

## Activity 6. Nightmare or Brave New World?

### Things that are being developed now

In his 2002 Cyborg Experiment (see page 2), Kevin Warwick showed he could use his nervous system to control a wheelchair and robots. He was also able to move around blindfolded like a human bat. He 'saw' where he was going by receiving ultrasound signals. All this required an operation with a hundred electrodes to connect to his nerves. A device which would not require surgery is being developed that would use brainwaves to control electrical devices. Sensors inside a 'bathing cap' pick up brainwaves and send them to a computer. The signals can be turned into simple commands. You could switch on a light, say, just by thinking about it! This could be very useful to people who are paralysed. They could, for example, steer wheelchairs or operate a telephone.

An implant in the inner ear can help deaf people hear once more. The implant replaces a damaged **cochlea**. The cochlea converts sound into the electrical signals that go to the brain. The implant picks up signals from a microphone worn on the body. These signals are then sent to the brain along the **auditory nerve** which carries nerve impulses from the ear to the brain.

**Artificial nerves** are being tested on people who can't move. Their **motor nerves** are damaged. These devices are the size of a grain of rice. They are injected into the muscle. A small transmitter worn on the body sends signals to the 'nerve'. It stimulates the muscle and makes it move. Eventually they could replace damaged nerves in people with spinal injuries.

### Possible developments

Microchips and mechanical devices can help disabled people. Could they also help to turn able-bodied human beings into superhumans? You could replace limbs with mechanical ones to make you stronger and faster. There is another even more powerful use of cyborg technology. You could implant microchips in the brain.



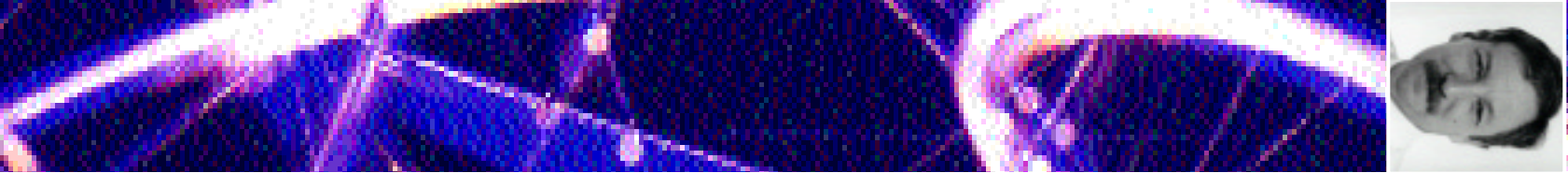
friends or foes?

A chip implanted into the memory centres of the brain could be used to upload information. An external computer could send data via the chip to the brain. We could upload knowledge and skills into a person's brain in seconds. Imagine not having to revise for exams any more! Implanted 'brain chips' could give access to the Internet. People could search for information simply by thinking about it. These are not a reality yet, but they could be in the next few decades.

Then there is Kevin Warwick's dream to send signals directly from one brain to another. He has already communicated in the Cyborg experiment with his wife using electrodes inserted into her nervous system. Will we eventually be able to share thoughts and emotions over vast distances without using speech or images? Perhaps we will be communicating without any form of human contact using a totally new sixth sense. Be careful what you think when you meet up with someone in the future, will they be reading your mind?

Answer these questions in your book.

- (a) What other medical 'cyborg' developments would you like to see in the next 20 years?
- (b) Would you like to see any of these ideas become real? Are there any you would **not** like to see happen? Explain your answers.
- (c) Are there any other 'cyborg' advances you would like to see in the future?



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