



CALIFORNIA DEPARTMENT OF JUSTICE
BUREAU OF FORENSIC SERVICES
PHYSICAL EVIDENCE BULLETIN



COLLECTION OF GLASS FRAGMENTS

INTRODUCTION - The value of glass fragments as evidence is not always fully recognized. Windows, automobile glass, broken bottles, and other glass objects may be crucial evidence in burglaries, murders, hit-and-run and many other types of crime.

It is known that any person standing in close proximity to glass when it is broken will pick up fragments of the broken glass, particularly on a subjects' clothing and shoes. Consequently, the clothing of burglary suspects, in cases where windows have been broken, will often retain microscopic glass fragments.

Frequently, as a result of hit-and-run accidents, headlight lenses can be broken (see PEB 3 12/98). Less common, but also possible, is the breaking of windshield glass. Therefore, both the scene of the accident and the clothing of the victim can be expected to be sources of glass fragments.

COLLECTION, PRESERVATION, MARKING, AND TRANSPORTATION OF GLASS

A. Fragments of Microscopic Size

1. Collection Procedure

These are usually found on articles of clothing, INCLUDING SHOES. Keep handling to a minimum, wrap the articles of clothing SEPARATELY and label. Wet or bloodstained clothing should first be dried before packaging in paper. Other objects such as tools or bullets may contain glass fragments and are packaged as described below.

2. Marking and Packaging Procedure

Carefully place in the smallest container into which the object will comfortably fit. (For example: bullets can be placed in small pill boxes, shoes and tools in shoe boxes.). DO NOT PACK WITH COTTON OR OTHER PROTECTIVE MATERIAL DIRECTLY TOUCHING OBJECT. To prevent rattling, object may be wrapped and sealed in butcher or brown paper and packed with crumpled paper or packing material.

Seal completely, leaving no holes or open seams through which the glass may be lost should it become loose from the object.

Label container completely and transmit to laboratory.

B. Large Visible Fragments

1. Collection Procedure

There is a chance that physical matching ("Jig-saw" type) may be accomplished with the fragments. Therefore, collect all the fragments present to permit reconstruction. If the nature of the breaking force or

its direction is required, all fragments must be collected. The glass should be placed in a sealed paper bundle or a folded and sealed paper or plastic bag depending on size.

2. Marking and Packaging Procedure

Place in pillbox or similar boxes with tight-fitting lids. DO NOT USE GLASS CONTAINERS. If glass is submitted for purpose of determining direction of impact of a bullet or other fracture analysis, RECORD WHICH SIDE OF GLASS WAS ON THE OUTSIDE OF THE WINDOW, AND WHICH SIDE WAS ON THE INSIDE.

C. Comparison Samples

1. Collection Procedures

The laboratory examination of glass fragments is almost exclusively a process of comparison. For this reason, as much as possible of the broken glass must always accompany the rest of the evidence submitted.

2. Marking and Packaging Procedures

If size limitations preclude collecting all the glass, always attempt to obtain a sample from an area near the point of impact, and then collect and mark separate specimens from distant corners of the pane as well.

ALWAYS KEEP THE COMPARISON SEPARATE FROM THE QUESTIONED FRAGMENTS. Place in separate containers, and label accurately.

RESULTS POSSIBLE FROM LABORATORY EXAMINATION OF GLASS

If the pieces of broken glass can be made to fit together in the manner of a jigsaw puzzle, positive identification can be made.

Even glass fragments as small as the head of a pin can be compared. However, even if unusual properties are present, only a strong indication of common origin can be given and are not an absolute identification.

If a window has been struck with a blunt instrument such as a rock, stick, or fist, it is possible to determine the side of impact and the nature of the force involved.

If a bullet has penetrated a window, it is possible to determine the direction from which it was fired.

If two or more bullet holes are in close proximity, it is possible to determine the sequence of firing.

If a glass object has been exposed to fire, it can be determined if it broke as a result of the heat or by mechanical force.