ELECTRIFYING NEWS FOR ALL KEEN MECCANO ENTHUSIASTS!

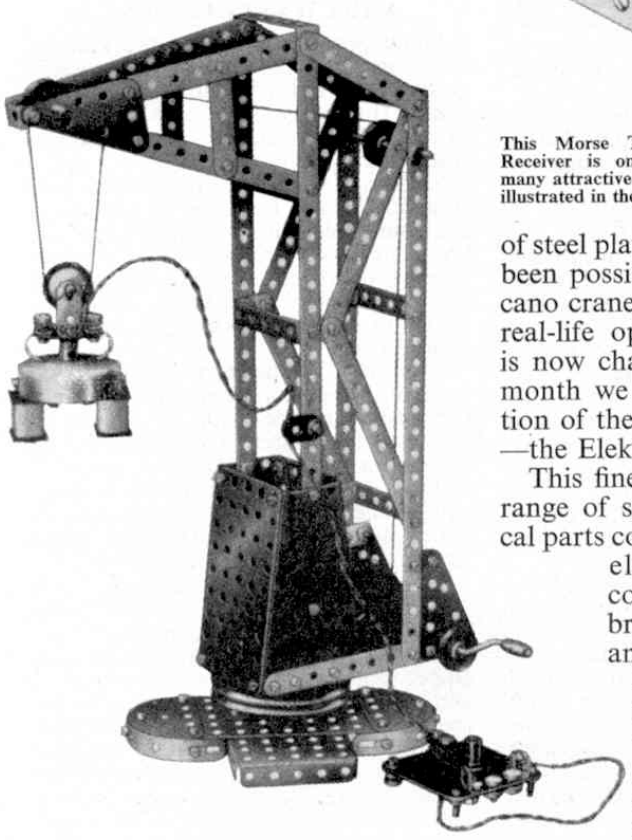
Introducing "Elektrikit"

DOWN comes the crane-lifting tackle until it rests on the heavy steel girder lying on the ground. The crane driver flicks a switch, moves a lever—and the girder is hauled aloft, held firmly in the grip of a powerful electro-magnet.

Although such incidents as this are common in metal stockyards, shipyards, and other places where cranes are used to lift and transport heavy loads of steel plates and girders, it has not been possible in the past for Meccano crane builders to emulate this real-life operation. This situation is now changed, however, for this month we announce the introduction of the latest Meccano product —the Elektrikit.

This Morse Telegraph Receiver is one of the many attractive electrical models illustrated in the Elektrikit Book.

This fine new Kit contains a big range of specially-designed electrical parts comprising permanent and electro-magnets, coils, commutator and wiper brushes, insulating plates and other parts, lamps and holders, etc. which can be used with Parts in a standard Meccano Outfit 3 or one larger, to build up electrical apparatus of all kinds—including powerful electro-magnetic hoisting tackle for cranes.



Electro-magnetic hoisting gear made with Elektrikit Parts, fitted to the model Forge Crane shown in the Meccano Model Book for Outfit 4.

The Elektrikit Parts can be applied in many ways to electrify standard models shown in the ordinary Model Books. In addition, the Parts can be used to build completely new types of electrical models such as Morse telegraph sending and receiving apparatus, synchronous and other types of motors, electric bells, switches, electric engines, voltmeters and ampmeters. Big Wheels, Flyboats, Traction Engines, etc. can be built from a standard Outfit and then fitted with electric lights, while experimentalists will find the special

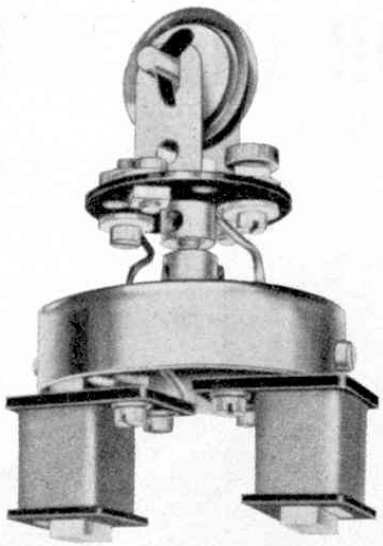
Elektrikit parts of value in electric clocks and electrically controlled gear-boxes, etc.

The Elektrikit is designed for use with a standard Meccano Outfit No. 3 or one larger and comes complete with a very attractive Book of Electrical Models in which the models are clearly illustrated by means of pictures and perspective line drawings.

On Low Voltage

The models illustrated in the Elektrikit Book are designed to work on low voltage, between 4 and 15 volts Direct Current or Alternating Current, so no danger is involved. Some of the models can be worked from a single 4.5 volt battery. A Hornby II Power Control Unit is ideal for use with the Elektrikit as it supplies a D.C. output variable from 6 to 12 volts and also an A.C. output at 15 volts.

No Meccano model-builder should be without an Elektrikit. It greatly increases the model-building scope of a standard Outfit and adds considerably to the pleasure of model-building. So go along to your dealer today and ask for full details of this fine new Elektrikit!



Electro-magnetic hoisting gear built with Elektrikit Parts.

The Cruachan Hydro-Electric Scheme—

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site of the new dam. At the same time, work began on the driving of an access tunnel, almost a mile long, into Ben Cruachan to the site of the underground power station and its associated works.

The new access road, 10 feet wide and three miles long, with an average gradient of 1 in 14, climbs easily into magnificent country previously visited only by shepherds and mountaineers. The fact that the only railway line, and the main road, to Oban, one of Scotland's principal holiday resorts, circles the foot of Ben Cruachan made the job of the roadbuilders more difficult. All rock blasting had to be done in such a way as to prevent stones avalanching down the mountainside.

It is the underground station, however, which presents the most intriguing section of the entire project. When it is complete the overall dimensions of this station will be 298 feet long by 77 feet wide, with a maximum height of 115 feet—dimensions approximately similar to those of the new Coventry Cathedral.

The arch of the massive roof is complete. Except where bad rock makes reinforcing necessary to prevent cave-in, the roof and walls of the new station will be left completely bare. Carefully illuminated, the visual appearance of this vast expanse of natural rock, housing four huge turbines, will be most dramatic.

Two overhead travelling cranes each capable of carrying 110 tons will be installed. They are needed for the erection of the plant and, subsequently, for repair and maintenance work.

While excavation proceeds, the air is filled ceaselessly with the roar of drills as the tunnellers drive forward, and with the noise of great dump trucks, each carrying three cubic yards of rock, charging up and down the access tunnel to tip their load of spoil into Loch Awe. Contact by speech is impossible among men working underground and, in the fume-laden atmosphere, even powerful electric lights burn dim.

From the underground power station pilot tunnels lead off to ancillary workings and to the main transformer hall. The work of excavating this hall is now almost complete and from it a combined cable and ventilating shaft is being bored upwards to the surface almost 900 feet above. When finished, this shaft will be 13 feet in diameter. Piercing upwards through solid granite to such a great height, and in such confined conditions, achieving a seven to eight foot "climb" every twelve-hour shift, represents a major tunnelling achievement.

Adequate ventilation of the underground station is essential because heat losses from the four machines will equal the heat given off by 12,000 one-bar electric fires.

When all underground work is finished the tunnellers will have excavated approximately 200,000 cubic yards of rock.

The dam on Ben Cruachan forming the new top level reservoir will be of the massive buttress type 1,000 feet long and with a maximum height of 150 feet. This dam, and a chain of aqueducts being built round the peak of the mountain, will also collect the rain which falls on the top. Indeed, the rainfall by itself will provide 50,000 million units of the electricity included in the scheme's total output.

The first power is expected to flow from Cruachan in 1965. By 1966, the project will be in full production.

BOOK REVIEW

Science and the Builder by Donald Grattan (Bell, 17/6) describes the part played by science and technology in the work of the modern builder and civil engineer, whose tasks range from building houses and many-storied blocks of flats to vast works and big stores; from erecting bridges to constructing tunnels, and from building dams and harbours to great motorways. The author who, as Senior Assistant in the B.B.C. Schools Television Department is engaged in the organisation of broadcasts on Mathematics and Engineering Science, devotes much of the book to new houses. He deals with the principles of construction, the testing of materials and structures (here he describes visits to research stations to see some of the surprising experiments carried out there), and the less exciting but essential problems of water supply, lighting and heating.

Turning to bridge construction, he describes the problems which confront the bridge engineer, and the new techniques and materials now used in building these structures. He goes on to deal similarly with the construction of new roads—from motorways to fly-overs—and to describe some of the difficulties which have to be overcome in driving long deep tunnels.

The text is supplemented by helpful diagrams and 16 full-page half-tone illustrations showing various aspects of civil engineering.

THE GAME OF CROQUET

In his interesting article *Ball Games Through the Ages*, in the *M.M.* of February last, Mr. F. W. Robins remarked that "pall mall and Croquet were post-medieval, and are now virtually dead". This view is not shared by John Jaques and Son Limited, of Thornton Heath, the manufacturers who introduced Croquet to this country in the middle of last century, and who are still the leading manufacturers of Croquet equipment. They assure me that the game is still "very much alive", and that a ruling body—the Croquet Association—had been in existence for many, many years. They add that the official game is played in a number of Clubs in this country, and that Croquet is also played extensively in Australia, New Zealand, South Africa, and in the United States.