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FRICITION RIDGE ANALYSIS REPORT ON THE  
MARK FOUND ON A WOODEN DOOR FRAME

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by  
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The analysis is of a fingermark, which was photographed. (The Exhibit was physically examined at the Procurator Fiscal's Offices in Kilmarnock on the 25th April 2000) The fingermark was compared to a photograph of the left thumb of Shirley McKie.

**ANALYSIS OF FINGERMARK**

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**SUBSTRATE**

The substrate is a white painted surface, covering a wooden door frame. The surface is relatively smooth and flat.

**MATRIX PARTICULARS**

The mark shows a normal appearance when sweat is deposited on to a smooth surface, this shows that the friction ridges were made from normal viscosity. The matrix tended to assemble in the pore openings. Each pore is relative to a ridge unit, which is the biological building block of a friction ridge. Pores are therefore regularly spaced, along the friction surface.

The intervening furrows appeared to be normal. The appearance of this fingermark is consistent with a sweat mark. The sweat has flowed from the pores along the ridges and deposited onto the surface.

**DEVELOPMENT MEDIUM**

The developed mark appears to be black powder. When I physically looked at the door frame, I could see no evidence of any other developing powder.

**DEPOSITION PRESSURE**

The appearance of the fingerprint matrix lead me to believe that deposition pressure was light to medium. There is more pressure above the core area and towards the top of the digit.

## CLARITY

Although there is no distinct pattern, there is first level detail above the core area. There is enough second level detail present to identify this mark. There are areas of third level detail (pores and sides of ridges). Taking all this information into consideration, the tolerance appears to be low.

## PROBLEMATICS

~~There is some background noise, for example, dark patches, this is due to the black powder adhering to the painted surface, this does not interfere with the overall mark.~~  
There is an area in the centre near the top edge, where the ridge detail is uneven and difficult to follow, possibly due to contaminates either on the digit or on the surface.  
There is a faint vertical line on the right hand side of the mark, possibly caused by the substrate.

## ANATOMICAL ASPECTS

The position of the mark on the door frame, leads me to believe (after experimentation) that it was made by one of the digits of the right hand. It is impossible for a person to be facing the doorway, and depositing a mark with the digit from the left hand.

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## COMPARISON OF THE FINGERMARK TO THE KNOWN FINGERPRINT OF SHIRLEY MCKIE.

### SUBSTRATE AND DEVELOPMENT MEDIUM

This is a photographic enlargement of the left thumb which has been recorded by means of inking and deposited onto a paper surface.

### RIDGE PATH AND FURROWS

The ridge paths and the furrows can be followed without difficulty .

### MAJOR RIDGE PATH DEVIATIONS

There are several major ridge path deviations (ridge characteristics) within the ridge paths of the fingerprint which can easily be identified.

## DEPOSITION PRESSURE & DISTORTION

There is a thickening of the ridges in the core area but this does not effect the overall print.

## CLARITY

The fingerprint indicates a clear loop pattern (first level detail), which includes a core and support ridges for the right hand delta (which is missing). There are clear major path deviations (ridge characteristics), and clear third level detail (pores and edges of the ridges). The overall shape and detail is good, therefore, the tolerance is low.

## PROBLEMATICS

There are breaks in the ridges on the left side of the print, this is caused by the ink not adhering to the paper. As previously mentioned, there is no delta.

## EVALUATION

There is sufficient detail in the fingermark to make a comparison and to formulate an identification.

In my overall analysis of both impressions, I found that the detail in the fingermark and the fingerprint were **NOT** in agreement, taking into consideration the clarity of the fingerprints and various aspects of friction ridge distortion, which were revealed during the analysis.

Although there was deposition pressure and problems with the fingermark, this does not, in my opinion, lessen the evidential value.

Based upon my knowledge and over twenty-four years of experience, it is my opinion that the fingermark and the left thumb of **SHIRLEY MCKIE** was **NOT** made by the same digit.