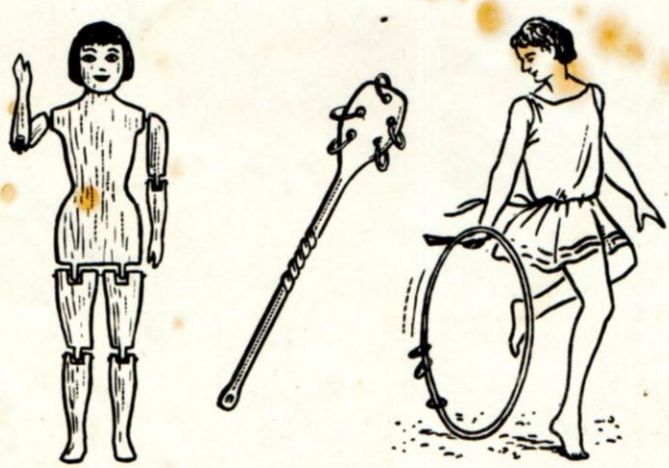
MECCANO®.

AND THE STORY OF TOYS

From the beginnings of history, children have had toys to play with. And their toys, even those of very early times, have been made not only to play with but also to learn from.
The first toys for boys were probably small weapons – bows and arrows or axes. With the help of these they learned the skills they needed later on in life when they joined the older men on hunting parties. It is thought that the first toys for girls were dolls crudely carved from wood or fashioned from clay.

The earliest toys we can be sure about were those with which Egyptian children played. They had flat, legless wooden dolls with beads for hair; jointed wooden figures which they moved by means of strings; and little carts and chariots made from fired clay.

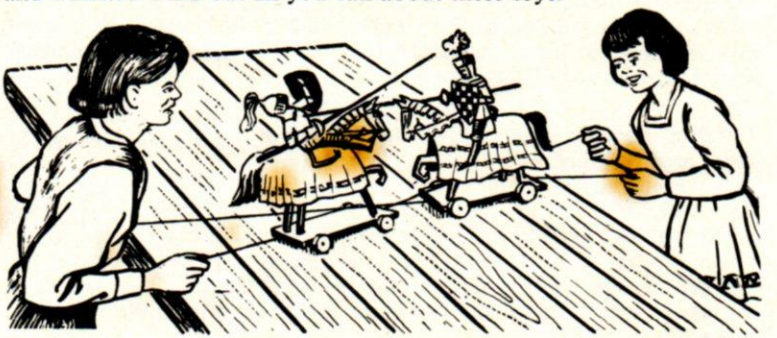


An early jointed doll; a Roman rattle; and a Roman hoop.

ROMAN TIMES

In early times life was hard. There was little time for playing purely for the sake of enjoyment. When life became easier, for example in Roman times, there was more leisure time, more time for play. So a great variety of toys was made.
Babies had rattles. These were called crepitacula. The noise they made sounded exactly like their name being spoken! They had soft toys to cuddle, too. These were made from cloths and stuffed with soft material such as wool or feathers. Archaeologists have discovered some rag dolls from Roman times which had painted faces.
As children grew older they played with animals on wheels. These were made from wood and painted in gay colours. The toys were pulled or pushed with a stick fastened into the body of the animal. Children of poor families had their favourite animal made in clay, instead of the more expensive wood.
There were many sorts of dolls for girls. These varied from clay dolls with crude scratchings to show arms and legs, to life-like dolls of wood and ivory. Dolls' furniture was made from lead. Boys had toy soldiers, pack horses, chariots and carts. Many of these were made from clay and lead. Some were made from harder metals and were beautifully carved.
There were several toys for outside play. Hoops were bowled along. Often these had loose metal rings fitted which made a pleasant noise as the hoop was rolled. Ball games were popular. Small children played with cloth balls filled with a soft material. Older boys and girls played with the fallis. This was a ball, with leather outside and blown-up

animal bladder inside. The three most popular ball games were Trigon, Harpastum and Paganica. Can you find out how these games were played?
Among the other outdoor toys were dice, knuckle-bones, yo-yos, tops and whirlers. Find out all you can about these toys.



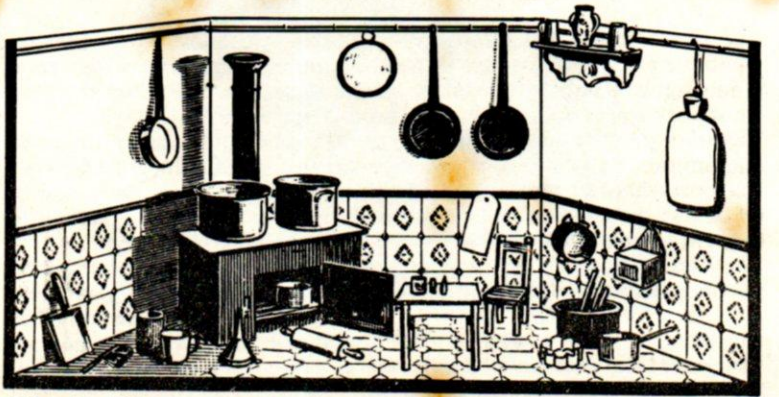
A mock joust.

FROM SAXON TIMES TO THE SIXTEENTH CENTURY

After the downfall of the Roman Empire, life again became very hard. Children had little time to play and very few toys to play with. In the Middle Ages the children of rich families spent their time practising for hunting, for tournaments and for war. Boys' toys were connected with warfare. One of these was a jousting knight on horseback. Two boys would use one each to have a mock joust or fight. By pushing and pulling his knight, each boy tried to knock his opponent's knight off its horse.
Boys also played with foot soldiers. Can you find out how they made them fight? What were hobby horses and how were they played with? The girls do not appear to have had any dolls during this period – certainly no examples have been discovered. Probably girls were kept busy looking after the younger children of the household.

17th CENTURY

When Charles II and his nobles came back to England from the Continent they brought back with them toys for their children. One of these was the rocking horse. The rocking horse has been a favourite toy from the 17th Century to today.
The simplest type was made from flat boards and had two semi-circular rockers. The more expensive horses were very life-like and almost identical to those sold in shops today.
Girls were especially fortunate in this period. They were brought better dolls and better dolls' houses.



A Nuremburg kitchen.

The first dolls' houses had been very big, often 5 to 6 feet tall. They were only for rich people and for grown-ups to play with. Now came small houses, made specially for children. They were first called *Nuremburg kitchens!* Find out why they were called this and what they had in them. Kings' and noblemen's children had marvellous clockwork toys. One was called 'The Young Writer'. It could write a letter fifty words long! Can you discover what other ingenious mechanical toys were invented at this time?

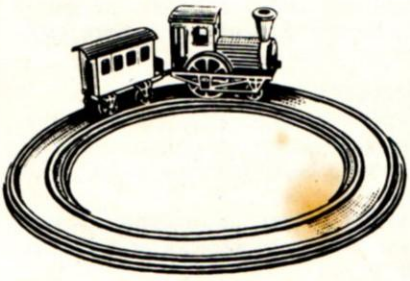
18th CENTURY

"Dressed Babies for Sale at Martin's Toy and Cap Shop at the sign of The Three Rabbits".

This was an advertisement which appeared in 1738. It was not for a sale of children but of dolls. Before this time dolls had always been called 'babies'. During the 18th Century, the name changed to 'doll', which was short for Dorothy. No one knows how or why the name changed. Dolls became cheap and plentiful. In this century baby carriages were made for the first time, and soon after dolls' carriages appeared.

Boys played with lead or tin soldiers, model windmills, wooden coaches and four, and toy 'balloons' complete with gondola. On dark nights great excitement and wonder was created by the Magic Lantern. Wonderful coloured pictures were projected on to the wall with the help of flickering candles, hand-painted glass slides and a lens.

Jigsaws were first made at this time. The pieces had almost straight sides because there were no fretsaws to cut rounded shapes. Toys were becoming big business and this Century saw the beginnings of firms which did nothing else but make toys to meet the great demands for them.



A French clockwork train (about 1880); and one of the first English rocking horses (17th. Century).

19th CENTURY

The 19th Century was the age of machines. Mechanical toys became plentiful. They were worked by a variety of means: clockwork motors, falling sand, spinning flywheels, elastic and steam. In 1840 the first clockwork trains with trucks were sold. They were made of tin.

Victorian parents insisted that the toys they bought should both teach and amuse. All toys and games were labelled 'Useful and Instructive'. Even pea-shooters were supposed to teach children about air pressure. Of course the children just played with the toys for fun and gave little thought to what they were supposed to be learning from them!

The leading toys for girls were not very much different from those of previous centuries. The most popular were still dolls, dolls' clothes, dolls' houses and dolls' furniture. But there was a greater range to choose from. Most museums have displays of the toys of this period. Visit your local museum and see if you can discover what a stereoscope, zoetrope and a phenakistescope were.

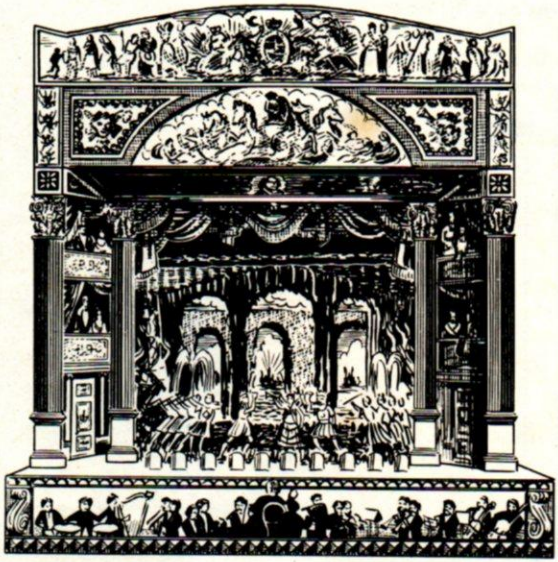
A new type of toy appeared late in the 19th Century. This was a construction kit made up of flat strips of wood 5 inches long and $\frac{3}{4}$ inches wide. The strips were slotted at both ends so that they could slip together. These kits were the forerunners of the modern Meccano kits. The most outstanding indoor toy for Victorian children was the toy theatre. This could be bought either complete and ready for use, or printed on card. The second sort were much more fun because they had to be coloured, cut out and glued together. The stages had tiny tin candleholders. A show by candlelight at night caused much excitement. Cardboard characters, to be used with the theatres, were printed on sheets of card, which children bought with their pocket money (penny plain, twopence coloured). Children could even buy stage tricks to produce effects such as explosions, fires and smoke. These were not without their dangers and many Victorian tables were burned when a trick went wrong.

Is there an old person in your district who can remember playing with these toys as a child? Ask him or her to tell you about it.

20th CENTURY

Children of today have more time to play than at any other period in history. The selection of toys from which you can choose seems almost endless. Some of these have been favourites with children down the ages – balls, dolls, marbles, soldiers and kites are just a few of them. At the beginning of the Century two new types of doll were introduced. One of these was the golliwog and the other was the teddy bear. How the teddy bear came to be made and given its name is an interesting story. Can you find out about it?

Because of mass production and the use of plastics, vast quantities of all shapes and sizes can now be made cheaply and quickly. Electric and friction motors have replaced clockwork in driving mechanical toys. Realistic dolls representing children of all ages are on sale. Even dolls for boys are made.

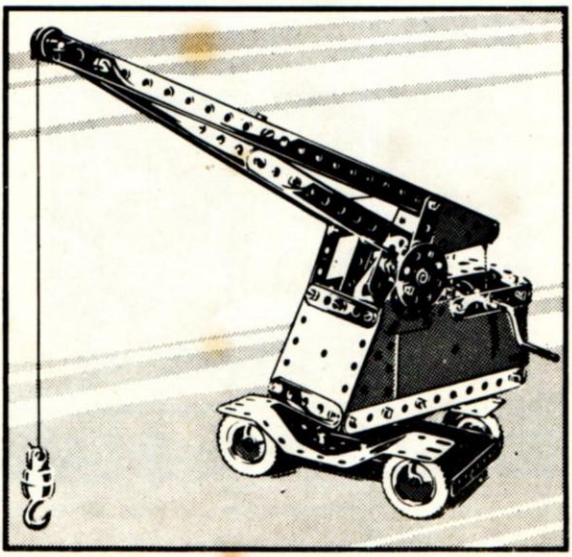


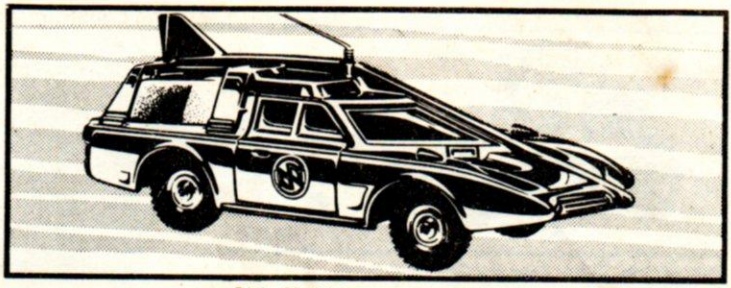
A toy theatre of the 1860's.

The two most important new toys of this Century are the construction kit and the miniature (or Dinky) toy.
There is a great variety of construction kits. They vary from simple press-together plastic shapes to complex electronic equipment.

MECCANO

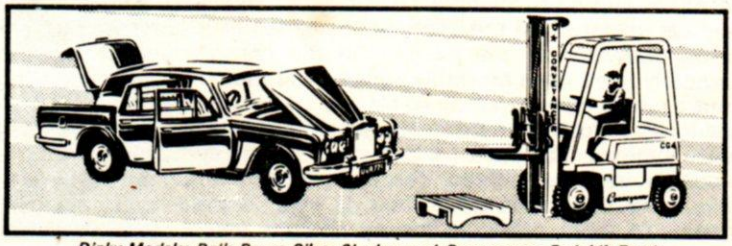
The most versatile of these is the Meccano Construction System. It has more than three hundred different parts – from steel girder sections of a host of different sizes, a whole variety of steel strips and angle sections, to brass gears, wheels and plates of steel and plastic. The Meccano construction system is almost unique in that, although it was originally designed as a toy, it is the only constructional system that is also used by engineers, physicists, and scientists all over the world. Its success is due to the simplicity of Meccano parts. All of them have holes set at a standard spacing to allow parts to be bolted to each other. This, of course, means that models can be built, dismantled, and the parts used again and again. Indeed, the possibilities are virtually endless and are limited only by the imagination of the inventor – be he 7 or 70 years of age!
At their factory in Liverpool, England, Meccano Limited receive details of models from inventors all over the world, including some very cleverly designed, like an ingenious walking horse and chariot from Hungary, an automatic electric clock that accurately registers hours, minutes and seconds from a builder in Italy, a working Shay Steam Locomotive from Germany, and many, many others.
Although Meccano makes an ideal toy, it has more serious uses. Among the companies that use Meccano to aid them in research and development projects are the United Kingdom Atomic Energy Authority, The British Aircraft Corporation, and the Atomic Weapons Research Establishment at Aldermaston. It is also in widespread use in primary and secondary schools, and in Colleges of Technology for demonstrating physics.
Another development which brings traditional Meccano up to date is the new Plastic Meccano system. It is specially designed for very young children with its easily flexible strips and plates, and large nuts and bolts – also in plastic – that small fingers have no trouble with. When the builder outgrows this, or becomes more ambitious, he does





Dinky Model: Spectrum Patrol Car.

not throw the set away. He instead uses the traditional metal Meccano parts with his plastic set. What could be simpler or more logical?
It is surprising how many things in everyday use were first developed with the aid of Meccano parts. One very important example is the automatic transmission for Mini Automatic cars. It took a Belfast man eighteen years to perfect. He began in 1947, using £100 worth of Meccano to build a model which over the years was developed

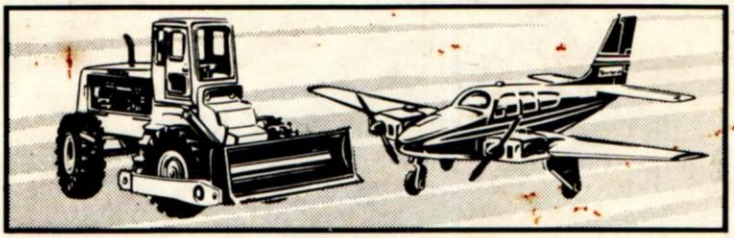


Dinky Models: Rolls Royce Silver Shadow and Conveyancer Fork Lift Truck.

into the first automatic transmission. Something which nearly everyone will know about is the stylus so essential on modern record players. The chances are that the one on your record player was made by the company that sixteen years ago made its first stylus with the aid of Meccano parts.

DINKY TOYS

All through the ages, toy copies of carts, chariots and coaches have been popular with boys. Today, children can play with toys which are not only copies but exact copies on a small scale of the real thing. They look exactly like the real thing and are called miniatures.
Dinky Toys are such miniatures. Producing a miniature is a long, detailed and complicated process. First it is decided what new Dinky Toy will be made. The design team then set to work. Members of the team obtain permission to examine the full size vehicle. When the Dinky Toy Spectrum Patrol Vehicle was being made this meant that the team had to travel to Century 21, Slough, because this was the only place in the world where one could be found. The vehicle is carefully measured and photographs taken from many different angles. Details such as headlights, radiators and interior coachwork are also photographed.
From these measurements and photographs, draughtsmen prepare drawings of each individual component to be used in the model. There may be as many as 30 individual drawings.
From these drawings technicians prepare the dies and machine tools which will be used to produce the various components for the toy. In the Spectrum Patrol Vehicle, for example, there are a total of 76 parts.



Dinky Models: Tractor Dozer and Beechcraft Baron.

The main parts are made in pressure die-cast metal. This metal is called Mazak, which is Zinc with additions of Aluminium and Magnesium. It is tough and can stand rough handling. After the castings have been made they are allowed to cool. Then they are put in rubber-lined barrels with soapy water and pebbles. The barrels are rotated and the action of the water and the pebbles cleans the castings so that they are bright and shiny and smooth.

Then they are sprayed with enamel paint and baked to a temperature of 200°F. This gives the model a colourful tough skin. While the main body is prepared, all the other parts needed to make the model are made elsewhere in the factory. All the components meet at the assembly lines. Each assembly line is a 100 foot long table. Down the centre runs a conveyor belt. At intervals on either side of the belt are 'stations'. A particular assembly operation is carried out at each of these stations. The main casting starts at one end and the finished model, boxed and ready for despatch, appears at the other.

Miniatures have uses other than as toys. Architects use them on models of town plans, motorway designs and road construction. Aircraft designers use them in wind tunnels to measure the stresses which real aircraft will undergo in flight. Police use them for road safety instruction. Are there examples in your district where miniatures are used in these ways?

Meccano Limited regret that they cannot enter into any correspondence regarding the contents of this booklet.

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