Currency forgery

The crime of counterfeiting is as old as money itself, and it continues despite increasingly sophisticated security features on banknotes. But as the methods of prevention and detection make their trade more difficult, counterfeiters are looking for easier targets, such as credit card fraud and trademark infringement.

CROOKED COINS ▲
Counterfeiting of coins did not end with banknotes–it is still done, but now to cheat collectors.

Fake currency is at best an irritation to central banks; at worst, it destabilizes economies. Banks characterize the criminals working at these two extremes respectively as "nuisance counterfeiters," who typically use home computers to duplicate notes, and "economic subversives." The first group accounts for only about 5% of false notes, and economic subversion is rare in peacetime.

A bigger counterfeiting problem comes from the middle ground: organized criminals who use multi-million-dollar printing plants to produce convincing currency copies.

Which currencies are vulnerable?

They pick their targets carefully. Currencies with a wide international circulation are popular, because the notes are easier to pass off outside the issuing country. This is why the US dollar is the most widely copied of all currencies. Easy-to-forge currencies attract counterfeiters, too: the German deutsche mark was heavily copied in 1991 and 1992, until the Bundesbank issued notes with better security features.

Protection and detection

Traditionally, banknotes have been printed using elaborate engraved designs with hard-to-duplicate watermarking, sequential numbering, and metal threads. But in the late 1980s, high-quality color copiers made further steps necessary. Some of today's notes have "illegal copy" lettering that appears only when a note is heated by a copier lamp. Other features include color-shifting ink that changes from green to black when the note is turned, microprinting visible only with a magnifying glass, machine-readable bar codes, iridescent ink, and holograms (see opposite page).

SEIZING FILM ▼
The 2002 introduction of the euro gave counterfeiters a unique opportunity to hoodwink Europeans unfamiliar with the new currency. Italian finance police who cracked a major forgers' ring also seized film for revenue stamps.

In the war against counterfeiting, the front line is the cash register. The look and feel, the watermark, and the security thread are the most reliable ways of authenticating notes. Popular but less reliable guides are UV light and iodine pens. These detect fluorescent brighteners and starch, which are not used in genuine banknote paper.

Finding the forger

In the forensic context, clues in the paper, printing, and ink can help track down the counterfeiter. All paper banknotes are printed on high-quality stock that is impossible to replicate economically.

Optical microscopy, using reflected and back light, is commonly used to identify the substituted paper. Investigators may then be able to trace the supplier. UV illumination reveals security fibers in real notes and simulated features in fakes; X-rays make watermarks clearer. Close inspection occasionally reveals that the paper source is the issuing bank itself. Some counterfeiters clean ink from low-value notes, and reprint them in higher values.

The printing process offers similar detection possibilities. Large-scale counterfeiters typically use offset printing, but may use laser or even inkjet printers. Even at their best, these printing methods are easy to distinguish from the high-quality intaglio method used on genuine banknotes. Chemical analysis of the ink, using chromatography (see p. 83), helps investigators make connections between forged notes, especially if a computer database provides a match for the ink characteristics.

Flexible fraud

Most criminal use of plastic cards involves fraud rather than counterfeiting—the cards are not copied but stolen. However, making a counterfeit card is not difficult, if the criminal has access to genuine account details to encode in the magnetic stripe. Copying cards is actually easier than copying currency, because there are tens of thousands of different payment card designs. A counterfeiter does not even need to use the graphic identity of a genuine bank. As long as the data in the magnetic stripe is correct, and the card looks authentic, a merchant will suspect nothing. Investigation of payment card counterfeiting focuses on identifying common characteristics, such as defects in the embossing presses used to raise the numerals, and details of the signature strip, the hologram, and the PVC overlays that cover the card's white core.

PAYMENT CARDS ▲
The IC chips in these smart cards are very much more difficult to copy than the magnetic swipe stripe of older payment cards, which can be duplicated on home computers.

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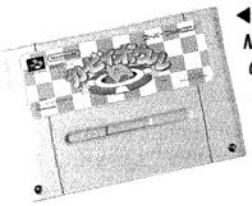
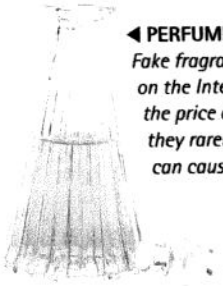
Faked products make up an incredible one-tenth of all world trade. The proceeds from these counterfeits help fund organized crime.

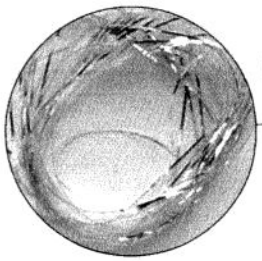


◀ COMPUTER GAMES
Most games are now on CD, enabling hackers to crack copy protection and sell pirate games—sometimes without vital features such as sound.

WRISTWATCHES ▶
Major brands such as Rolex are widely imitated, mainly in the Far East. Often openly sold as copies, the watches lack the numbering guaranteeing authenticity, and rarely last more than three years.



◀ PERFUME
Fake fragrances are advertised on the Internet at a fraction of the price of the real thing, but they rarely smell like it. Some can cause skin reactions.



SECURITY THREAD ▲
Faking metal threads in banknote paper is difficult enough, but the newest generation of notes have printed threads for added security.

MUSIC ▶
Music piracy is a huge problem for record companies. Russia is the counterfeiter's Mecca—just one in ten CDs sold there is genuine.

INTAGLIO INK ▶
Specially engraved plates printed using the costly intaglio process produce a distinctive raised line that is impossible to reproduce with other printing methods.

HOLOGRAM ▶
Shiny optical variable devices on notes are not all holograms, but all show color or image changes when turned, and all are difficult to copy realistically.