

A Historical Review of the Characterization of Blood and Secretion Stains in the Forensic Science Laboratory

Part One: Bloodstains

REFERENCE: Whitehead PH: A historical review of the characterization of blood and secretion stains in the forensic science laboratory — part one: bloodstains; *Forensic Sci Rev* 5:35–51; 1993.

ABSTRACT: Laboratory tests were established during the latter part of the 19th century and the beginning of the 20th century that determined whether or not a stain was blood and, if so, from which species it originated. A few years after the discovery of the ABO blood groups in 1900, it was possible to detect these groups in bloodstains using the absorption-inhibition (A/I) technique. However, in the 1960s a new technique emerged that was more sensitive and quicker than A/I — the absorption-elution (A/E) method. Furthermore, it could be adapted to grouping semen and saliva stains. The biochemical technique of electrophoresis allowed the study of polymorphic forms of serum proteins and red cell enzymes in bloodstains. By 1980 it was theoretically possible to type a bloodstain in at least 16 different blood group systems. Even if a smaller number of these systems was identified in a stain, often very high levels of discrimination were achieved. Fewer blood grouping systems were applicable to secretion stains. The latest development of DNA profiling, however, allows the determination of the source of a stain from blood or semen with a degree of certainty never before attained. Technical success has nevertheless brought problems both for the laboratory and the courts, some of which are addressed here.

KEY WORDS: Blood groups, bloodstains, characterization, court, history, laboratory, problems, secretions, semen, techniques.
