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MEDICOLEGAL ASPECTS OF HUMAN BLOOD GROUPINGS

By PHILIP B. GILLIAM, *of the Denver Bar*

IN A RECENT case in the Juvenile Court of Denver testimony on the results of a blood test was admitted in evidence on the issue of paternity. This case is believed to be the first case in the history of the courts of Colorado in which such evidence was used. There have been many confusing statements in regard to the conclusiveness of such tests and as a result the courts of the United States have been reluctant about the admission of blood tests as evidence. Since Landsteiner discovered the blood groups in 1900 the tests have proven of great importance in Europe, and the reliability of such tests has been established by more than 10,000 paternity cases alone. In spite of this fact there have been but few cases in the United States on this subject.

Undoubtedly the question of paternity has always been one of the most difficult issues to defend. This question is always coming before the courts, and in view of the difficulty in obtaining concrete evidence there has been a miscarriage of justice in many cases. Although the blood test has been used chiefly in paternity cases, it has also solved the problem of mixed children, and furnished valuable clues in criminology.

For legal purposes the test is fairly simple and the results are easy to explain before a jury. In brief, Landsteiner discovered that human bloods can be subdivided into definite groups because of the ability of the serum of one person to agglutinate or unite the red blood cells of another. From his observations he correctly came to the conclusion that only certain blood groups could appear in a child from the mating of parents having known blood groups, and that other blood groups were impossible. Landsteiner developed two tests to determine the blood groups, and these tests are absolutely independent of each other. In both tests they can take all possible matings of man and woman and determine without question the possible children and the children not possible.

The following charts illustrate these tests:

INTERNATIONAL CLASSIFICATION

Groups of Parents (All possible matings)	Groups of Children Possible	Groups of Children Not Possible
O x O	O	A, B, AB
O x A	O, A	B, AB
O x B	O, B	A, AB
A x A	O, A	B, AB
A x B	O, A, B, AB	-----
B x B	O, B	A, AB
O x AB	A, B	O, AB
A x AB	A, B, AB	O
B x AB	A, B, AB	O
AB x AB	A, B, AB	O

HETERO CLASSIFICATION

Types of Parents (All possible matings)	Types of Children Possible	Types of Children Not Possible
M/N/ x M/N/	M/N/, M/N-, M-N/	-----
M/N/ x M-N/	M/N/, M-N/	M/N-
M/N/ x M/N-	M/N/, M/N-	M-N/
M/N- x M-N/	M/N/	M/N-, M-N/
M/N- x M/N-	M/N-	M/N/, M-N/
M-N/ x M-N/	M-N/	M/N/, M/N-

How the blood groups can be applied in an actual paternity case is illustrated in the following two hypothetical examples: A man charged with the paternity of a child denies the charge, so the blood groups of man, woman and child are determined. The man is found to belong to Group A, the woman to Group A, and the child to Group B (see mating 4 of the International classification). Since the mother does not possess agglutinin B, but the child does, this agglutinin must have come from the father, who could therefore only belong to Group B or Group AB. The blood groups in this case, therefore, have furnished absolute proof of the man's innocence. Let us suppose, on the other hand, that in another similar case the blood groups were as follows: man, Group

B; woman, Group A; and child, Group AB. As may be seen from the International classification (see mating 5), such a combination of groups is entirely possible. This, however, is no proof that the man charged with paternity is the true father; for in a population such as that present in this country, about 15 per cent of all individuals belong to Group B. The man in question is no more proved to be the father than is any other man belonging to the same group. Blood groups, therefore, are of no value as an aid to proving paternity; they can only be used to prove non-paternity.

In not every case where a man is unjustly accused of paternity is it possible to exclude him as a father of the child. Thus, if the putative father and the true father both belong to the same group, no exclusion will be possible. By using both tests as illustrated by the chart it is possible to exonerate about 36% of those falsely accused. The tests are absolutely conclusive when the accused party is excluded as a possible father and can only be used for this purpose. In Denver the courts and the lawyers are fortunate in having Dr. E. R. Mugrage, clinical pathologist of the Colorado General Hospital available. Dr. Mugrage has made an exhaustive study into this subject and his ability is known throughout the country.

Within a short time the legal profession of the United States doubtless will recognize the many possibilities of blood tests as evidence.

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