visit outside where one of our ex-army u3a members told us all about the Challenger 2 tank that is on display outside the building.

Inside a series of rooms contain collections of items. There were some fascinating things on display including old valve and vacuum-tube based TVs as well as long-superseded communications equipment. There were rooms containing furniture, household items, and models wearing clothing from various decades over the last century. These are museum relics now but most of our group had used them in our lifetime! There were models of bridges and various transport types as well as full-sized engines and the steam turbine driven Turbinia on display on the ground floor. In one room the history of Newcastle population was charted using Census data to show population growth and immigration over the decades. A key element of the Discovery Museum is that it is hands-on with many touch-screen displays to provide data as well as things to touch and play with. This is great for kids and grown-ups alike.



The field study visit to **Woodhorn Coal Mining Museum** up near Ashington took place on 21st April. The visit began with the world-renowned Ashington Group Collection of art and a talk from a staff member giving us more information about the 'Pitmen Painters'. We had plenty of time to view them at leisure and also to wander around that area of the museum ourselves. After a coffee break we joined another staff member for a tour of the mine equipment at yard level. This included machinery that exchanges air to ensure that those who worked at lower levels could breathe easily (the green wheel) and machines that pumped excess water from the workings. We learned why mines had 2 shafts in order to evacuate those underground should one shaft fail and saw one of the cages that were used to lower miners to their working level (the red item). The cage was small and the miners were crammed together like sardines. Most of our group then went into the display area that simulates being in the mine to get a better understanding of the life of a miner.



On 26th May we had a new experience for the S.E.T. Group as we attended a lecture at the Methodist Church on Cockton Hill Road entitled '**Secrets of the Brain**'. The Speaker was Bob Pullen of Prudhoe u3a who is also booked as our Town Hall Speaker in January 2023.

This was a very interesting lecture discussing the workings of the human brain, which is so central to what we humans are. He explained how our brains are made up of nerve cells or neurons, which behave rather like batteries producing a small voltage which becomes the language of the nervous system, a bit like Morse code. Our neurons can also behave like computer-chips processing electronic data. Bob compared the brains of other animals and explained how different parts of the human brain perform different tasks, some areas controlling movement, others giving us our five senses. Bob described the fascinating ways our brains can create visual illusions, how we produce language and speech, and how we feel pain. He discussed the physical division of the brain into left and right cerebral hemispheres and described how these differ between men and women. He demonstrated some of these things using games such as playing cards. There was a lively Q & A session at the end.

In June we were scheduled to go on the **Carlisle/Settle Railway to the Ribbleshead Viaduct** but that week ended up being the first of the train strikes and we had to postpone.

The weekend of September 25th/26th the S.E.T. Group joined forces with the Art & Architecture Group for a joint field study visit to Scotland. After an early start and pick up from the Market Square in Bishop Auckland we headed north, stopping at Jedburgh for a comfort break, before arriving at the **Falkirk Boat Wheel** late morning. The Wheel is an amazing piece of engineering joining the Forth and Clyde canals that are some 36 metres apart in height. The gondolas work on the Principle of Archimedes to raise and lower the boats between the canals. This was followed by a visit to **The Kelpies** that were particularly striking in the cold late afternoon light. Most of the group joined the guided tour to venture inside the 30 metre high structures to learn about their design and construction.

We had a very pleasant overnight stay at The **King Robert Hotel** near Bannockburn, Stirling. The **Battle of Bannockburn** took place nearby and time was made after breakfast to allow group members to walk the short distance to view the Robert the Bruce statue. Next stop

was the **Glasgow Transport Museum** on the banks of the River Clyde. This museum houses almost every type of transport you can imagine. Glasgow is famous for its trams and there were trams of all descriptions on display. There were bikes ranging from penny-farthing and tandems through to modern racing bikes with an old delivery bike on display as well. There were scooters and motor bikes, tractors, and a hearse complete with plumed horses as well as beautifully painted fairground rides. A Rington's Tea delivery van brought back memories. There were cars of all ages from very early open-top roadsters through a Rolls Royce Phantom II to a Hillman Imp. All through the museum were displays of contemporary items such as the Kenwood mixer near to the Imp. Outside the Tall Ship Glenlee was moored at the quayside and there were models of many ships inside the museum. There was so much to look at in every direction that the sheer volume and variety was almost overwhelming.



On October 20th we finally made it to the **Settle/Carlisle Railway and the Ribbleshead Viaduct** though this visit seemed fated. We travelled by coach to Kirby Stephen railway station but as the washrooms are being refurbished stopped for a comfort break in the town. Shortly before getting back on the coach a message came through to let us know that there had been a serious derailment up near Carlisle overnight and that the train timetables on the route were being affected. We went to the station as planned but it is unmanned so the only information was on the electronic board or via the Internet. By this time it was bucketing down so the group remained on the coach until a short time before the train was due. During that time a further message came in about disruptions due to heavy rain. After a further delay we boarded for the 20-minute ride to Ribbleshead. The normally wonderful views were obscured due to the rain but we enjoyed riding over the viaduct. We had only one hour 50 minutes at Ribbleshead due to the timetable disruption and the weather was truly awful. Most people walked a short distance on the path to view the viaduct from a distance but only a very few intrepid walkers braved the elements to walk down and back. Almost all opted for the roaring open fires and comforts of the hotel and enjoyed a nice lunch. The return train was slightly delayed but we got back to Kirby Stephen where our driver was waiting to bring us back to Bishop Auckland. Despite the challenges of the day there was a lot of laughter and it was a memorable and enjoyable day.



That October day we had been scheduled to go to the Embsay Steam Railway and to enjoy the Skipton Canal Cruise but as the tickets for Ribbleshead had already been purchased and were transferrable free of charge due to the strike we went there instead. The Embsay and Skipton Canal trip will be rescheduled for 2023.

I hope that all group members who attended any or all of these events enjoyed them and that this summary will trigger some good memories of the visits.