# Letters to the Editor

## Improvements in a Method to Connect an Implement with a Tire Slashing

Sir:

In a previously published article ("Connecting a Knife or Ice Pick to a Tire in a Tire Slashing," Vol. 25, No. 3, July 1980, pp. 603-611), our method for connecting a knife blade or implement to a tire slashing has one portion in the procedure that is difficult to accomplish—the transferring of the particles from the implement to the gradient column—and one portion that is tedious—watching the particle while waiting for it to come to rest in the gradient. The following improvements are proposed to alleviate these problems.

The previously used jeweler's forceps or microcapillary tube has been eliminated in favor of a differently shaped buret to contain the gradient column. A 500-mL separatory funnel with the stopcock section and part of the top removed is joined to the top of a regular buret. The top portion of the separatory funnel is cut away above the bulge to allow easier access to the gradient (Fig. 1, left). A normal gradient is made in the buret portion of this new column as before. The remainder of the column and the bell portion are filled with distilled water to within 25 mm (1 in.) of the top. The suspect blade is carefully inserted into the column below the water line to prevent accumulation of air bubbles on the blade and attached rubber particles. A vibrating tool, such as an engraving marker, is then gently touched to the blade to knock the particles into the column. The shape of the bell at the top channels the particles down into the buret where they are spotted with the meniscus magnifier as before. The top portion of the bell allows a small amount of splashing without the loss of the particles. This method is quicker and takes less practice in transferring particles than using a jeweler's forceps or microcapillary tube. In addition, many more particles can be transferred within a very short time.

After the particles have been transferred to the gradient column it takes between 3 and 30

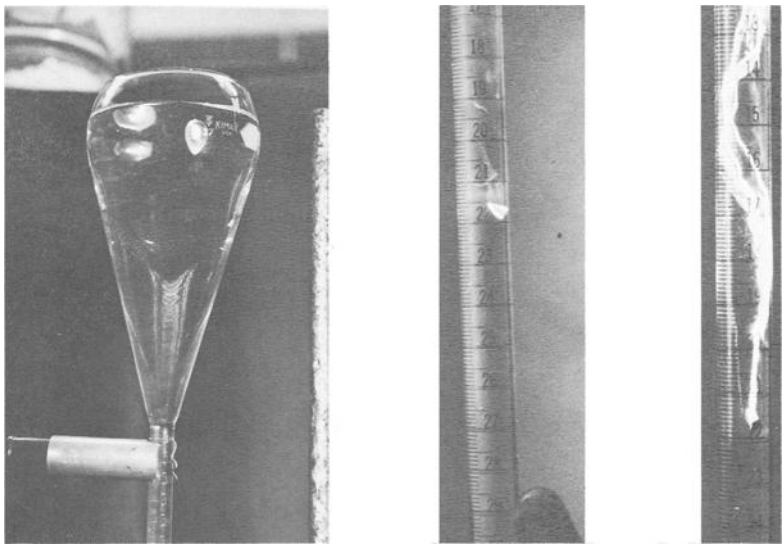

FIG. 1—(Left) *Separatory funnel.* (Middle) *Large particle in the gradient under UV light.* (Right) *Fluorescent trail left by porous ink.*

min for the particles to arrive at their equilibrium depth. During that time they must be followed down the column with the aid of some magnifying device unless they are somehow marked. Attempts to chemically bond a fluorescing agent with the additives in the rubber were unsatisfactory. A much simpler method was found. Fluorescent ink allows the particles to be marked quickly and easily. The ink does not alter the density of the tire particle significantly and in any case is washed off by the time the particle reaches its density position. The coating of ink also partially removes the problem of air bubbles attaching to the particles upon insertion into the density gradient. Black-Ray® nonporous ink (A-946, Ultraviolet Products, San Gabriel, Calif.) can be dripped onto the particles with an eye dropper while they are still on the blade, or the particles can be removed with a jeweler's forceps and then dipped into some of the ink.

After the ink has dried, the particles can be placed into the density gradient as before. After 20 to 30 min a long-wave ultraviolet lamp can be used to locate the particles. Depending on the power of the UV lamp, this step may need to be done in the dark. Figure 1, middle, shows a large particle in the gradient under UV light. If there is a significant time lapse before the particle's position is determined, the ink may diffuse from the particle, obscuring the actual position in the UV light. This necessitates further determination of the particle's position in normal light using a magnifier. The diffusion of the ink will also ruin the gradient column for further determination and a new column will need to be made. On larger pieces of sidewall rubber, Black-Ray porous ink (A-634, Ultraviolet Products) may be used in a similar fashion. This type of ink will leave a fluorescent trail as the particle descends the column (Fig. 1, right). The particle will be at the end of the trail. In smaller particles, however, not enough ink is absorbed to permit the particle to leave a trail the entire length of its passage. Nonporous ink is therefore suggested for general use.

Unfortunately, both of these modifications cannot be used together. The composition of the nonporous ink, according to the manufacturer primarily isopropanol/butyl acetate/butyl solisol 2:1:1, forms a scum at the surface when it is dipped into the water. This scum traps the particles in it and precludes any further use. The nonporous ink, composed primarily of water/ethyl alcohol 1:1, will allow the particles to be shaken off the blade as before. However, when the vibrating tool is applied to the blade to shake off the particle, a fluorescent cloud is formed in the shaking liquid rather than a single trail as in the case previously described. The fluorescent cloud prohibits the pinpointing of any of the particles removed from the blade.

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**Need for a Forensic Science Rare Blood Bank**

Sir:

One of the occasional problems confronting a forensic serologist is the identification of a rare blood type found in case material and obtaining a known standard for comparison and confirmatory purposes. The laws of the State of North Carolina forbid forensic serologists from testifying to results or events not actually seen or sensed. Thus we are not able to send case material to outside agencies for confirmation of a blood type, but rather must ourselves run the known standards along with the case material.

As a case in point, I recently worked on an incest case where three of the four individuals tested have the rare phosphoglucomutase ($PGM_1$) phenotype 3-1 (see pp. 75-81 of this issue). Over 25 inquiries were placed to forensic laboratories, blood banks, and universities across the United States without my being able to locate a known $PGM_1$ 3-1. Fortunately, I

was able to obtain a known $PGM_1$ 3-1 from Brian Parkin of the Metropolitan Police Forensic Science Laboratory in London, England.

A real need exists for a forensic science rare blood bank of the United States and I suggest that an organization such as the Federal Bureau of Investigation or the Forensic Science Foundation study the feasibility of setting up a rare blood storage program. Rare blood types could be stored in liquid nitrogen, as dried and frozen stains, or as acetone powders, depending on the blood type involved, and made available free of charge to forensic serologists who need them for confirmatory purposes. Samples to build up this rare blood bank could be donated by forensic science laboratories across the country, and preliminary inquiries I have made to several laboratories indicate a willingness to do so. I will gladly donate my collection of $PGM_1$ 3-1 and 3-2 phenotypes and erythrocyte acid phosphatase RA and RB phenotypes to get such a program started. Other blood types the North Carolina State Bureau of Investigation can make available include the following phenotypes: esterase D 2-2, adenylate kinase 2-1, adenosine deaminase 2-1, and erythrocyte acid phosphatase CA and CB.

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**Discussion of "Identification of Mass Disaster Victims: The Swiss Identification System"**

Sir:

In a letter to the editor, Dr. Guy L. Udy (Vol. 25, No. 2, April 1980, pp. 270-271) suggests that American insurance carriers would hardly accept the disk method as "positive identification" without further comparison of antemortem and postmortem records. Of course, *where it is possible,* complete identification procedures, including examination of personal effects, fingerprint comparisons, dental record comparisons, and so forth can serve the same purpose and should be performed. Additional, more time-consuming identification procedures are not excluded by the disk method; they are, however, greatly simplified once the victim has been putatively identified through the disk.

Dr. Guy further suggests that with reference to collusion, a disk could be planted on a victim. Attempts to deceive are always a possibility; however, with the disk system they are *less,* not more, likely to succeed. The presence of the disk on a victim means that *all other* means of identification must be destroyed or be falsified so that they are in *100%* correspondence with the putative identity of the victim. Certainly, safeguards should be taken. The disks should be coded and their distribution and insertion offices limited. This can be easily organized by the sponsoring company or institution.

A further, rather sophisticated safeguard is possible when the sealing composite is labeled with one of several metals, such as silver or zinc, and this information stored with the ID code. The marker would be detectable at the disk surface by neutron activation analysis. A disk falsely inserted in a victim before the disaster would not have the correct sealing composite or marker, and a disk planted after the disaster would also have a surface free from traces of the marking element.

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