

Catching the Culprit with

A handy forensic kit from Schott is a valuable asset in combating crime.

For Harry Jackson a new forensic method proved to be his undoing: He was the first "crook" to be caught by Scotland Yard on account of his fingerprints. That was back in 1902.

Over the last hundred years forensic specialists have refined their methods continually – the system of finding the culprit by searching for fingerprints hasn't changed though. A fingerprint has to be "lifted" before it can be analyzed. The simplest and most well-known method will be familiar to any fan of crime thrillers. Specialists from the forensic department dust the print with very fine particles of carbon or graphite and then transfer it to a piece of adhesive film. However, under difficult conditions this proven method encounters limiting factors. Fingerprints on crumpled aluminum foil, for instance, on plastic bags, or on gun cartridge cases are extremely difficult to detect.

One problem in particular is that it's virtually impossible to create adequate levels of contrast for producing photographic documentation.

The Forensic kit KL 2500 LCD from Schott, for prints treated with fluorescent stains, offers a practical solution in such cases. The kit is comprised of a KL 2500 LCD cold light source, a flexible glass fiber light guide with a diameter of up to 15 millimeters, and a perfectly matched set of excitation and barrier filters. These accessories make the forensic kit handy and easy to use. The cold light source features an LCD display that indicates the color temperature of the light as well as various operating modes. The light guide transmits only the visible light from the 250 watt halogen reflector lamp but not the heat it radiates. "Excessive heat can damage or even destroy fingerprints," explains an expert from crime scene department ZD 12 at the German Federal Criminal Police Office (BKA).

Easy to Use

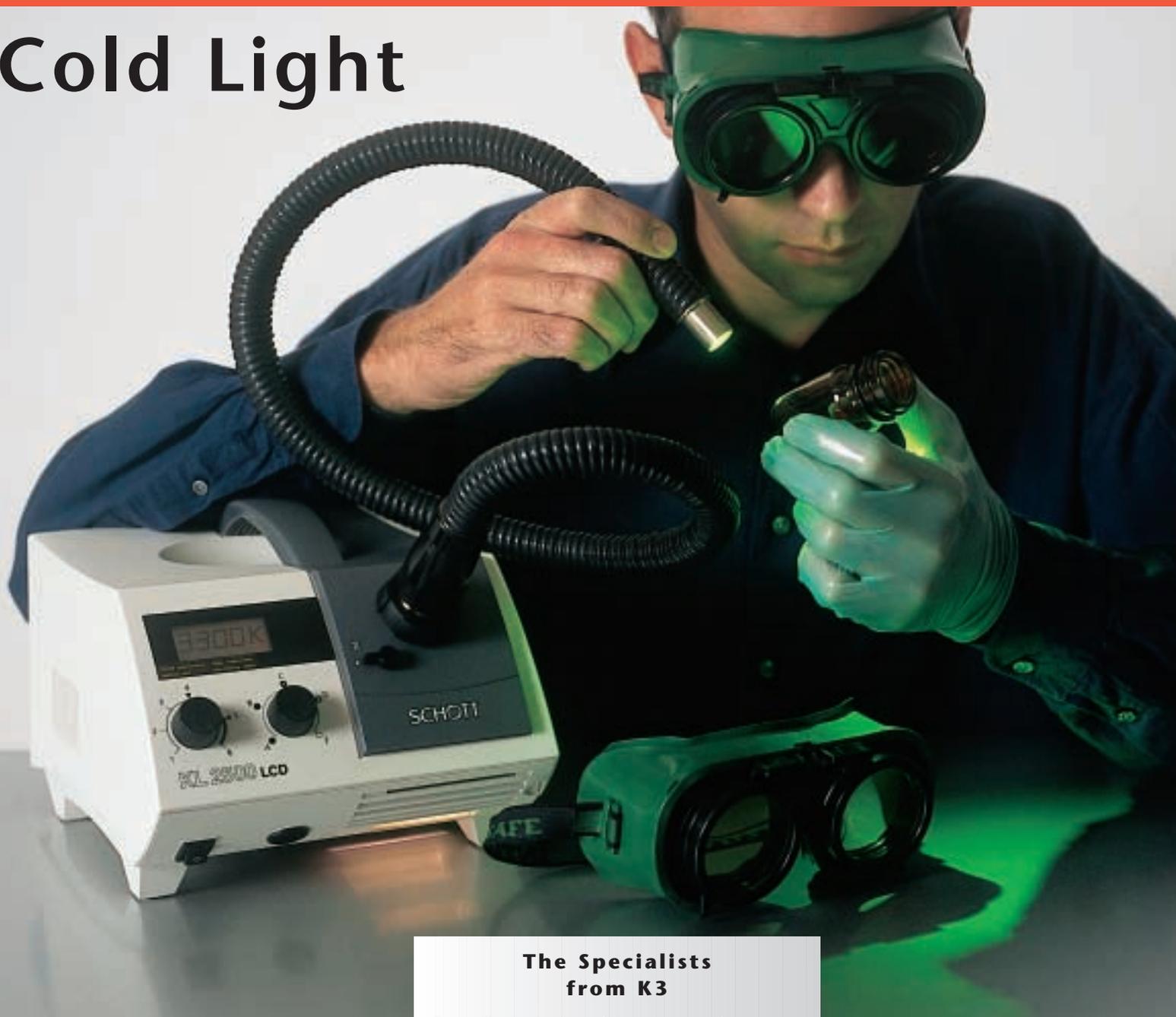
Collecting forensic evidence with the cold light kit is just as easy as it is effective. Fingerprints on crumpled aluminum foil, for example, are first of all sprayed with cyanoacrylate and then treated with a fluorescent solution of methanol and safranin. The solution makes it possible to visualize even low-contrast prints under cold light, provided the light passes through an appropriate fluorescence excitation filter first. Some of the excitation is converted by the solution-treated print into fluorescent light. During analysis of the fingerprints the barrier filters are used. These absorb any undesirable excitation light or ambient light and only allow the fluorescent light being emitted by the fingerprint to pass into the detector. The result of the procedure is that fingerprints appear clearly and can be photographed easily.

The advantages of the cold light kit have convinced forensic specialists in many countries. For example, the German Federal Criminal Police Office in Wiesbaden uses the KL 2500 LCD forensic kit. "We use the unit in our laboratories not only when searching for fingerprints but also when collecting evidence such as hair, fibers, and blood.

Team of forensic experts at the scene of the crime after a shooting.



Cold Light



The Specialists from K3

Every German criminal investigation department is split up into four divisions: K1 deals with murder and sexual offenses as well as fire. K2 handles property offenses like robbery, fraud, and burglary. K3 covers "general services," including forensic science, and finally, K4 is involved with organized crime and drug offenses.

The forensic experts from K3 search for traces of evidence at the crime scene that might provide a clue as to the identity of the criminal: fingerprints, traces of blood, footprints, tire marks, fibers of clothing, or even DNA traces. DNA analysis – also referred to as genetic fingerprinting – is the latest method of securing evidence at the scene of a crime: The DNA structure of a human being is just as unique as his fingerprint. It can be identified on the basis of minute body particles, like skin scales or tiny quantities of body fluids, and thus lead to the perpetrator.

Often such microscopic items can only be visualized under cold light," explains a BKA spokesman. The Romanian police has equipped 50 crime scene vehicles with cold light sources and the Forensic Science Services Metropolitan Laboratory in London has requested a kit for test purposes. As far as Walter Körner from the Schott Fiber Optics Division is concerned, this is clear recognition of the product: "After all, that institution works for Scotland Yard, the very first police department to use fingerprints in tracking down criminals" ■

After appropriate preparation of the item being examined, the KL 2500 LCD forensic kit uses fluorescent light to visualize even microscopic traces.