

Newsletter of the Australian Society for History of Engineering and Technology

More on the Opera House

Thirty years since it opened, the Sydney Opera House is much in the news at the moment. ASHET member Ian Bowie has suggested a couple more books on its history that are well worth reading:

Anne Watson, editor, *Building a Masterpiece: The Sydney Opera House, 40th anniversary edition, 2013*, Sydney Powerhouse Publishing. There are chapters by specialists in different aspects.

Michael Baume, *The Sydney Opera House Affair*; 1967, Nelson, Melbourne. Deals in perceptive detail with events up to and including the Utzon resignation.

Aviation 100 years ago



Sopwith Pup, introduced in 1916

In 1914, most people in the aviation industry were wondering what part aircraft would play in a war. Balloons had already been used in reconnaissance. The development, mainly in Germany, of rigid airships held promise of a much wider role for lighter than air machines, both for reconnaissance and for carrying bombs and weapons.

Count Ferdinand von Zeppelin outlined his first ideas for a dirigible, a powered and steerable airship with a rigid frame, in around 1874. Its success was due partly due to the use of new light weight aluminium alloys. It was patented in 1895

These airships, which became known as Zeppelins, were first flown commercially by the German company Deutsche Luftschiffahrts-AG (DELAG), the first company in the world to use aircraft in a regular service. By July 1914, DELAG had carried 34,000 passengers on scheduled services between German cities. The outbreak of war put a quick stop to plans for international services and a switch to building Zeppelins for war.

After the War, scheduled services were resumed. In the 1930s the airships Graf Zeppelin and Hindenburg operated services between Germany, the United States and Brazil. The services ended spectacularly when the Hindenburg, carrying 36 passengers and 61 crew, caught fire while mooring in New Jersey. 37 of the crew and passengers died as a result. The disaster brought to notice a number of earlier airship disasters, a large proportion of which involved fires or explosions. However the

accident with the greatest loss of life was the one in 1933 when the helium-filled USS Akron was lost at sea off New Jersey in a storm, with the loss of 73 lives.

With the outbreak of war in 1914, the Germans were quick to exploit their lead in airship building and operation. The German Army and Navy had purchased 14 Zeppelins, of which five were lost in accidents before the start of the war. The new airships were 150 to 180 metres long and capable of carrying around two tons of bombs. They were initially used mainly for reconnaissance, supporting naval ships in the North Sea and the Baltic.

The Germans began to use airships as bombers in 1915, and conducted 20 raids that year, mostly over Britain, dropping 37 tons of bombs and killing 181 people and injuring 455. Raids on Britain continued until the end of the war.

A total of 84 Zeppelins were built during the war. Over 60 were lost, roughly evenly divided between accidents and enemy action. At the end of the war some of the remaining airships were scuttled by their crews and the remaining ones were delivered as war reparations. Since then there has been virtually no combat use of lighter than air machines.

Heavier than air craft

Heavier than air craft had only luke-warm support from leading military strategists prior to World War I, and their possibilities for reconnaissance and combat were slow to be exploited. In July 1914 the number of serviceable aircraft of all the British armed services was less than 30. They were flimsy machines, built mainly from wood, fabric and wire, with sputtering, unreliable engines. It's no wonder the generals were reluctant to put them in the field of battle.

But once hostilities started, field commanders saw that these aircraft could be useful for reconnaissance. In 1914 radios were not capable of providing communication between an aircraft in flight and the ground, and navigation in unknown country with no good maps available was tricky. By 1915, reconnaissance aircraft were fitted with Morse code transmitters which greatly increased their usefulness. By 1914, artillery was capable of reaching targets well beyond the range of sight, so aircraft could be useful in spotting them.

The first recorded use of aircraft in a war was by the Italians in the Italo-Turkish war in October 1911 when Captain Carlo Piazza made a reconnaissance flight near Benghazi in a Blériot XI. A month later an Italian aircraft dropped four bombs on the Turks, and early in 1912 the Italians began to use aerial photography.

In 1914, British forces were in France, hoping to halt the German invasion. On 22 August, British reconnaissance aircraft reported that the Germans were preparing to surround the British forces, leading the British forces to withdraw, reputedly saving the lives of 100,000 British soldiers.

The first efforts at aerial combat, mainly between reconnaissance aircraft, were primitive, using pistols, hand grenades and grappling hooks. Machine guns were initially not very useful because parts of the attacking aircraft got in the way. Mounting the engines behind the pilot so they pushed rather than pulled the aircraft solved this problem but added weight and reduced air speed and efficiency, so this was not an effective solution until late in the war when more powerful engines became available.

In 1913 Franz Schneider, a Swiss engineer, proposed and patented a solution to the problem; a mechanism for synchronising a machine gun and the aircraft's propeller, so that the gun could be mounted pointing directly forward and set to fire between the rotating blades of the propeller. Details were published in 1914, and the idea was taken up in 1915 when it was incorporated in designs of aircraft produced in Germany.

The usefulness of aerial reconnaissance was established early in the war and encouraged engineers in Britain and Germany to increase

Next ASHET events

Tuesday 25 February 2014

Talk by Peter Kahn

Sydney's Trams Yesteryear

Peter Kahn will start by showing a video (approx. 15 minutes) "Shooting Through" that includes historical footage from the 1920's showing trams "moving Sydney" plus newsreel footage. (Full DVD running time is 170 minutes). Peter will then talk about the steam trams and how Sydney suburbia developed. He will discuss the electric tram era and toastrack & jumping jack trams, the coloured destination symbols, the tram conductors on the footboards and newspaper boys. Peter will enlighten us with some basic statistics, before mentioning the replacement of trams with buses, preservation by the Museum and finally a little on the Light Rail in 1997, today and the future.

About the speaker: Peter Kahn was born in Crown Street Women's Hospital, on the West Kensington via Crown Street tramline. Arch. McVicar's motor omnibus service ran past his parents' poultry farm in Milperra. In primary school his interest in transport developed, particularly buses, then trains, trams and, living near Bankstown Aerodrome, even planes. Peter joined the Tramway Museum in 1958, becoming actively involved since 1960. Today he is the Public Relations Officer for the Sydney Tramway Museum

Venue: History House, 133 Macquarie Street, Sydney

Time: 5.30 for 6 pm

Cost: Includes light refreshments on arrival; RAHS and ASHET members \$10, others \$12

Bookings: phone RAHS on (02) 9247 8001 or email history@rahs.org.au

Tuesday 25 March 2014

Talk by Anne Arthur

The meat pie, Australia's own takeaway food

ASHET is engaged in a project, with the help of a substantial Commonwealth grant, to present the history of the meat pie in Sydney in a graphic display that will also go on ASHET's website, and be supplemented with talks and papers on the subject. The meat pie came to Australia with the First Fleet. But the Australian meat pie turned out different from the popular British meat pie of that time, the Melton Mowbray pie, which was a family sized pie filled with jellied meat and eaten cold. Anne Arthur will trace the history of the Australian meat pie, which was well established in all parts of the country before the end of the nineteenth century. It has survived as a finger food in the face of competition from pizzas, hamburgers and wraps. Meat pies used to be made in hundreds of small pie shops and by a few large manufacturers. They were sold hot over the counter with tomato sauce, and at football matches and the Royal Show. Now most meat pies are sold frozen in supermarkets.

About the speaker: Anne Arthur was a lecturer in TAFE where she taught and demonstrated a wide variety of food courses. She has a passion for food history and culture. She has previously given talks to ASHET on the history of sugar in Australian food and on the Great Jam Scandal. Her talk will be accompanied by refreshments for the audience.

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production and produce improved designs. By 1917 the Germans had two engine and four engine bombers that carried out raids over Britain. On the battlefields in Europe, specialised single seat fighters and reconnaissance aircraft and two seat bombers with both forward and rear facing guns were widely used.

Seaplanes

The first successful take off and landing by a powered seaplane was in 1910 by the Frenchman Henri Fabre. Several manufacturers built planes with floats and there was a competition in Monaco in 1912, followed by a scheduled seaplane passenger service at Aix-le-Bains.

In 1912 François Denhauf made a successful flight in a seaplane with a hull rather than floats. The hull was designed to provide hydrodynamic lift to assist take off. In America Glenn Curtiss experimented with various designs of seaplanes, some with the fuselage acting as a hull (which he called 'flying boats'), and some with floats attached to the fuselage. He also built and flew an amphibian with both floats and wheels. In 1913, during the Balkan Wars, a Greek seaplane made a reconnaissance flight over the Turkish fleet and dropped four bombs.

Naval strategists were quick to see the possibilities for military seaplanes that could be transported close to their targets by ships. The French navy converted La Foudre, originally a torpedo boat tender, and later a repair ship and minelayer, to a seaplane carrier in 1911, and modified it in 1913 with a 10 m flight deck for launching (but not landing) planes. The British Navy experimented with using an old cruiser, HMS Hermes, as a seaplane carrier, and then designed and built the Ark Royal as a seaplane carrier in 1914.

The first air raids in World War I carried out by seaplanes were by the

Japanese Navy, on 7 September 1914. Four Japanese Maurice Farman seaplanes from the carrier Wakamiya launched an unsuccessful raid on two German ships in Qiaozhou Bay in China, beginning the Battle of Tsingtao. The battle briefly involved British, German and Japanese land, sea and air forces. It ended with the German garrison surrendering on 7 November.

On Christmas Day 1914, British seaplanes carried by ship close to their targets attacked German naval targets at Cuxhaven, a German port in Heligoland Bight on the North Sea. It soon became clear that seaplanes had disadvantages for military use. The floats increased drag and reduced the possible payload and manoeuvrability; the planes were difficult to handle in other than smooth water. By the end of the war they had been virtually superseded by aircraft that could take off and land on the decks of purpose-built aircraft carriers.

In April 1913 the London newspaper Daily Mail offered a prize of £10,000 for "the aviator who shall first cross the Atlantic in an aeroplane in flight from any point in the United States of America, Canada or Newfoundland and any point in Great Britain or Ireland in 72 continuous hours". It encouraged the development of seaplanes in Britain and America specifically designed to win the prize. An American team had scheduled an attempt for 4 August 1914 with a flying boat built to carry enough fuel for the 1,800 km flight.

With the outbreak of war the attempt was abandoned. After the war the Daily Mail re-offered the prize. It was won in 1919 by the British flyers Alcock and Brown in a Vickers Vimy twin engine bomber that completed the flight in just 16 hours. It demonstrated the huge improvements in aviation technology that had taken place in the four years of war and laid the foundations for the growth of civil aviation in the years that followed.

Frank Hornby: inventor of Meccano and other toys

Frank Hornby was born on 15 May 1863. The 150th anniversary of his birth has recently been celebrated throughout the western world. Hornby and his invention Meccano were the subject of a talk by Chris Johnson to ASHET and RAHS in November on which this article is partly based.



Frank Hornby

The beginnings of Meccano

Frank Hornby was the son of John Hornby, provision merchant, of Liverpool in England. He left school at 16, married Clara Godefroy in 1887 and had three children, two sons and a daughter. He worked in his father's business until it was closed on his father's death in 1899. He then became a bookkeeper for David Elliot who ran a meat importing business in Liverpool.

In 1899 he began making toys for his sons from pieces of sheet metal. Over time he developed standard parts that were interchangeable and which allowed him to make different models from the same parts. The plates and strips were perforated with holes at ½ inch (12.7 mm) spacing, allowing them to be joined by nuts and bolts. He added other standard parts such as axles, shaft collars, wheels and gears for making working models.

By the end of 1900 he had a set of parts that he considered worth marketing, and in January 1901, with the help of a loan from his employer, David Elliot, patented his invention as 'Improvements in Toy or Education Devices for Children and Young People'. Elliot became his partner and assisted him with finance to contract with manufacturers who would supply the parts for construction sets that had 16 different parts and a leaflet showing how to make 12 models. He began to market these in 1902 under the name 'Mechanics Made Easy'. In 1903 he sold 1,500 sets.

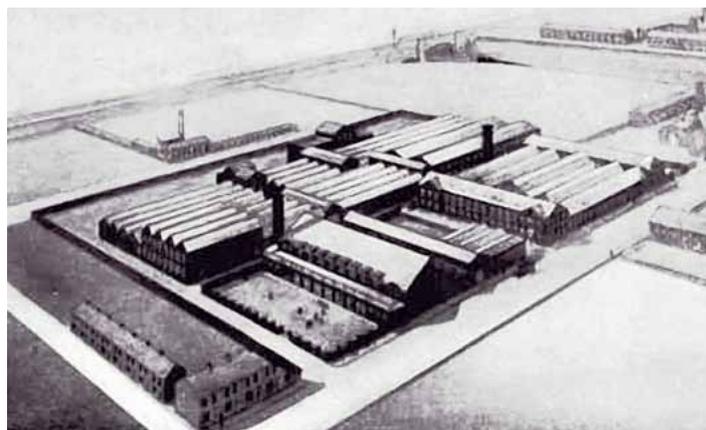
As the demand increased Hornby introduced new parts and in 1904



Early Meccano set

was marketing six different sets that were packed in tin boxes with manuals in French and English. Later two smaller sets numbered 0 and 00 were added. By 1907 the business was profitable and the parts suppliers could not keep up with the demand. Hornby and his partner Elliot looked for a factory to make their own parts. They leased a factory in Duke Street Liverpool for three years and with the help of a loan started production in June 1907. Hornby then left his employment to devote his full time to the business partnership with Elliot.

Hornby registered the trade name 'Meccano' in September 1907, and from this time all new sets bore the name Meccano. Soon there was a need for a larger factory. To finance this the company Meccano Ltd was formed in 1908 when the company moved its manufacturing to premises at West Derby Road in Liverpool. Elliot decided not to join the new company and Hornby became the sole proprietor of the business. Its turnover in the financial year was £12,000. A new factory at Binns Road Liverpool was built in 1914 and this became the headquarters of Meccano and its related companies until it closed in 1979.

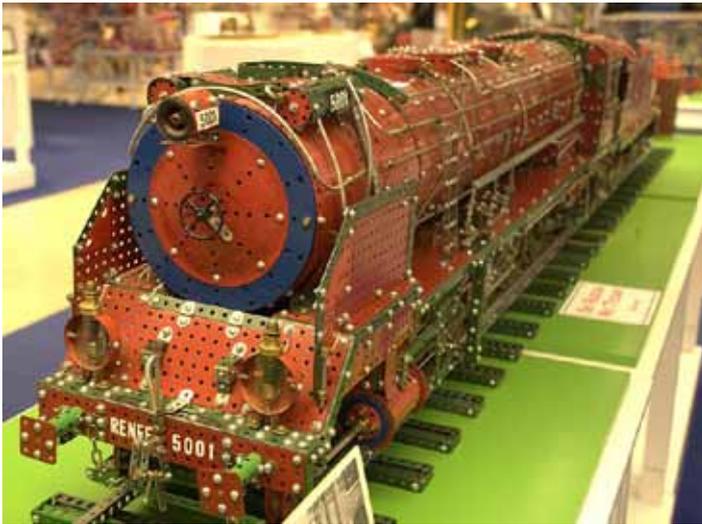


Meccano factory at Binns Road, Liverpool, 1916

By 1912 the company was an international success, and in that year Hornby and his son Roland formed Meccano (France) Ltd to manufacture there. Factories were opened in Berlin and in Belleville, France. The Belleville factory was soon replaced by one in Bobigny, which in 1951 had the capacity to produce 500,000 sets a day. In 1959 a new factory was built in Calais and this is now Meccano's main manufacturing centre.

Prosperity followed by takeovers

A mechanical motor imported from Germany and introduced in 1912, and an electric motor first produced in 1915 were popular additions to



Meccano locomotive

Meccano sets. A monthly publication *Meccano Magazine* was launched in 1916 and published for over 60 years. Meccano clubs were formed around the world and many of them were amalgamated into the Meccano Guild formed by Hornby in 1930.

From 1907, Meccano strips were nickel plated steel. This changed in 1922 to red and green to mark the 25th anniversary of Hornby's patent. These colours were changed slightly in 1958 and in 1964 dramatically to black and yellow at the time Meccano was taken over by Lines Bros Ltd..

In 1922 Meccano added a new set, number 7, that was the largest in the series. In 1934 the numbers 00 to 7 were replaced by letters, and in 1937 they were changed back to numbers with the largest one, the L set being replaced by the new and slightly smaller 10 set. There were also accessory sets that allowed each set to be converted to the next larger one.

Hornby had become a millionaire by the 1930s. He was elected as a Conservative MP in 1931, and resigned his seat before the 1935 election. He died on 21 September 1936, and was succeeded as Chairman of Meccano Ltd by his son Roland.

Production of Meccano in Britain was suspended during World War II, when the factory was converted to manufacturing for the war effort. There were further interruptions to production during the Korean War in 1950 because of a shortage of metal.

By 1960 construction toys were out of fashion and Meccano Ltd was having financial problems. In 1964 it was taken over by the toy company Lines Bros Ltd, which traded as Tri-ang. Lines Bros went into voluntary liquidation in 1971, and Airfix, a successful manufacturer of model kits, purchased the remains of Meccano Ltd in 1972, making Airfix Britain's largest toymaker.

But over the next few years Airfix became steadily less profitable and in 1979 it shut down the Meccano factory in Liverpool, and brought the manufacture of Meccano in Britain to an end. Meccano was still being manufactured at Calais in France where the factory was now owned by an American toymaking company, General Mills. In 1981 General Mills bought the Airfix business and the remaining parts of the Meccano business in Britain, and became the world wide owner of the Meccano brand. It soon made drastic changes, scrapping the whole existing range of Meccano sets and introducing a new series of small sets with many plastic parts. These sets were all made by General Mills at the Calais factory in France.

Recent history of Meccano

General Mills disposed of all its toy business in 1985 and Meccano was bought by a French accountant Mark Rebibo who re-introduced the traditional Meccano sets 1 to 10 and produced them until 1992. A French company Meccano SN was formed to manage the business and manufacture in Calais. 49 per cent of the company was sold in 2000 to a Japanese toy company Nikko, which introduced new plastic parts and innovations such as radio controls and programmable electronics.

Also in 2000 Meccano SN bought the American ERECTOR brand under which construction sets very similar to Meccano had been made and sold in America since 1913. Meccano now markets its products in America under the Erector brand name. Nikko sold its share of the business back to Meccano SN in 2007.

In recent years Meccano has increased its range of products with toys that bear little resemblance to traditional Meccano. One of the latest is a robot called Spykee. It is a plastic toy with two motors, camera, microphone and speakers, remote controlled using Wi-Fi, and is programmable. Spykee is designed to use a number of accessories and tools, some of which are made with traditional Meccano style kits.

The Meccano traditions are kept alive by a world-wide network of clubs that build models, and run exhibitions, competitions and workshops. A recent project was a Meccano bridge made by a team of volunteers from the Engineering Department of Liverpool University in 2009 to span the Leeds and Liverpool Canal in Liverpool. It was 23 metres long with a 9 metre swing bridge section and a 12 metre drawbridge section. It used around 100,000 Meccano parts.

Meccano has proved to be more than a toy. Frank Hornby promoted its use for education in mechanics and structural principles almost from the beginning, and produced an educational set in 1909. Chris Johnson, ASHET's speaker at the November 2013 meeting, is a lecturer in Engineering at University of Technology Sydney. He uses Meccano models in teaching and brought to the meeting a model differential gear made from Meccano parts for this purpose.

In 1934 Meccano began to be used for the construction of mechanical differential analysers, analogue computers that perform calculations involving differential equations. Several of these machines are preserved in museums in Britain and New Zealand.



Spykee

Meccano Look Alikes

In 1913 in America A.C.Gilbert invented a construction toy that was remarkably similar to Meccano. He said the idea came to him when he was travelling on a train and watching the construction work taking place to electrify the line. He patented his invention and marketed sets of parts under the brand name ERECTOR. The sets included an electric motor, and this may have contributed to its quickly becoming America's most popular construction toy.

In the 1920s Meccano was being produced in America under licence. In the 1930s Gilbert purchased the licence to make and market Meccano

in America. He its manufacture to a site alongside the Erector factory in New Haven, Connecticut.

Gilbert died in 1961 and his company filed for bankruptcy in 1967. The ERECTOR name survived and the construction sets continued to be made and marketed under new ownership. The brand name was purchased by Meccano in 2000 and Meccano products are now marketed in America under the ERECTOR brand name.

Construction sets with parts compatible with Meccano have been produced in many parts of the world. They have been particularly popular in the Soviet Union.

Hornby trains



Early Hornby clockwork locomotive

Frank Hornby produced and marketed his first clockwork model train in 1920 as an extension of his Meccano range of toys. It could be assembled from parts like Meccano. It ran on O gauge (33 mm or 1 1/4 in) model railway track and was approximately 1:45 scale. It was an instant success.

A patent granted to Hornby in 1910 for 'An Improved Toy or Game' describes a toy that includes a clockwork engine running on a metal track with curves and points, shows that he had been thinking about the idea of toy trains for quite some time. 1920 was an ideal time to introduce the new toy, because up till then, the British market for toy trains had been dominated by models manufactured in Germany, many of them marketed by the British firm Basset-Lowke. Anti-German feeling in 1920 ensured that Hornby had a marketing advantage.

Hornby quickly expanded his range of model trains and improved their quality. Although they were not strictly to scale, they progressively replicated features and colour schemes of the rolling stock of the British railway companies.

The first Hornby electric train set was introduced in 1925, as a replica of the trains on the London Metropolitan electric line that had just been extended to Watford. While this seemed like a good marketing angle, it became clear that customers preferred models of steam locomotives.

The first Hornby electric trains ran off mains power reduced in voltage through a standard light bulb and a simple rheostat. There were serious questions about the safety of this arrangement, and it was soon superseded by battery power, and later by mains power with the voltage reduced through a transformer.

Hornby added a range of accessories such as model stations, signal boxes, bridges, tunnels, human figures and luggage that sold well and were very profitable.

Hornby Dublo

In 1935 Hornby's competitor in Britain began to import German HO (half-O) model trains made by Trix in Germany. These smaller sized model trains had already proved very popular in America. They sold well in the 1935 Christmas market in Britain, despite being available only in German liveries. Basset-Lowke began manufacturing models in British liveries in England in 1936.

Hornby realised that it needed to move quickly. There was an immediate problem. British railway rolling stock is all smaller in size than European and American because of the limitations imposed by the loading gauge of British track. Models of British locomotives faithfully scaled down to HO gauge would be too small to accommodate the standard motors and controls that were available. So Hornby introduced a new gauge, OO, that had a scale of 1:76, slightly larger than HO, but fudged so that the wheels ran on standard 16.5 mm track. Hornby named its new series of models Dublo. Hornby made the decision to proceed with Dublo in 1937 and had a range of Dublo train sets on the market in 1938.

Dublo was an instant market success. Hornby used 12 volt DC electrics, much cheaper to produce than the Trix 14 volt AC system, and technically superior to the 6 volt systems used by most of the other manufacturers in the market. Hornby Dublo locomotives were diecast, and Hornby's experience with diecasting its Dinky Toys helped it to make better quality, more realistic looking models than Trix. Hornby was able to produce the models in its Binns Road Meccano factory in Liverpool at much lower cost than its competitors.

Most of the other model train suppliers to the British market valued compatibility with Hornby, the market leader, and OO soon became the new standard for toy trains in the British market. America stuck with HO.

World War II put a stop to production of Hornby trains, which did not resume production until 1946, 1947 for Dublo. O gauge never regained momentum and Hornby concentrated almost all its efforts on Dublo. It continued to make technical improvements and expand its range. 1958 saw the first Dublo plastic locomotive, which was also its first model of a diesel.

Hornby introduced a two rail electric system in 1959, largely to compete with its major competitor, Tri-ang, which had launched a realistic looking two rail system in 1950 with great success. The change to two rail was expensive for Hornby which had to continue serving the owners of three rail layouts not compatible with the new two rail ones.

By this time Hornby was losing market share and the whole Meccano empire was having serious financial problems. When Lines Bros Ltd, toy makers and owners of the Tri-ang brand name, bought Meccano Ltd, owners of Hornby in February 1964 it planned to combine Hornby's manufacture and marketing with its own Tri-ang Railways business.

By 1964 Triang Railways was a profitable model railway business that Lines Bros had begun in 1950 when they purchased the Rovex toy making company founded in 1946 by Alexander Vanetian to make toys for Marks and Spencer. Rovex had developed an electric toy train



First Hornby electric model train

set for Marks and Spencer to sell at Christmas 1950 and was anxious to continue manufacturing it, but lacked the capital; Lines Bros wanted to expand into model railways and saw the chance to achieve this through Rovex. To provide for expansion they moved Rovex to a new factory at Margate. Rovex made the trains for Tri-ang Railways which soon became a serious competitor to Hornby.

When Lines Bros took over Meccano Ltd there were large unsold stocks of Hornby products on hand at the Binns Road factory, and production was stopped. In May 1965 Lines Bros announced that Tri-ang Railways and Hornby Dublo would be brought together under the name Tri-ang Hornby.

Production of Hornby items was not resumed at Binns Road. The new owners sold off the Hornby tooling at Binns Road and concentrated production at its Rovex factory in Margate. Only two Hornby items were incorporated in the new product range. Customers would be able to purchase Hornby Dublo items while stocks lasted. A few converter items were made to assist compatibility between Hornby and Tri-ang systems. Some Hornby features were incorporated in new product designs. Triang Hornsby was profitable and continued to make additions to its range of railway models.

When Lines Bros went into voluntary liquidation in 1971, the Triang Hornby business survived. It was sold as a going concern to toymakers Dunbee-Combex-Marx (DCM) and took the name Hornby Railways. Hornby thrived under the new management and moved up market. Over the following years more changes in ownership and takeovers occurred and since 1986 Hornby Railways has been owned by a public company Hornby Hobbies Limited. Production moved to China in 1995.

Over the years Hornby's market has changed. Originally Hornby made toy trains for kids; now it makes model railways principally for an adult market.



Hornby Dublo two rail electric model, 1960

Dinky Toys

Meccano Ltd first used the name Dinky Toys for a range of models that had initially been produced as accessories for Hornby trains, but which had expanded to include model cars, a tractor and a tank. By December 1935 there were around 200 products in the Dinky range, including dolls' house furniture, and later ships and aeroplanes. Most of the models in the range were diecast from zinc alloys. The models were produced to various scales, many of them around 1:48 to match Hornby 0 gauge trains sets.

Dinky Toys were very popular in Britain in the 1950s and a wide range of replicas of various makes of cars and trucks was produced. In 1958 Meccano Ltd introduced its Dublo Dinky range of 1:78 scale models to match its Dublo trains. The range was not very successful in the market place, where it competed with other brands such as Matchbox and Budgie. Models were progressively withdrawn from 1960 and production ceased in 1963. Five of the Dublo models were revived after Meccano was purchased by Lines Bros in 1964 and further additions were made to the range.

Dinky Toys continued to be made in Meccano's factory at Binns Road, Liverpool after the Lines Bros takeover, but changing fashions and competition were making life difficult. Manufacture in Hong Kong began in 1965, mainly to serve the American market. Over the next twenty

years several changes in ownership of the Dinky brand name took place, which ended up with Matchbox International Ltd, an American company acquiring the Dinky brand in the 1980s. For a time the Matchbox company Matchbox Collectibles produced a few items under the Dinky name. Eventually the Matchbox and Dinky brands were acquired by the American toy maker Mattel, which marketed a few of the former Matchbox toys with a Dinky brand name. Matchbox Collectibles was shut down in 200 and no Dinky toys have been produced since then.

Enduring Brand Names



Diecast Dinky toy, around 1935

Frank Hornby's brand names Meccano and Hornby have survived for over 100 years and are more widely known now than they ever were in his lifetime. Meccano sets have not been entirely superseded, a tribute to the rightness of the decisions that Frank made when he designed his first Meccano sets with a simple set of perforated strips with ½ inch hole spacing, and matching bolts and nuts, axles, wheels and gears. Fashions in toys change and Meccano has had some success in following them. Frank himself undoubtedly had a knack for producing toys that were right for their time and quickly successful in the market place.

Frank's original Hornby trains successfully used the technology of the time, using tinplate, enamel, printing on metal, and clockwork motors to make affordable toys for boys. But new technologies have developed that have greatly expanded the possibilities for model-making and toy production. Today's Hornby trains, which are collectibles for adults rather than toys for boys, are a product of technologies that did not exist in Hornby's time, such as precision die-casting, plastics and electronics.

Ian Arthur

Sources and further reading

The easiest way to find information on Meccano and related subjects is on line using Google. Wikipedia has long and informative articles with extensive references and there are other useful websites.

The best readily available source of information on Hornby trains is the book by Ian Harrison with Pat Hammond, *Hornby: the official illustrated edition*, Harper Collins, London, 2002. This is a comprehensive record of the Hornby train. It includes many illustrations and a useful bibliography.

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