***Hair Evidence and the Locard Exchange Principle***

The forensic microscopist routinely examines a variety of different types of trace evidence based upon the Locard exchange principle that states that whenever two objects come in contact, there will always be a transfer. This principle has been abbreviated in recent years to the idea that every contact leaves a trace. One type of transfer evidence routinely examined in the crime lab is hair evidence.

Materials

* lint tape roller with handle
* ruler- preferably metric
* magnifying instrument

Procedure:

Part 1:

Begin your examination by pulling an intact head hair from your scalp with thumb and forefinger. Lay the hair on a hard, flat surface and begin documenting the characteristics visible in the hair.

**Describe** as many characteristics that you can.

**Observe** and note by eye and then with your microscope such descriptions as the color, appearance/shape of the root, tip and also the overall shape of the hair (straight, curly, wavy, etc.).

If possible, **document** the presence or absence of a medulla in the hair and describe its condition (continuous, discontinuous, fragmented, etc). In some cases the medulla may be more readily visible with a black or dark colored background.

**List** all visual/microscopical characteristics you observe:

**Measure** the length of the hair.

Now pull, brush or comb out hairs from various parts of a pet in your home, preferably from a dog or cat or both.

**Repeat** the examination process as you did for your head hair. The more common hair will be a fine, wavy fur hair. The courser and stiffer guard hair is usually of greater diagnostic value. If you do not have access to any pets with hair, you can study hairs from a fur coat, jacket, or other garment in your home made from animal hair.

If pets and fur based textiles are not accessible, pull a second intact hair from another part of the body (preferably a pubic hair). Again, repeat the examination process as above. Try to become familiar with a variety of hairs from different sources.

It must be noted that some hairs will appear opaque and will not permit observation of some characteristics.

Part 2:

Wear a clean, freshly laundered shirt/top and slacks. Use your lint roller to remove any remaining hair contaminants from the outer clothing. Go about your normal activities for the day. At the end of the day carefully remove the shirt/top and slacks. Use your lint roller with fresh exposed tape and tape over the outside surfaces of the top/shirt. Remove that strip of tape when it loses its tackiness. Repeat the process on the exterior of the pants/slacks.

Now **examine** the tape lifts for any hairs.

Tips:

*Note:* For this experiment you may use a magnifying instrument such as a hand magnifier or an illuminated pocket microscope with magnification of about 30X but no higher than 60X ($10-$20). More expensive models have a zoom feature. If you have access to one, you can use a stereomicroscope.

* A hand magnifier and pocket microscope may not permit observation of some hair characteristics.
* Lint tape rollers are readily available at most retail stores.
* Illuminated pocket microscopes are usually available at a local Radio Shack store or at various educational and science supply company websites.