Your future

Forensic science

Topfoto

Above: *Forensic scientists inspect the scene of a murder*

Television programmes often portray forensic scientists at the scene of a crime, aiding the police in tracking down a murderer. But their work is far more wide-ranging.

Forensic scientists aim to provide sufficient impartial evidence to make a clear case in court. They could be helping to convict a criminal, eliminate an innocent suspect, identify a forgery or establish a baby's paternity. First and foremost, they must be good scientists, and there are as many types of forensic scientist as types of crime.

Below: *Staff at work in an evidence recovery unit*

Chepstow Laboratory

The task of forensic scientists is to find links between the suspect and the crime. Materials such as fragments of glass or paint, fibres, DNA samples, firearms, items of clothing and documents arrive at the forensic laboratory in sealed and labelled bags. Usually more than one type of evidence will be required before the case is secure.

The work of the reporting officer (RO)

As the most senior type of forensic scientist, the RO has to decide what type of scientific analysis is required in each case, allocate resources and organise the work. Since an RO cannot be an expert in all fields, two reporting officers may work together on complex cases, while other assistants carry out analytical tasks. The RO reviews the work as it progresses and then writes it up clearly and accurately so that it can be read out by someone else in court and understood by non-scientists. ROs may sometimes be cross-examined in court themselves on their conclusions.

The analysis may require hours of painstaking work. In the Soham murder case, fibres from Ian Huntley's carpet were found on the girls' clothes and fibres from their sweatshirts were found on his carpet. Many

thousands of fibres (mostly invisible to the naked eye) were collected by sellotaping over each small area of material and transferring the sellotape to plastic acetate sheets. Microscopes were used to look for a match. Matching fibres were then examined, using sophisticated scientific equipment, to determine the type of fibre, colour and dye composition. It took months. At the same time, other tests were also carried out: DNA analysis, examination of burnt items to find the cause of fire, and a study of pollen, leaves and insects (the girls' bodies were found in a wood).

This was a huge operation, involving many forensic scientists, but even in simpler cases, several types of evidence are needed before they point inexorably towards one conclusion. Fingerprint evidence can be 100% conclusive, but nothing else is, not even DNA. Weighing up and combining evidence is a mark of the forensic scientist's skill.

Becoming a forensic scientist

If such a challenging job appeals, you can enter at various levels. A number of institutions employ forensic scientists, including the Forensic Science Service (UK). It has six laboratories, employing more than 600 scientists altogether, so competition is fierce. Entry after GCSE is possible for an assistant, but you will need very high grades and preferably an A-level in biology or chemistry. You may then work in an evidence recovery unit or specialise in certain analytical techniques. You will not be able to become a reporting officer without a very good degree.

Chemistry, biology or biochemistry are the preferred degree subjects. However, with the increase in computer crime, electrical engineers and physicists are also required. Training will be given after starting work. Forensic science degrees give no advantage; if you are considering one, check that the course contains enough pure science to ensure that you become really competent.

Reporting officer checking through her completed statement

Box 1 Useful websites

To find out more log on to the following websites:
The Forensic Science Service (UK) at
www.forensic.gov.uk/forensic_t/inside/career/opp_1.htm
The American Academy of Forensic Science at
www.aafs.org

Left: *Recovery of glass and other debris*

Qualities needed by a forensic scientist

You will need the following qualities to be a forensic scientist:

- good qualifications
- good speaking skills
- meticulous care in your work
- good note-taking skills
- the ability to write accurately
- intellectual curiosity and a liking for puzzles
- personal honesty
- the ability to remain impartial — it is not your responsibility to put someone behind bars, only to deduce the truth as far as is possible using the evidence you have

Some forensic scientists are employed by insurance companies to investigate fraudulent claims.

Still interested?

The internet has helpful information on opportunities and salaries. The websites of the Forensic Science Service (UK) and the American Academy of Forensic Science (AAFS) give a guide to the present scene (see Box 1). But with every advance in technology, the criminal world thinks of new possibilities and the work of forensic science changes. The future is anybody's guess. It could be yours.

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