



a lamppost. Each of these mechanical men was very definitely a machine — they typically performed a limited range of actions that required no decisions to be made, and did not appear to embody any kind of intelligence.

### ROBOTS IN FICTION

But if the inventors and engineers were stuck for ideas, the writers of fiction certainly didn't feel these creative restrictions. Science fiction has thrived on the idea of robots. In fact, the very word *robot* is the product of a fictional work. In 1923, the Czech playwright, Karel Čapek (1789–1938) wrote a play called *R.U.R.* — the title was an abbreviation for Rossum's Universal Robots. The play was about the invention of mechanical men so perfect that they could carry out all of the tasks a human might perform. Eventually, the robots found that they had no use for men at all, which left the humans in a rather precarious position. In Czech, the word *robot* simply means 'worker'. So, the title of Čapek's play should have been translated as 'Rossum's Universal Workers' but, somehow, the word 'robot' caught on, and this has since become the standard term for any mechanical man with human capabilities.

Fictional fantasies about creatures constructed to resemble human beings go back to Mary Shelley's well-known Gothic novel, *Frankenstein* (1818). Although it was not mechanical, the monster created by Victor Frankenstein was constructed from a set of parts, even though these were obtained by the rather gruesome process of raiding graveyards. The invading creatures in H.G. Wells' *The War Of The Worlds* (1898) were, at least in part, robotic.

Novelists of the 20th century, however, have explored in immense detail a fictional world inhabited by robots. The most notable contribution has been that of Isaac Asimov, the celebrated science fiction writer who began his career in 1940 writing short stories about robots

and their imagined operational problems. So complete is Asimov's visionary robotic world that he has even formulated the three Laws of Robotics. According to Asimov, the Laws are contained in the *Handbook Of Robotics* (56th Edition, 2058 AD). Clearly, he was allowing a very reasonable timescale before robots become commonplace.

In the cinema and on television, robots have also made their fictional mark. The television series *Dr Who* is densely populated with Daleks and Cybermen, and in the *Star Wars* films C3PO and R2D2 are the equals of their human co-stars.

In comparison with these flights of fantasy, the present day use of robots seems quite mundane. The industrial robots found on car assembly lines receive most of the attention nowadays. It is estimated that by 1985 there will be 25,000 robots in use in Japanese industry, 15,000 in the USA and 8,000 in West Germany. Britain's robot population is among the smallest of any industrial nation. By 1985, only 1,500 robots are expected to be in operation. Expansion of the European market for industrial robots is expected to continue unabated: by 1990 it is estimated that it will be worth £350 million.

But, for many people, industrial robots seem rather dull. A machine that repeatedly welds parts

#### Fact And Fiction

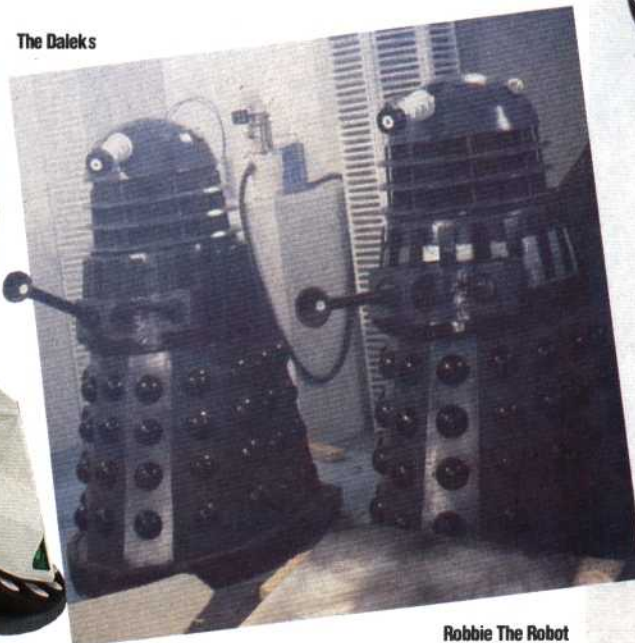
The most famous robots on television must be the Daleks. These are really armoured personnel carriers, controlled by their creators riding inside.

Robbie The Robot from the film 'Forbidden Planet', epitomises the caring, sensitive robot of anthropomorphic legend.

Topo, Prism's now-discontinued household robot, was a half-serious attempt to introduce robotics into the home



The Daleks



Robbie The Robot

