

# **Henry Morris Report – Trip to New York**

## **George Crooks and Joe Ryen**

After obtaining the grant from the Henry Morris Memorial Trust, we flew out to New York on the 18<sup>th</sup> of July. We stayed with relatives just north of the city for a couple days and spent this time relaxing and visiting sights around the local area. This portion of the trip was funded by ourselves. However, on the Sunday, we took a day trip into New York City and used the funds provided to pay for bus fares into the city, and expenses whilst there. Later on in the week we did another trip into the city, where we stayed in an apartment provided by relatives for a night, and visited family in Princeton where we also stayed for a night. We then returned to the city and spent another night in the apartment, before returning to family north of the city. During this time, the grant provided by the trust covered all travel expenses. The money also allowed us to see major engineering sights around the city and covered the small living expenses that we had for the few days.

### **USS Intrepid:**

During our day trip into New York City on the Sunday 21<sup>st</sup> July, we visited the United States Intrepid, a disused aircraft carrier turned museum. The cost of this was \$33 per person, and allowed us access to the huge aircraft carrier and attached submarine.

The USS Intrepid first served in the second world war and continued to be used in various locations for several decades. It was even used as a NASA retrieval ship in the 1960s. Retired in 1974, the ship was moored on Pier 86, Manhattan. The moored submarine is the USS Growler, a retired guided missile submarine.



Walking through the submarine, we saw the mechanism for the torpedoes and engines, and the small living quarters that the crew would have had to of lived in for months at a time.

Being able to visit the Intrepid was a great opportunity for both of us. One of the most fascinating parts of the ship was the large flight deck which housed a wealth of historical military planes, and even a space shuttle, the Enterprise. This was particularly interesting from an aerospace engineering point of view. There was a lot of information provided about how the different aircrafts worked. It was also informative to observe how flight technology as changed in the last decade or so. Over such a short period of time, so much progress has been made from basic propeller engines, to huge jets running through the spine of aircrafts. This is one of the reasons we find engineering such an exciting field and there is so much scope for where technology can evolve in the next few decades and further.

### **Brooklyn Bridge:**

During our second visit to the city, we took the chance to walk down to the historic Brooklyn Bridge. One of the biggest civil engineering accomplishments of the 19<sup>th</sup> century, the bridge spans around two kilometres from Manhattan island to Brooklyn. At the time of completion, in 1883, the bridge was by far the largest of its type in existence and solved the issue of not having a quick crossing over the east river.



Problems never faced before were encountered during the build of the bridge, not only due to the size of the bridge, but also the restrictions on the foundations caused by the nature of the busy river. By visiting the bridge, we learnt about the dangerous techniques used to build the foundations under water, and the pioneering use of steel within the bridge, as most bridges before had been build out of iron. It showed a different aspect of engineering than the previous trip to the Intrepid.

### **Empire State Building:**

Arguably the biggest tourist attraction in New York, we both wanted to go up the Empire State Building. This wasn't just because of the outstanding view of Manhattan from the top, but also so that we could appreciate one of the 20<sup>th</sup> centuries most impressive architectural achievements. The \$40 tickets were more than worth it.



As we learnt from the walk-through museum style 80<sup>th</sup> floor, the construction of the building created new industry standards for building work. Before 1930, buildings of this type would aim to be erected at a rate of three and a half storeys a week, however it was decided that the scale of the empire state meant that this would simply take too long. With this in mind, it was decided that a rate of four and a half storeys per week would be aimed for. Amazingly, this target was exceeded, with the building reaching completion a whole month before schedule.

Over the last 90 years the building has shown its strength too, surviving a strike from the wing of low flying US bomber on a misty day in 1945, with little damage.

### **High Line:**

Following a recommendation from a relative, we visited the Highline, which is a repurposed elevated freight railway running along the side of Manhattan. We learnt that in the late 19<sup>th</sup> century, freight trains ran at ground level through the city, leading to hundreds of pedestrian deaths. This is why an elevated track was built in 1933, which was used for the best part of 50 years to transport goods around the city, until the demand diminished. Then came 30 years of dispute around the highline – officials wanted it demolished, yet the public petitioned to turn it into a public space. In 2009 it finally opened as a public park, and remains as one of the greenest public places in the city, hosting events from food festivals to music gigs too.

In an age where so much technology is designed for a single use, and waste is a major global issue, this was a great example of how engineering can still be integrated to have a purpose in society, even after its original purpose has expired.

**What we have gained from the trip:**

Thanks to the generous grant provided by the trust, our trip was hugely beneficial and enjoyable. Whilst in the city, we felt a new sense of independence which we had never experienced before. Navigating our way around the city and living alone there for a couple of days was an exciting challenge for us, and one that we will not forget.

The sights that we saw also furthered our knowledge and interest in engineering. We set out with the aim to see how our educational teachings relate to real life sights and applications, and we feel that was achieved. The city provided much to explore with points of interest in many different engineering fields.