A Visit To The Crime Lab

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"Welcome to the Dungeon", fingerprint technician Ken Shaw greeted me as I entered Boston's sector four crime lab. Indeed, it did rather resemble a dungeon in some respects. The fingerprinting section consisted of two large cluttered rooms with low ceilings surrounded by a maze of narrow corridors. It was entirely below ground and had thick concrete walls. This was where the similarity to a dungeon ended, for all the items and people within were definitely modern. It was occupied by fewer than half a dozen casually dressed men, none of whom were either outstandingly young or outstandingly old.

Ken led me through the first of the rooms into the second, explaining that the first room was used primarily for fingerprinting people, and that the second room was where all of the latent print work was done. This room was a labyrinth of boxes and equipment. Additionally, a few objects from recent crimes sat in different areas at different stages of processing, including an elaborate but broken picture frame that once held a picture of Benjamin Franklin, and a simple but functional sawed-off shotgun that had been involved in at least one homicide.

The tip of the finger is far from being either smooth or symmetric. It is completely covered with tiny ridges that form a pattern that is virtually unique. Even identical twins will have different ridge patterns. It is this pattern of ridges that is called the fingerprint. When the fingertip comes in contact with something, a layer of sweat containing amino acids in the shape of the fingerprint will be left on the object. The fact that these latent prints can often be recorded combined with the fact that no two fingerprints are the same is what makes fingerprinting practical.

Fingerprinting is more involved than most people realize. In most cases it requires far more than a general dusting for prints. Dusting can only be used by itself on nonporous surfaces, and only if the prints are still fresh. Otherwise, other techniques must be employed, and the particular technique used must be carefully selected to work with the existing conditions; using the incorrect method can destroy latent print evidence. One common technique is the use of gaseous super glue. While the sweat in a latent print will dry after a relatively short time making dusting for fingerprints pointless, the amino acids in the print can remain for months or more given the right conditions. Super glue (all brand names are virtually identical chemically) has an affinity for these amino acids, and as such super glue gas will naturally cluster and solidify around them, leaving a sticky image of the fingerprint.

While I was in the fingerprinting lab, I had the opportunity to view (and even participate in) the entire process of using the super glue technique of obtaining prints from start to finish. The process was relatively simple. We placed the objects that were being checked for prints in an airtight glass chamber. Several objects are generally treated at once. This particular time, a small handgun, a large knife, and a drinking glass were all placed in the chamber. The drinking glass was a demonstration for my benefit, and had only been handled by me and a couple of the police. Additionally, a small test slide was placed inside the chamber. This had been carefully and deliberately touched, and contained a known latent print. It was used to time the gas exposure; when the print on the slide was clearly visible, the objects within the chamber had been exposed to the super glue

gas long enough. Lastly, a few drops of super glue were placed in a small tin that sat on a heater at the bottom of the chamber. The chamber was then sealed, and the heater activated. The tiny wisps of super glue gas that boiled away from the liquid super glue were circulated throughout the chamber by a couple of box fans. After roughly fifteen minutes, the print on the test slide reached its peak of clarity and the heater and fans were turned off. Ken then opened the chamber, quickly covered the super glue source, and resealed the chamber. The gas was then pumped through a large plastic tube with the aid of an industrial vacuum cleaner running in reverse. The brief exposure to the gas that Ken suffered was a necessary evil; if the tin of super glue were not covered, it would continue to serve as a source and the gas in the chamber could not be evacuated. The only known hazard from such an exposure is an odd one: contact lenses can become literally glued to the surface of the eye. Fortunately, Ken does not wear contact lenses.

Once the super glue gas had been completely removed from the chamber, the objects that were being tested could be removed. They were then examined, and the clearest prints on them found. These prints were dusted, and the resulting dust image of each print was lifted with a wide piece of transparent sticky tape. Each piece of tape was then attached to an index card made from frosted plastic. The card was finally labeled with pertinent information such as the original source of the latent print. The process of recording a print through the super glue method was complete.

Before I left the station, we compared the best print from the glass with the copy of inked prints in Ken's record, and we found a match. The best print on the drinking glass was his own.