

## TECHNICAL NOTE

Åke Åbrink,<sup>1</sup> M.S.; Christer Andersson,<sup>1</sup> M.S.;  
and Andreas C. Maehly,<sup>1</sup> Ph.D.

### A Video System for the Visualization of Gunpowder Patterns

---

**REFERENCE:** Åbrink, Å., Andersson, C., and Maehly, A. C., "A Video System for the Visualization of Gunpowder Patterns," *Journal of Forensic Sciences*, JFSCA. Vol. 29, No. 4, Oct. 1984, pp. 1223-1224.

**ABSTRACT:** A nondestructive procedure for the visualization of gunpowder patterns on dark garments by the use of an infrared sensitive video system is described.

**KEYWORDS:** forensic science, ballistics, television systems

A number of methods are known for visualizing gunpowder residue patterns on target materials such as clothing of various kinds. These methods generally depend on the reaction of dyes or other chemicals with the nitrates and nitrites originating from the propellant charge.

We have tried a different approach to this problem which avoids chemical reactions and is nondestructive. It is well-known that visible gunpowder patterns around an entrance hole on cloth give a good estimate of the shooting distance up to several decimetres if compared to reference shots at known distances. However, this method fails if the target material is dark.

During the last three years we have been using a relatively simple television technique and wish to report on its use. The system consists of an infrared (IR) sensitive television camera equipped with a zoom objective, some IR filters, proper lighting arrangements, and a monitor (Table 1). Figure 1 shows the results obtained with a dark garment.

TABLE 1—*Technical data.*

---

Camera:	Philips Video camera, type LDH 26
IR-tube:	Philips Newvikon, XQ 1274 17 mm (2/3 in.)
Zoom optics:	Canon CCTV zoom lens, J8x11/2.0, 17 mm (2/3 in.)
Monitor:	Philips, type 2122/00 305 mm (12 in.), 625 lines
Lighting:	two halogen lamps

---

Received for publication 30 March 1984; accepted for publication 18 April 1984.

<sup>1</sup>Head of firearms section, deputy head of firearms section, and late director, respectively. The National Laboratory of Forensic Science, Linköping, Sweden.

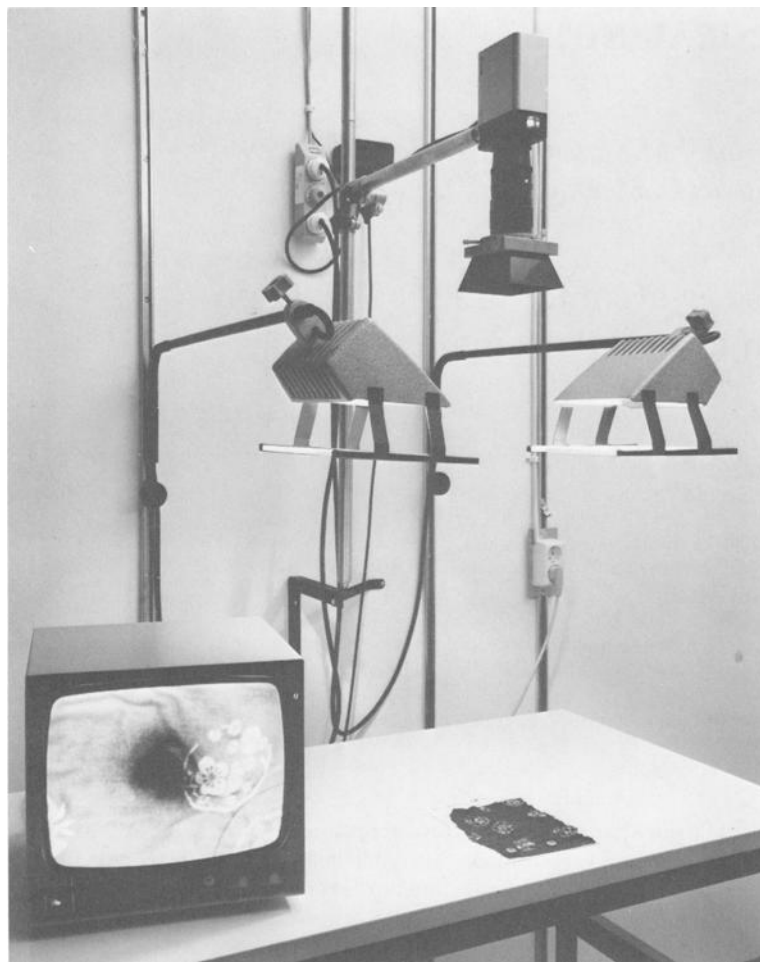


FIG. 1—Results obtained with a dark garment using the television technique.

Address requests for reprints or additional information to  
Åke Åbrink  
The National Laboratory of Forensic Science  
S-581 01 Linköping, Sweden