Paternity Blood Tests—Science or Mystery: A Discussion of the Legal and Medical Aspects of Blood Tests in Disputed Paternity Proceedings

Victor B. Wylegala
Children's Court of Erie County

Ernest Witebsky
University at Buffalo School of Medicine

Follow this and additional works at: https://digitalcommons.law.buffalo.edu/buffalolawreview
Part of the Family Law Commons

Recommended Citation
Available at: https://digitalcommons.law.buffalo.edu/buffalolawreview/vol7/iss2/2
EVEN limited experience in the trial of filiation cases brings clearly to light the oft-repeated statement that the charge of illegitimate paternity is easily made but is extremely difficult to disprove. The rule that proof must be satisfactory to the trier of the facts imposes upon the judge greater responsibility than the usual civil or criminal case where either a fair preponderance of evidence or reasonable doubt are the yardsticks. Because of the very nature of the acts leading to the proceeding, direct corroborative evidence seldom is available to either side.

Science has done much to help courts determine the true facts in other cases. To mention but a few: the X-ray, for example, when interpreted by a qualified expert, will reveal whether any bones were broken; an experienced chemist will prove beyond all doubt the composition of substances; fingerprints on tell-tale objects will overcome the testimony of a host of alibi witnesses. Throughout the history of the development of the law we see many contributions by science which take guesswork out of lawsuits by making available to the court scientific proof of the facts.

Blood tests, for the purpose of excluding a particular individual from paternity of a specific child, were developed from studies of the problems of substituting blood in patients where such need arises in medicine. It was learned that certain definitely ascertainable properties of the human blood are transmitted to the offspring according to well-established laws of heredity.

This article is intended only as a general discussion of the scientific basis of human blood grouping. We will not attempt to discuss the law in the many jurisdictions in our nation as to the admissibility and probative value of blood tests in disputed paternity proceedings.

As to the scientific aspect we hope to give the lawyer a basic understanding of

*Judge of the Children's Court of Erie County, Buffalo, New York.
**Distinguished Professor, University of Buffalo School of Medicine; Chief Bacteriologist and Serologist, Buffalo General Hospital, Buffalo, New York.

the theory underlying the conclusions and the need of specialized training, competency and integrity of the persons making the tests. For those who desire to delve deeper into this interesting and intriguing science there are many professional publications, which are written in language not too technical for most lawyers.3

The laws governing the right to request a test, its admissibility in evidence and its probative value vary so much from state to state that any detailed discussion would be far beyond the available space in this publication. For that reason the legal aspect shall be limited to the legal application of this science of blood-grouping; the New York State law and the experience of the Erie County Children's Court with it; how and to what extent courts may rely upon this scientific knowledge; and how courts may protect themselves against abuse, misuse and corruption of such knowledge.

We believe that the situation in Erie County is a unique one. Since very early in 1938 all of the tests in paternity proceedings were ordered by the same judge and carried out by the same physician serologist. In all, up to October 1, 1957, the court disposed of 4183 filiation proceedings. In these there were 750 orders for blood tests. There were 109 exclusions, covering 88 men, because some of them were excluded under two or all three of the systems used.

It may be of interest to know with what frequency these exclusions occurred.

<table>
<thead>
<tr>
<th>Blood Group</th>
<th>Blood Type</th>
<th>Rh Factors</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A-B-O</td>
<td>M-N</td>
<td></td>
</tr>
<tr>
<td>1st 100</td>
<td>4</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>2nd 100</td>
<td>4</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>3rd 100</td>
<td>4</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>4th 100</td>
<td>6</td>
<td>13</td>
<td>4</td>
</tr>
<tr>
<td>5th 100</td>
<td>5</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>6th 100</td>
<td>7</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>7th 100</td>
<td>4</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>50 of 8th 100</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Note 1: The Rh tests were first made in January 1948.

Note 2: In the 4th 100: 3 men were excluded under both group and type. One man was excluded under all three systems.

In the 5th 100: 1 man was excluded under type and Rh; 1 under group and type; 1 under group and Rh.

In the 6th 100: 3 men were excluded under both type and Rh and 2 under group and Rh.
In the 7th 100: 1 excluded under group and Rh; 1 under type and Rh and 1 under all three.
In the last group one man excluded under type and Rh.
It should be noted that of the 24 exclusions under the Rh system 12 were excluded only under the Rh.

Beginning with the first exclusion, it has been the practice in our court, for the judge either himself or through the County Attorney's office, to give the complaining witness an opportunity to question the result of the test, to have it repeated by either Dr. Witebsky or any other qualified expert. The regularity with which these unfortunate women suddenly recalled and readily admitted acts of intercourse with someone other than the defendant during the conception period was at first surprising. There were, of course, a few—not more than a half dozen that can be recalled—who persisted in denying other relations but refused to have the test repeated even when expense was not important, or who otherwise acted so suspiciously that little or no doubt remained.

While every one of the exclusion cases had its own peculiar social phases, permit us to cite two in some detail to show the value of these tests.

Probably the most glaring was the very first exclusion case, that of a girl who lived next door to a fire house. Her story was well corroborated that one of the firemen, a married man, took her out at least two or three times per week for a period extending over two years. The fireman's defense was extremely weak and his alibi highly improbable. He demanded a blood test. His attorney strongly urged him to save his money. The test excluded him. The girl stuck to her story and the test was repeated with the same result. Again the girl was questioned, and now she recalled that one night, during the conception period, she accepted a ride from some unknown man who forced himself upon her. She insisted that "he could not possibly be the father since he did it only once."

In another case a young, brilliant college student was accused by a 15-year-old girl. Many witnesses on each side were sworn. Expert cross-examination could not shake them, and it was impossible to determine who was telling the truth. Perjury was so apparent that counsel on both sides almost simultaneously suggested that the lie detector machine (polygraph) at police headquarters might be helpful. Both parties as well as witnesses freely agreed to submit. Without going into the propriety of such procedure, the judge, out of personal curiosity, consented. Then things began to happen.

The complaining witness went through the test with flying colors. She was
apparently telling the truth. But the defendant's witnesses became frightened and, rather than have their perjury revealed by a machine, asked to see the judge. Incidentally, in this case, instead of the usual syndicate of young men who claim that they also had relations with the complaining witness, the witnesses were young women who testified about occasions on which they saw the complaining witness going on auto rides, and later getting admissions from her about acts of intercourse with her companions who always were young men other than the defendant. The defendant's witnesses came to see the judge and told how their stories were fabricated and fully rehearsed in the office of the defendant's counsel. The defendant's polygraph chart was very irregular, but he demanded a blood test which excluded him. The young woman, when confronted with this scientific proof, broke down and told of another young man in her own neighborhood who was the real culprit.

Because of the many other examples that could be cited confirming the infallibility of blood tests, we have become convinced that many a defendant who was excluded would have been found guilty, except for the decisive and conclusive proof that the child in question was not fathered by him.

**Scientific Basis of Blood Classification**

Medical science has identified many clearly distinguishable inherited systems of blood factors. At the present time at least nine of these systems are known to exist, but the medico-legal application is usually limited to the three systems previously mentioned, namely, the A-B-O blood groups, the M-N blood types, and the Rh system.

The main reason for limiting tests to the three foregoing systems is that many well-equipped serological laboratories have available the necessary sera used and the results obtained can be confirmed anywhere in the world, in contrast to the other systems for which the sera are not as readily available. The application of the A-B-O system allows the exclusion of one out of six falsely accused men, as does the M-N system, while the use of the Rh system permits the exclusion of one out of four. Inasmuch as these systems are completely independent from each other, the combined use of the three systems allows the exclusion of a little bit better than one out of two falsely accused men. It is obvious, therefore, that the combined application of the three systems gives a much better chance than the use of only a single system, which is still practiced in many laboratories. There is good reason to hope that further experience will permit the application of further systems in the future which may substantially increase the possibility for exclusion of men falsely accused of paternity.4

PATERNITY BLOOD TESTS—SCIENCE OR MYSTERY

THE BLOOD GROUPS

The blood is composed of two main parts—one consisting of the blood cells, and the other of the blood fluid. When blood is allowed to clot outside the body a blood clot forms and the blood fluid expressed from the blood clot is referred to as blood serum.

The reason for the incompatibility of human blood in blood transfusions was discovered by Landsteiner some 50 years ago. There occur four different main groups among human beings that are differentiated from each other by certain properties of the red blood cells designated as A and B. These two properties might either be absent (blood group O), either one might be present (blood group A, or blood group B), or both properties are present (blood group AB).

The question arises as to how to demonstrate the A and B properties present in human red blood cells. The indicator for the presence or absence of these properties is given in the normal human blood serum. The serum of group A has a peculiar property to clump the cells of group B, and the serum of group B clumps the cells of group A. Serum of group AB has no clumping properties whatsoever, while the serum of group O is capable of clumping the cells of groups A, B, and AB.

Blood group specific cell properties appear already in fetal life, in the third and fourth months and are, of course, present after birth although the clumping properties of the blood serum appear only after birth. It is, therefore, perfectly possible to determine the blood group of a new-born baby, provided potent test sera are used. It is our policy to defer, however, the blood examination of a new-born baby for at least two, or even three months, in order to allow the cell properties to further develop.
BUFFALO LAW REVIEW

HUMAN BLOOD CELLS
Magnified 200 times

Suspended in .85% Saline Solution

The Same Cells Suspension being clumped

THE FOUR HUMAN BLOOD GROUPS

<table>
<thead>
<tr>
<th>SERUM GROUP</th>
<th>O</th>
<th>A</th>
<th>B</th>
<th>AB</th>
</tr>
</thead>
<tbody>
<tr>
<td>CELL SUSPENSION GROUP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>O</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AB</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DETERMINATION OF THE BLOOD GROUPS IN AN AFFILIATION CASE.

<table>
<thead>
<tr>
<th>CELLS</th>
<th>Gr. O</th>
<th>Gr. A</th>
<th>Gr. B</th>
<th>Child</th>
<th>Mother</th>
<th>Def't</th>
</tr>
</thead>
<tbody>
<tr>
<td>SERUM GROUP O</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SERUM GROUP A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SERUM GROUP B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SERUM CHILD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SERUM MOTHER</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SERUM DEFENDANT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

RESULT: Mother Group O; Defendant Group O; Child Group A, Defendant is excluded from paternity

Note: For further explanation see text page 215
PATERNITY BLOOD TESTS—SCIENCE OR MYSTERY

A clearer illustration of how the clumping of human blood is used in determining the group to which an individual belongs can be had by examining the full page illustration on page 214. In the upper left corner is shown human blood, magnified 200 times, before and after clumping. In the upper right corner one can see the clumping properties of the serum when mixed with suspensions of the red blood cells of each of the four human blood groups.

The blood group specific properties are inherited according to basic Mendelian laws. Translated into practice, this would mean, for instance, that in cases where both parents belong to blood Group O, the children must belong to blood Group O also. On the other hand, if the mother belongs to blood Group O and the child to blood Group A, the child must have inherited the A property from his father. In such a case, men belonging to blood Groups O and B could be excluded from paternity to the child because they do not possess the A property.

The lower illustration is an example of a typical exclusion case. The cells of the mother, child and the defendant as well as test cells of known grouping are tested with known test sera and the serum of each individual involved. The result is readily seen. The mother and defendant belong to the Group O (no clumping of their cells in any serum but clumping of known A and B cells as well as the child's cells in their serum). The child belongs to Group A (clumping of the cells with all sera except that of Group A and its own). The child must have inherited the A properties from someone other than the mother or defendant. The defendant, therefore, cannot be his father.

In actual practice these tests are mostly made in test tubes, because that method usually gives clear-cut results, but for the purpose of illustration, the reactions of the sera and blood cells were photographed from slides.

We know now that certain cell structures referred to as chromosomes are the bearers of all inherited properties. The chromosomes themselves are broken up into small units called genes. The cells of the body (the so-called somatic cells) always contain pairs of chromosomes. The number of pairs differs greatly in various plants and animals. The germ cells (or gametes) on the other hand, contain instead of pairs of chromosomes, only one of each chromosome—in other words, one-half the number of chromosomes. The fertilized egg has then the normal number of chromosomes, one half of which come from the father and the other half from the mother.

THE M-N TYPES

In 1927 Landsteiner and Levine discovered new blood properties referred to as "blood types," which have nothing to do with the blood groups O, A, B, and
AB. In other words, a new system was found under which human blood could be classified. The newly discovered blood cell properties were designated as M and N. Three different blood types occur: the blood type M, the blood type N, and the blood type MN. There is no human being who has neither M nor N; consequently there are only three blood types in contrast to the four blood groups. Any individual, regardless of his blood group, must belong to the type N, to the type M, or to the type MN. The blood types M and N are also inherited as Mendelian dominants. Therefore an individual of the blood type M must have inherited the M factor from both parents and is a so-called homozygous individual as far as the M factor is concerned. Similarly, an individual with blood type N has inherited the N factor from both parents, and is also a homozygous individual. However, the individual of the blood type MN has inherited the M factor from one parent and the N factor from the other parent, and is a heterozygous individual.

The determination of the blood types is more difficult than the determination of the blood groups. Normal human serum usually does not contain clumping properties for the M and N blood cells. When rabbits are injected with cell suspensions of types M and N over a period of several weeks or months the serum of those rabbits acquires a new property; namely, that of clumping the cells with which they were treated. Such rabbit serum constitutes the indicator for the detection of the M and N properties in human blood cells.

THE RH FACTOR

The third blood factor has been called "Rh," abbreviated for Rhesus, because this factor is shared with a factor which occurs in Rhesus monkey blood. The discovery of the Rh factor has proven of great importance in the practice of medicine, and many blood transfusion reactions previously unexplained are now understood. We are dealing here with a blood factor which is present in roughly six out of seven white human beings (referred to as Rh positive), but absent in one out of seven (called Rh negative). If Rh negative patients are transfused with Rh positive blood, an antibody develops which can act inside the human body as well as outside in the test tube on Rh positive cells, causing agglutination. It has also helped in the understanding of a peculiar disease in the newborn known as hemolytic disease of the newborn, which has baffled the medical profession for many years. It is now understood that this disease is due to the incompatibility between the blood of the mother and the fetus, in most instances due to the interference of the Rh factor.

Early in the study of the Rh factor, it was felt that there was just one Rh factor involved. We know now that there are at least seven or eight different basic factors comprising the Rh system. These factors are identified by correspond-
ing antisera which are formed in human beings. In other words, the best source for Rh test sera is the human being.

There is some discussion at the present time as to the way in which these different Rh factors are inherited. Dr. Wiener and his associates believe that there exists one pair of several alternate genes responsible for the inheritance of the different types of the Rh factor. In contrast, Fisher and Race, in England, believe there are several, possibly four, pairs of genes involved. This discussion is interesting from the genetic point of view, but is of no significance for the medicolegal application, because both theories result in exactly the same conclusions.\(^5\)

The following table comprises four basic Rh sera which are most common and which are commercially available.

<table>
<thead>
<tr>
<th>Fisher-Race</th>
<th>Wiener</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Anti-D</td>
<td>Anti-Rh(_O)</td>
</tr>
<tr>
<td>2. Anti-C</td>
<td>Anti-rh'</td>
</tr>
<tr>
<td>3. Anti-E</td>
<td>Anti-rh''</td>
</tr>
<tr>
<td>4. Anti-c</td>
<td>Anti-hr'</td>
</tr>
</tbody>
</table>

The use of these four different test sera allows the recognition of the genotypes, as outlined in the following table:

<table>
<thead>
<tr>
<th>Reactions with Available Antisera</th>
<th>Wiener</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anti-Rh(_O)</td>
<td>Anti-rh'</td>
</tr>
<tr>
<td>1. -</td>
<td>-</td>
</tr>
<tr>
<td>2. +</td>
<td>-</td>
</tr>
<tr>
<td>3. +</td>
<td>+</td>
</tr>
<tr>
<td>4. +</td>
<td>+</td>
</tr>
<tr>
<td>5. +</td>
<td>+</td>
</tr>
<tr>
<td>6. +</td>
<td>-</td>
</tr>
</tbody>
</table>

The principle which governs the inheritance of the factors in the Rh system are the same as for other blood group systems, viz., no factor can appear in a child unless this same factor is present in one or both parents. The second principle governing the inheritance refers to the homozygosity of the individuals involved. A father who belongs to the genotype Rh\(_1\) Rh\(_1\) for instance, can have children only of either the Rh\(_1\) Rh\(_1\) or Rh\(_1\) rh type, because all his spermatozoa would carry the

Rh\(_1\) gene. Conversely, a child of the homozygous type Rh\(_1\)Rh\(_1\) must have inherited the Rh\(_1\) factor from both parents. These statements are expressed here only in general abbreviated terms.

**INCIDENCE OF BLOOD FACTORS**

While there are interesting differences in the percentage distribution of blood groups and types, space will not permit going into detail. For our present purpose we shall state that according to reliable statistics the American population, with its heterogeneous national origin groups, consists of people belonging to the different groups as follows: Blood Group O—43%; Group A—40%; Group B—12%; Group AB—5%. There are populations in the world with equal numbers of A and B individuals and some, as in India, where the B group outnumbers the A’s considerably. In the American Indians the O group is found to be as high as 90% with very few belonging to the A or B group.

The frequency of the blood type M is about 30%; type N 20% and type MN 50%.

The Rh factor is present in roughly 85% of our population and absent in 15%. It is an accepted fact that when both parents are Rh negative they cannot produce an Rh positive child.

Now a word about the probabilities of exclusion. It is logical to expect that a person who belongs to the rarer group, type or Rh combination should stand the best chance of exclusion when he is actually not the father of the child, while another belonging to the more popular classifications has less chance, because more men in that group could be involved.

The American Red Cross in its extensive blood program has gathered statistics of the incidence of the A-B-O and Rh factors in the population. Since the M-N types are of no known importance in blood transfusions they are not included in their statistics. The mathematically inclined lawyer may wish to expand the probabilities of exclusion when the M-N factor with its own variations is included. The problem may be further complicated by taking into consideration the varying frequencies of the Rh subtypes.
Paternity Blood Tests—Science or Mystery

<table>
<thead>
<tr>
<th>Factor</th>
<th>Occurrence in each 100 people</th>
</tr>
</thead>
<tbody>
<tr>
<td>O-Rh Positive</td>
<td>approx. 39</td>
</tr>
<tr>
<td>O-Rh Negative</td>
<td>&quot; 7</td>
</tr>
<tr>
<td>A-Rh Positive</td>
<td>&quot; 34</td>
</tr>
<tr>
<td>A-Rh Negative</td>
<td>&quot; 6</td>
</tr>
<tr>
<td>B-Rh Positive</td>
<td>&quot; 9</td>
</tr>
<tr>
<td>B-Rh Negative</td>
<td>&quot; 1</td>
</tr>
<tr>
<td>AB-Rh Positive</td>
<td>&quot; 4</td>
</tr>
<tr>
<td>AB-Rh Negative</td>
<td>&quot; ½</td>
</tr>
</tbody>
</table>

It may be of interest to look back at our own experience in Erie County. How does it compare with the generally accepted theoretical mathematical probabilities of exclusion of one out of six innocent men under the AB system alone; one out of three when both the AB and MN systems are used and one out of two when all three systems are used.

Someone may ask why less than 22% of the men charged with paternity request blood grouping tests. One reason might be that the cost of these tests by competent physicians must be borne by these individuals, except in a few jurisdictions which authorize such tests at public expense when the accused is unable to pay. The second reason seems to be that in most cases, at least in our experience, the charge appears to have been justified, although no one can say with any certainty that a fair number of the more than three thousand men not requesting tests might not be excluded. The further fact that only an average of about 13 men per hundred were excluded, many less than the theoretical percentage, is additional evidence that many request the test in the false hope that some other man may have been involved.

A second look at our figures reveals a consistency that tends to confirm their validity. It should be noted that in the first 300 tests, using only the group and type systems, there were 31 exclusions or roughly 10%, and in the next 450 tests based on all three systems there were 78 exclusions or roughly a little more than 17%. Analyzing these figures further we find that under the mathematical formula if all of the 300 men tested under the AB and MN systems were innocent, we should have 100 exclusions, but we had only 31 or one third of that number who are known by the conclusiveness of the tests to be innocent. Under all three systems we should have had roughly 225 or one out of two of the 450 men tested if all were known to be wrongly accused. The actual results excluded 78 or again slightly more than one third of the theoretical number.

Legal Acceptance of Blood Tests

Now let us take a look at the law. In 1936 Surrogate Wingate, relative to
blood tests in a paternity dispute, said: "The law of this country, as evidenced by reported adjudications, is in an extremely primitive state as compared with the practice in European jurisdictions on the subject involved. It is credibly asserted that blood grouping tests are commonly accepted as admissible evidence on questions of paternity in courts of Germany, Austria, Denmark, Sweden, Italy, Russia, Poland, England and Japan."6

New York State pioneered by enacting legislation in 1935 which recognized the value of blood tests and authorized the courts to order parties to submit to such tests.7 The original statute did not, however, restrict the acceptance in evidence of such test results to cases in which there was a positive exclusion from paternity. This was corrected by the 1936 legislature and effective May 20, 1936 only results where definite exclusion is established may be received in evidence.8

Since that time the value of blood tests in disputed paternity cases has been recognized in many states either by specific statutes or by decisions in their appellate courts.9 The differences in the laws of the various states as to the admissibility, weight or conclusiveness of the results are too numerous to be discussed in this article.

An indication of the general interest in the subject matter may be seen from the action by the delegates from the different states to the 1952 meeting in San Francisco of the National Conference of Commissioners on Uniform State Laws. Of the 40 state delegations present, 39 voted for the proposed blood grouping statute and only one against.10

This does not necessarily mean that all of the states, whose delegates voted for the statute now have the law on their books or where they adopted it, did so fully as proposed. If the phenomenal speed with which the Commissioners on Uniform Laws promoted the adoption of the Uniform Reciprocal Support Laws (now law in every state and territory, the last being the District of Columbia, July 1957) is any criterion, blood tests will soon be available in all of the United States.

---

Let us now see how the New York Statute differs from the Uniform Law.

Section 126-a of the New York Domestic Relations Law now reads as follows:

The court, on motion of the defendant, shall order the mother, her child, and the defendant to submit to one or more blood grouping tests by a duly qualified physician to determine whether or not the defendant can be excluded as being the father of the child, and the results of such tests may be received in evidence, but only in cases where definite exclusion is established.

The Uniform Act on Blood Tests to determine paternity as proposed and modified at its last conference by the Commissioners on Uniform Laws reads as follows:

§1. AUTHORITY FOR TEST. In a civil action, in which paternity is a relevant fact, the court, upon its own initiative or upon suggestion made by or on behalf of any person whose blood is involved may, or upon motion of any party to the action made at a time so as not to delay the proceedings unduly, shall order the mother, child and alleged father to submit to blood tests. If any party refuses to submit to such tests, the court may resolve the question of paternity against such party or enforce its order if the rights of others and the interests of justice so require.

§2. SELECTION OF EXPERTS. The tests shall be made by experts qualified as examiners of blood types who shall be appointed by the court. The experts shall be called by the court as witnesses to testify to their findings and shall be subject to cross-examination by the parties. Any party or person at whose suggestion the tests have been ordered may demand that other experts, qualified as examiners of blood types, perform independent tests under order of court, the results of which may be offered in evidence. The number and qualifications of such experts shall be determined by the court.

§3. COMPENSATION OF EXPERT WITNESSES. The Compensation of each expert witness appointed by the court shall be fixed at a reasonable amount. It shall be paid as the court shall order. The court may order that it be paid by the parties in such proportions and at such times as it shall prescribe, or that the proportion of any party be paid by (insert name of the proper public authority), and that, after payment by the parties or (insert name of public authority) or both, all or part or none of it be taxed as costs in the action. The fee of an expert witness called by a party but not appointed by the court shall be paid by the party calling him but shall not be taxed as costs in the action.

§4. EFFECT OF TEST RESULTS. If the court finds that the con-
clusions of all the experts, as disclosed by the evidence based upon the tests, are that the alleged father is not the father of the child, the question of paternity shall be resolved accordingly. If the experts disagree in their findings or conclusions, the question shall be submitted upon all the evidence. If the experts conclude that the blood tests show the possibility of the alleged father’s paternity, admission of this evidence is within the discretion of the court, depending upon the infrequency of the blood type.

§5. EFFECT ON PRESUMPTION OF LEGITIMACY. The presumption of legitimacy of a child born during wedlock is overcome if the court finds that the conclusions of all the experts, as disclosed by the evidence based upon the test, show that the husband is not the father of the child.

§6. APPLICABILITY TO CRIMINAL ACTIONS. This act shall apply to criminal cases subject to the following limitations and provisions: (a) An order for the tests shall be made only upon application of a party or on the court’s initiative; (b) the compensation of the experts shall be paid by (insert name of proper public authority) under order of the court; (c) the court may direct a verdict of acquittal upon the conclusions of all the experts under the provisions of Section 4, otherwise the case shall be submitted for determination upon all the evidence.

The wording of the New York Statute appears so clear that little doubt should remain as to its meaning. The test may be granted only on motion of the defendant as distinguished from Civil Practice Act Section 306-a in civil cases where any party may demand the test whenever it shall be relevant to the prosecution or defense of an action or proceeding. This also differs from the provision in Criminal Code Section 684-a which includes this sentence: "Whenever such tests are ordered to be made and one of the parties shall refuse to submit to such tests, such facts shall be disclosed upon the trial unless good cause is shown to the contrary." In filiation proceedings the statement: "The court shall order the mother and child and defendant to submit" is mandatory on the court and it must be presumed that the mother who refuses to submit either herself or child to such test should be dealt with as any person refusing to comply with an order of the court.

The New York Statute imposes no time limit when the request must be made; makes no provision who is to pay for it; nor does it make conclusive a test which definitely excludes the defendant from paternity.

The Commissioner’s proposal is much more general in its scope. Section 1 specifically provides that the test must be done so as not to delay the proceedings

unduly and that the court may resolve the question of paternity against the person refusing to submit. The New York Statute is silent on both these points. Sections 2 and 3 deal with the selection of experts, their cross-examination and compensation. Sections 4 and 5 not only make the tests conclusive in exclusion cases, but also permit speculation as to probability of paternity.

The Notre Dame Law Review\(^\text{13}\) lists the following states with statute reference, which have enacted statutes as of 1955, authorizing the reception of test results in evidence, where the defendant is definitely excluded from paternity as follows:

- Indiana (Indiana Ann. Stats. 3—658, 1953)
- Maine (Maine Rev. Stats. ch. 166, §34, 1954)
- Nevada (Nevada Stats. ch. 159, p. 234, 1951)
- Maryland (Maryland Ann. Code Gen. Laws, art. 12, §17, 1951)
- New York (New York Dom. Rel. Law, §126-a)
- N. Carolina (N. Carolina Gen. Stats. 8—50.1, 1953)
- Wisconsin (Wisconsin 325.23, 1953)

Other states that should be added to those having statutes are California, Michigan, New Hampshire and Oregon,\(^\text{14}\) all of which adopted the Commissioner’s Statute, but not in its entirety. Probably several other states will adopt similar statutes in the near future.

**WEIGHT TO BE GIVEN DEFINITE EXCLUSIONS**

The scope of this paper will not permit the listing of the weight given to blood test results which definitely exclude the accused from paternity of a particular child in the various states. It may be said, however, that the number of states making such tests conclusive upon the trial court is rapidly increasing.

In New York State the Court of Appeals has not as yet passed upon this question. Three of the four Appellate Departments, the first, second and third, have approved the practice in the Court of Special Sessions in New York City and in most children’s courts in the rest of the state of accepting such results as conclusive, regardless of any other evidence.\(^\text{15}\)

\(^{13}\) 30 Notre Dame Law. 693 (1955).


We believe that the science of inheritance of human blood properties has been sufficiently established to warrant the discharge of the accused whenever the results definitely exclude him from paternity of the child in question.

To hold otherwise can only lead to confusion which is clearly illustrated in a decision of the Supreme Court of Michigan just prior to the enactment of their present statute. The majority opinion held that the trial judge's instructions that the jury could give blood tests that did not exclude such weight as they deemed proper, was prejudicial and that the defendant's conviction should be reversed. This opinion gave recognition to the scientific fact that blood tests can be conclusive only when made by competent experts and when they exclude. The minority dissenting opinion, which is so convincingly written that it will be widely cited, arguing with equal fervor, held that in the absence of a statute blood tests should be considered as expert testimony, admissible as such for such consideration as the trial judge or jury may consider it should be given in that case. Leading cases in many states are discussed in both opinions.

SOME INTERESTING DECISIONS

In reading even the few decisions available on the subject the disagreement seems to start on the question of what weight should be given results of blood tests. To us it seems deplorable that in none of the cases the scientific value or basis of these tests was inquired into as it might be.

An opinion of Justice O'Brien of the Domestic Relations Court of New York City is most unfortunate not because of the decision reached therein but because the court went out of its way to write into official reports a condemnation of blood tests in general on the results of a particular case, and especially where the case fell within the one exception where careful experts would say the exclusion is highly probable. Some of its conclusions are based on a book by Dr. Leon Lattes which refers to articles published more than 10 years before the decision when the problem of blood groups had just begun to arouse general interest and the technique was not generally known.

It is possible that the able justice was swayed because of his zeal to uphold the proposition that "the Domestic Relations Court of the City of New York is dedicated by law to the reconstruction of families," and his conviction (in which most judges concur) that blood tests ordered without some preliminary supporting proof to permit questioning legitimacy of children born in wedlock "do not stimulate forgiving or forgetting this deadly insult to feminine dignity."

In the State of Ohio prior to enactment of their present statute allowing only exclusions in evidence, the Court of Appeals handed down two conflicting decisions. In one case it upheld the trial court in reversing the finding of a jury of guilty in the face of definite exclusion, and granting a new trial. In spite of the fact that the trial judge in his charge was very favorable to the authority of blood tests, the Court of Appeals did not condemn him for it. It held, however, that blood tests are admissible for whatever weight they may have to prove non-paternity.\(^\text{18}\) A short time later in another decision it refused to set aside a trial court verdict of guilty despite an exclusion.\(^\text{19}\) We cannot quarrel with the court because it refuses to accept the results of blood tests as conclusive but we cannot agree with the court's reasoning which seems to be based on faulty scientific speculations. We will leave to scientists better equipped to argue with the learned court whether "Einstein's mathematical calculations have conclusively established the incorrectness of Newton's theory that objects fall in straight lines and thereby fell by the wayside one of the laws of nature, long held immutable, which courts have perhaps judicially noticed and applied as conclusive." We will, however, take the liberty to disagree with the contention that "The acceptance of the report of the expert presupposes absolute honesty in the experimenter as well as positive ability. It wipes out all chance of innocent mistakes. It assumes that serums are fresh and that blood tested is of proper age or consistency." We believe that our suggestions to be made in a few moments can positively protect the court against any such doubts.

In our own state we have this gem in a per curiam opinion in the Third Department.\(^\text{20}\) The opinion on appeal from the Children's Court of Delaware County is quoted here in full:

There was ample direct evidence to sustain the finding of the court below that the appellant is the father of the child and the appellant himself failed to take the witness stand to deny it. There was proof that in the presence of the court, appellant admitted that he might be the father of the child but would like a blood test to make sure. A blood test was had but the physician who gave it testified that it did not prove or disprove the possible parentage and that no decision could be made on the basis of the test. In fact, the blood test was negative as to the mother also.

We cite this to show the apparent lack of understanding of the meaning of terminology in this exacting science of blood tests. What is meant by "In fact, the blood test was negative as to the mother also?" If the blood tests excluded her from maternity, whose child was it, and what was she doing in a filiation proceeding? Why was evidence received at all when definite exclusion was not

---

established? Judge A. Lindsay O'Connor has generously sent us a transcript of the testimony of the physician who made the test. This transcript further reveals a woeful lack of knowledge, on the part of opposing counsel, of even the rudiments of these tests for proper cross-examination.

SHOULD BLOOD TESTS BE USED TO ESTABLISH PATERNITY?

The Uniform Law Commissioners Statute in section 4 provides: "If the experts conclude that the blood tests show the possibility of the alleged father's paternity, admission of this evidence is within the discretion of the court, depending upon the infrequency of the blood type."

We believe there is great danger in permitting such speculations. Just where should the line be drawn? Despite a high probability of paternity, where a rare factor is found in the putative father and the child, the conservative serologist or geneticist will say that at best paternity is probable and in some cases even highly probable; he will never say conclusive, unless he could be sure that he tested the blood of every possible sexual contact with the woman.

Such practice might bring us back to the days when it was permissible to speculate upon the likeness of features of the child and the accused. Incidentally, this practice seems still to be permitted in Alabama, Arkansas, Georgia, Kansas, Mississippi, South Carolina, Utah, Vermont and West Virginia. As late as 1944 in Kentucky the practice of exhibiting a child, shortly after birth, for the purpose of comparing the likeness of features was sustained on appeal.21

In a recent conversation with a judge from Arkansas we learned that all he needs is to look at the child's and putative father's ears, and call on his experience in raising dogs to decide their relationship.

ACCUSED'S RIGHT TO TEST

Is the defendant entitled to the test as a matter of absolute right? Can he demand it if he cannot pay the expense involved? One of our Appellate Departments, the Third, has so decided,22 saying the language of the statute is mandatory and the right given thereunder should not be made dependent upon financial resources of the defendant, especially since the charge against him is one that is regarded as quasi criminal.

No decisions on this point have been found in the Appellate Divisions of the other Departments. The practice varies from court to court. In Erie County


226
we do not authorize blood tests at public expense, although in a few cases the judge has made arrangements to pay for the tests out of the court's limited "expert witness" budget account. Despite much encouragement to attorneys who have expressed a desire for a Fourth Department ruling, none of them prosecuted their appeals from orders denying tests because defendants claimed inability to pay for them.

It might be interesting at this point to mention a decision of another department which said: "A 'filiation proceeding' is not a criminal action but is a civil action in which rules of evidence may be changed by the legislature and made applicable to existing causes of action." 23

The Court of Appeals holds in one case that a filiation proceeding is civil, in another that it is criminal in nature, depending upon the court in which it was initiated. If it was commenced in a children's court, it is a civil proceeding. 24 If it was commenced in the Court of Special Sessions of the City of New York, it is a criminal proceeding. 25

A final word on both of these questions uttered by our Court of Appeals would be welcome. Under the criminal statutes and procedures a defendant may call upon the public purse to pay for expert testimony only in limited cases. It is our opinion that prior to the enactment of section 126-a Domestic Relations Law the result of blood tests if obtained by consent of the parties could be received in evidence and considered by the court as any other expert testimony. About all the enactment of this statute did was to give the court the power to compel the mother and child to submit to such tests. The reason for specifying that only in cases of exclusion may the result be received in evidence is clearly based on the fact that a test that does not exclude the defendant does not prove anything.

Is the defendant's right to the test so absolute as to make him immune from prosecution if either the mother or the child dies or if for any other reason the test cannot be made? We find no precedent. Our answer is no. In limited cases the death of the mother would not fully deprive defendant of possible exclusion. The defendant could still be excluded from paternity because a type M father cannot have an N child and vice-versa, and a father belonging to group AB cannot

have an O child and vice-versa. The defendant in a paternity case is no worse off than a defendant in any other action or proceeding where important witnesses die or disappear.

There is, however, nothing to prohibit the taking of blood samples from the mother and father, before the child is born, if there is any danger of either of them not being available after the birth of the child, classifying their blood and later comparing it with the blood of the child.

The excuse for refusing to submit on the ground that drawing the blood sample may be dangerous to the health or life of the mother or child does not appear to have any support from reputable physicians whose opinion was sought by your prelectors. At best this question when raised should be determined in the particular case as any other fact is determined by the court.

Associate Justice Stephens of the U. S. Court of Appeals for the District of Columbia in his dissenting opinion on other grounds in Beach v. Beach, had this to say: "I agree with the view that one who, as a ground for relief sought asserts paternity and is met with denial thereof, ought, as a condition of the right to relief, to be required to submit to such scientifically accredited tests as are likely to throw light upon the issue of paternity."

WHO SHOULD MAKE THE TESTS?

We believe the courts should never accept the statement of any expert, medical or scientific, as conclusive unless they are satisfied of the expert's qualifications and his proof, regardless of what popular opinion or acceptance of science's teaching may be. There are too many evidences of fads being put over on a gullible public by high pressure advertising in the name of science, to require much argument here.

We would like to see courts, scattered throughout the country, really inquire into the scientific data and accuracy with which blood tests can be made by qualified experts, so that rules for expert qualifications could be laid down.

26. Two unreported cases before the Supreme Court for the Eighth Judicial District in recent years illustrate how this works. In one case, a man accused another of being his father, and of being wanted in a southern state for the murder of his wife and the mother of the accuser. In the extradition proceeding, Justice Halpern granted the accused a blood test. The test showed that the accused man could not possibly be the accuser's father. He was freed.

In another case a woman claimed support for a child which she claimed belonged to her former husband. Justice Rowe granted the defendant's request for a blood test, and the test conclusively proved that the woman could not possibly be the mother of the child. Subsequent investigation revealed the true facts and confirmed the blood test results.

27. Beach v. Beach, 114 F.2d 479, 482 (D.C. Cir. 1940).
In the absence of such help, what can courts with a statute similar to ours in New York do to protect themselves against abuse or misuse of blood tests? Our statute requires only that the tests be made by a duly qualified physician. It does not prescribe any standard by which the physician's special qualifications for the exacting skill of these tests can be assured. Under the statute the defendant may select a physician of his own choice. Experience in ordinary litigations shows that most attorneys dislike to attack the qualifications of any physician, regardless of the field in which he claims to be expert. Unless the attorney charged with prosecution of paternity cases knows something of the technique of blood test mechanics, he would have difficulty in challenging the qualifications, and many reports would be offered in evidence which would lack assurance of expertness. We believe that the limitations of Section 684-a of the Code of Criminal Procedure provide a safeguard which should be included in Section 126-a of the Domestic Relations Law. The provision providing for the tests reads as follows: "The tests shall be made by duly qualified physicians, to be appointed by the court, under such restrictions and directions as to the court or judge shall seem proper. Such experts to be selected from a list, certified by the state medical society, of individuals who have proved their ability to do such tests, and they shall be subject to cross-examination by both parties after the court has caused them to disclose their findings to the court or jury."  

Such an amendment would do much to assure the court of persons duly qualified. The integrity of the state medical society must be assumed. When that cannot be done, then all faith in the medical or any other profession must be abandoned. We have confidence that the medical profession can prescribe standards for qualifications which will be acceptable to the courts. The courts in turn must insist on the highest standard for cross-examination. The provision for cross-examination should afford ample opportunity for the well trained, conscientious attorney to insure the correctness of the procedures in arriving at the findings.

Experience in listening to the feeble attempts of otherwise able attorneys in cross-examining the expert in a field where their knowledge is limited, suggests that, before attempting to cross examine the expert, the test be repeated by another qualified expert. The courts will readily consent and appoint such expert from the large number available. If the results differ, some one made an error which should readily be discovered, and, if not, then a third expert should be called in. If the findings agree, accept the results as conclusive proof of your client's mistake.

---

28. N.Y. Domestic Relations Law section 126 provides that trial shall be without a jury in paternity proceedings.
CONCLUSION

There is no mystery about blood tests where results exclude the accused from paternity. Not every physician who can make satisfactory blood grouping tests for transfusions is necessarily skilled enough to do the careful and exacting work required in these tests. Proper selection of experts can assure and practically guarantee honesty in the individual, as well as positive ability. Two surveyors cannot measure the distance between two given points and arrive at different results if they use standard chains or tapes, take the usual precautions against personal error, and make proper correction for atmospheric and physical conditions.

The determination of blood properties is a mechanical procedure, requiring, it is true, highly specialized skill, in which two qualified experts would not be likely to make the same mistake and submit identical erroneous reports. It must be remembered, however, that not every laboratory is equipped to make dependable examinations, and that it is not practicable to have such laboratories in every community. Occasional examinations, such as one every three or four months, cannot be done with a sufficient degree of safety. To be sure of proper test sera, the expert must work constantly on the problem. All of the testing sera and fluids must be strong and fresh, and must be tested frequently. This would be most difficult, if not impossible, in a laboratory which is called upon only occasionally to do the tests. Modern rapid transportation facilities can place a few well-equipped, more or less centrally located laboratories within easy reach of every court. Ordinary precautions need only be taken for proper identification and labelling of blood samples. Recently we completed tests on blood samples which arrived by air in excellent condition from the Philippine Islands.

In the absence of a statute or highest appellate court decision recognizing blood tests, done by properly qualified, competent, expert physicians, in which exclusion is clearly established as conclusive, the trial judge should receive the evidence not merely as an expert opinion, but as a positive statement of fact which in nature is governed by immutable laws. Such testimony, particularly if coming from two independent experts where collusion is out of the question, should be given greater weight than statements of witnesses whose testimony may be colored by personal interest.