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COMMENT

Contribution of Blood Tests in 734 Disputed Paternity Cases: Acceptance by the Law of Blood Tests as Scientific Evidence

Judge Walter G. Whitlatch and Dr. Roger W. Marsters***

Science has made great contributions to the administration of justice by providing objective evidence which is not dependent on the truthfulness or recollection of witnesses. No better example of scientific aid in the quest for truth can be had than the use of the blood test exclusionary process in disputed paternity proceedings. In no judicial proceeding is there a greater need for objectively reliable evidence.

As was said by Judge Albert A. Woldman of the Cuyahoga County, Ohio, Juvenile Court:

It is apparent that the testimony adduced from the parties and other lay persons in bastardy proceedings, by its very nature, may be susceptible to doubt and question. It is usually self-serving. The alleged intercourse between the woman and putative father is almost always carried on clandestinely and secretly. Seldom, if ever, is there any reliable corroborating eye-witness testimony. Circumstantial evidence must be relied upon to a great extent. In other words, such testimony in such cases may be as reliable or as unreliable as the person giving it.

. . . .

On the other hand an exclusion of paternity based on the blood groups represents a finding of a rather exact science and is not simply testimony of a lay witness or even the opinion of an expert. Blood grouping test results are governed by the immutability of the scientific law of blood grouping.¹

Hence the blood test exclusion is sometimes the only evidence which will save the mistakenly accused defendant from a burdensome, unjust judgment. The authors say "mistakenly accused" since it has been their observation that there are practically no instances of the unwed mother filing a complaint against a man that she did not believe to be the father of her child.

During the past twenty-five years practically all bastardy cases arising in Cuyahoga County, Ohio, have been filed and decided in the Juvenile

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1. State *ex rel.* Steiger v. Gray, 145 N.E.2d 162, 165 (Ohio Juv. Ct. 1957).

Court of Cuyahoga County. This has afforded a unique opportunity to observe the development of blood tests in disputed paternity proceedings both scientifically and legally in a significant number of cases. The study discussed in this article covers the years 1948 to 1961 inclusive. During this period blood test examinations were made in 734 cases, comprising only six per cent of the 12,000 paternity cases handled.

Why did such a small percentage of those accused apply for a blood test? It can be reasonably assumed that some of the defendants did not request the test because of the expense involved. A rule of court requires the defendants to pay the costs of the tests which are currently \$60.00.² However, it appears that the main consideration was that the defendant in view of the facts and circumstances knew, or thought he knew, that he was the father of the child.

WHEN COUNSEL MOVE FOR A BLOOD TEST

Counsel should certainly move for a blood test in every bastardy proceeding where he believes that he has a defense that is worthy of trial in court. Several situations immediately suggest that a blood test is absolutely essential to the proper representation of a defendant in a paternity proceeding: (1) where the defendant claims that there were no sexual relations with the complainant, (2) where the sexual relationships arose from a casual meeting or brief acquaintance with the complainant, (3) where the defendant suspects or believes that the complainant may have had the opportunity and the disposition to have sexual relations with another regardless of her intimate relationship with the defendant.

In situations where the relationship of the defendant and the complainant precludes the reasonable possibility of the complainant having sexual relations with others, the defendant should not go to the expense of a blood test.

The blood grouping tests which result in a nonexclusion may also serve a useful purpose. In many instances a guilty plea was entered by the defendant when the tests failed to exclude him as the possible father. In such cases the blood test helped to resolve the lingering doubt which is so frequently in the mind of the accused.

RESULTS OF 1948-61 STUDY

Of the 734 cases blood tested, exclusions of paternity on one or more blood factors were observed in 104 cases, an exclusion rate of 14.2 per cent.

Of the 104 complainants where the blood tests excluded the contention of paternity by a certain man, the great majority of complainants,

2. CUYAHOGA COUNTY, OHIO, JUV. CT. R. 16.

with rare exceptions, when confronted with the exclusion, denied relations with anyone else, but later withdrew their complaint on some pretext. Most of them steadfastly maintained their contention even after a second independent blood test confirmed the first result. This experience has been in contrast to Schatkin, who reported that the complainant will admit in every case to relations with some other man when confronted with the blood test exclusion report.³

Five of the cases where the blood test excluded the defendant of being the father of the child were tried before juries. In three of these cases,⁴ the jury found the defendant not guilty after a brief deliberation. In the remaining two, the jury found for the complainant. In one⁵ of these latter two cases, the court of appeals granted a new trial on the grounds that the verdict was contrary to the weight of the evidence. When the case was tried by another jury, the defendant was found not guilty.⁶

In the other case where the jury found for the complainant, the trial court granted a new trial.⁷ While this case was awaiting the second trial, the complainant married the "other man" who had figured prominently in the first trial. Upon payment by the defendant of a cash consideration, the husband of the complainant adopted the child and the case was dismissed.

One exclusionary blood test case was tried before the court without a jury. The question of the proper weight to be given such evidence was carefully considered and an opinion was written. It was the conclusion of the court that:

In accordance with the enlightened judicial acceptance of the high value of blood grouping tests properly conducted, I hold that in the absence of any competent proof that blood grouping tests were not properly made, the results of such tests, scientifically conducted and objectively made by doctors expert in such field, should be given such great weight by the Court that the exclusion of the defendant as the father of the child follows irresistibly.⁸

Accordingly, the defendant was found not guilty. The rule enunciated in this opinion is in accord with what is now generally considered to be the best reasoned view on this subject.⁹

3. SCHATKIN, DISPUTED PATERNITY PROCEEDINGS 73 (3d ed. 1953).

4. *State ex rel. Brewington v. Johnson*, No. 156474, Cuyahoga County, Ohio, Juv. Ct., Oct. 31, 1952; *State ex rel. Reese v. Robinson*, No. 142255, Cuyahoga County, Ohio, Juv. Ct., Nov. 18, 1948; *State ex rel. Galbreth v. Moore*, No. 143943, Cuyahoga County, Ohio, Juv. Ct., Sept. 10, 1948.

5. *State ex rel. Rohde v. Roush*, No. 2380, Cuyahoga County, Ohio, Ct. App., July 19, 1956.

6. *State ex rel. Rohde v. Roush*, No. 164756, Cuyahoga County, Ohio, Juv. Ct., Dec. 4, 1956.

7. *State ex rel. Cowie v. Fox*, No. 693999, Cuyahoga County, Ohio, C.P., *dismissed*, July 1, 1957.

8. *State ex rel. Steiger v. Gray*, 145 N.E.2d 162, 168 (Ohio Juv. Ct. 1957).

9. Annot., 46 A.L.R.2d 1000, 1028 (1956).

ACCEPTANCE BY THE LAW OF BLOOD TESTS

A brief review of Ohio decisions in valuing blood tests in paternity cases clearly shows that Ohio courts have been favorably inclined toward this medico-legal mechanism and that exclusionary blood test results have been accorded weighty evidentiary stature from the beginning.

The first such reported case was tried in Franklin County in 1937.¹⁰ The trial court had granted a motion for a new trial when the jury brought in a verdict of guilty notwithstanding a finding of nonpaternity by a blood grouping expert. On appeal, the court sustained the trial court's order granting a new trial on the basis that, considering the expert's testimony of paternity exclusion, the verdict was contrary to the weight of the evidence.

Within a year after this decision another Ohio court of appeals failed to grant the defendant a new trial in a case where the jury had found him guilty, contrary to the finding of the blood test expert.¹¹ But even in this case, the expert's results had found such acceptance that the trial court, after the first trial in which the defendant was found guilty, granted a motion for a new trial because the verdict was contrary to the weight of the evidence. It can perhaps be assumed that the appellate court's failure to grant a new trial was influenced by the fact that the defendant had twice been found guilty by a jury, notwithstanding the finding of nonpaternity by the blood grouping expert.

Former section 12122-1 of the Ohio General Code which was enacted in 1939 authorized the use of blood tests in bastardy cases, and section 12122-2 authorized the use of blood tests in any civil or criminal case where the issue of paternity was relevant to the proceeding. These statutes, which are almost identical, have remained unaltered in substance since their enactment and are now sections 3111.16 and 2317.47 of the Ohio Revised Code.

Section 3111.16 of the Ohio Revised Code as to blood grouping tests in bastardy cases provides as follows:

Whenever it is relevant to the defense in a bastardy proceeding, the trial court, on motion of the defendant, shall order that the complainant, her child, and the defendant submit to one or more blood grouping tests to determine whether, by the use of such tests, the defendant can be determined not to be the father of the child. The tests shall be made by qualified physicians or other qualified persons, not to exceed three, selected by the court, and under such restrictions and directions as the court or judge deems proper. In cases where exclusion is established, the results of the tests together with the finding of the expert of the fact of nonpaternity shall be receivable in evidence. The blood

10. *State v. Wright*, 59 Ohio App. 191, 17 N.E.2d 428 (1938), *rev'd on other grounds*, 135 Ohio St. 187, 20 N.E.2d 229 (1939).

11. *State ex rel. Slovak v. Holod*, 63 Ohio App. 16, 24 N.E.2d 962 (1939).

tests expert shall be subject to cross-examination by both parties after the court has caused them to disclose their findings. If either of the parties refuses to submit to the test, such fact shall be disclosed upon the trial unless good cause is shown to the contrary. In the event such tests have been made prior to the trial, the results shall be receivable in evidence. The court shall determine how and by whom the costs of such tests shall be paid.

There is a great temptation to use the non-exclusive blood tests in an affirmative way. Occasionally, an unusual blood factor will be demonstrated in both the child and the putative father which will justify the suggestion of paternity, but it is the authors' belief that these excursions into the realm of rendering a "percentage probability of being the father" report should be carefully avoided. The courts wisely refuse to admit in evidence blood test reports which do not exclude, since such reports could be prejudicial. Furthermore, the Ohio Supreme Court has held that the blood tests statutes authorize the admission of such evidence only where the test results establish nonpaternity and that where such results disclose a mere possibility of parentage, they are not competent evidence and their admission is prejudicial.¹²

In 1944 the Supreme Court of Ohio held, with the clear expression of section 3111.16, that the findings and results of blood grouping tests admitted in evidence were not conclusive of nonpaternity, but may be considered for whatever weight they may have in proving that fact.¹³

That blood test exclusions of paternity are considered very weighty evidence by Ohio courts in bastardy cases, is apparent in all the reported Ohio decisions. However, while the courts have generally given such evidence proper consideration, juries, as illustrated by the experience related above, will sometimes find the defendant guilty irrespective of the exclusionary blood test results.

Because of the strong presumption that favors the legitimacy of a child born in wedlock there is a reluctance by the courts to accept exclusionary blood tests as being conclusive evidence of nonpaternity, where the disputed paternity case involves husband and wife. In one such case¹⁴ where the husband was excluded by the blood tests as being the father of the child, the trial court made no ruling as to the paternity of the child, holding that the testimony failed to establish that the plaintiff was or was not the father of the child. On appeal, the court of appeals held that since the trial court had found that there was not sufficient evidence to find that the husband was not the father of the child, the

12. *State ex rel. Freeman v. Morris*, 156 Ohio St. 333, 102 N.E.2d 450 (1951).

13. *State ex rel. Walker v. Clark*, 144 Ohio St. 305, 58 N.E.2d 773 (1944).

14. *Whitecotton v. Whitecotton*, 103 Ohio App. 149, 144 N.E.2d 678 (1955).

presumption favoring the legitimacy of a child born in wedlock must prevail, and hence the child was found to be the issue of the marriage.

BLOOD GROUP GENETICS

No attempt will be made here to more than touch upon the basic facts of blood group genetics. Knowledge in this, as in all fields, is expanding rapidly and the interested reader is referred to other published material.¹⁵ It should be recognized that newly discovered facts do not detract from the validity or significance of facts discovered in the past. Blood factors known at the present time do not become "old fashioned" and ready for discard when a new blood system has been demonstrated.

At present there are some sixty known blood factors comprising eleven different systems, although only approximately ten factors (O, A, B, M, N, C, D, E, c, and e) representing three systems are currently employed in blood grouping cases of disputed paternity. The International OAB system is the oldest known, clinically the most important for transfusion purposes, and perhaps the easiest to determine serologically. With this system alone approximately eighteen per cent of incorrectly accused men can be excluded. A second system is the M-N with two factors and three possible type combinations: type M, type N, and type MN. In this system the chance of exclusion is approximately nineteen per cent. The third system is the Rhesus system, including a great variety of factors of which the C(rh'), D(Rh₀), E(rh''), c(hr'), and e(hr'') are rather widely employed in disputed paternity testing. In this last system the probability of excluding a mistakenly accused man is twenty-six per cent. If all of the above ten factors are determined in a particular case the defendant has a fifty-five per cent chance of being excluded, if he is not in fact the true father. The percentages given for the separate systems add up to greater than fifty-five per cent simply because double or even triple exclusions occur in some instances. Not all incorrectly accused men can be excluded by blood tests because many different individuals happen to have identical blood groups, and in any given bastardy case where there are two men involved, both men will occasionally have the same blood factor combinations. As more blood factors are discovered and carefully studied they will be added to the present battery of tests and a higher percentage of men who are not fathers will then be demonstrable.

The heredity of blood factors comprising the three systems mentioned above are summarized in the following three tables.

15. RACE & SANGER, BLOOD GROUPS IN MAN 98 (3d ed. 1958).

TABLE 1
INHERITANCE OF THE INTERNATIONAL OAB FACTORS

BLOOD GROUP OF PARENTS	BLOOD GROUP OF CHILDREN	
	POSSIBLE	NOT POSSIBLE
O X O	O	A, B, AB
O X A	O, A	B, AB
O X B	O, B	A, AB
O X AB	A, B	O, AB
A X A	A, O	B, AB
B X B	B, O	A, AB
A X B	O, A, B, AB	NONE
A X AB	A, B, AB	O
B X AB	B, A, AB	O
AB X AB	A, B, AB	O

TABLE 2
INHERITANCE OF THE M-N BLOOD FACTORS

GROUP OF PARENTS	GROUP OF CHILDREN	
	POSSIBLE	NOT POSSIBLE
M X M	M	N, MN
N X N	N	M, MN
M X N	MN	M, N
M X MN	M, MN	N
N X MN	N, MN	M
MN X MN	M, N, MN	NONE

TABLE 3
INHERITANCE OF THE Rh-Hr FACTORS D, C-c, AND E-e

GROUP OF PARENTS	GROUP OF CHILDREN	
	POSSIBLE	NOT POSSIBLE
D(Rh ₀)-neg. x D(Rh ₀)-neg.	D(Rh ₀)-neg.	D(Rh ₀)-pos.
C(rh')-neg. x C(rh')-neg.	C(rh')-neg.	C(rh')-pos.
E(rh'')-neg. x E(rh'')-neg.	E(rh'')-neg.	E(rh'')-pos.
C(rh')-neg. x C/C (rh' homozygous)	C/c (heterozygous)	c/c (C or rh'-neg. homozygous)
E(rh'')-neg. x E/E (rh' homozygous)	E/e (heterozygous)	e/e (E or rh''-neg. homozygous)

THE BLOOD TEST EXAMINATION

The statutory provision that the court shall select the expert and that the test shall be conducted under the direction of the court bestows the proper impression of impartiality on the test even though, pursuant to the rule of court, the expert is paid by the defendant.¹⁶

16. OHIO REV. CODE § 3111.16 (1960).

All parties concerned should be present at the time the blood specimens are taken to mutually identify one another. This is particularly important for the identification of the defendant by the mother. It is inconceivable that a woman would fail to identify correctly the man whom she has named in a paternity action.

The importance of securing proper identification was demonstrated in one case¹⁷ where the defendant sent another man in his place for the test at other than the appointed time, when the complainant was not present to identify him. The test resulted in an exclusion. Upon the complainant's protest a retest was performed, with mutual identification, and the defendant was not excluded. The defendant thereupon admitted the deception with the first expert and changed his plea to guilty.

It should be established prior to taking the blood specimens that none of the individuals has had a blood transfusion in the previous four months. Cases are scheduled when the infant is at least one month old, but occasionally an infant will be presented who has had a replacement transfusion at birth, and, therefore, the tests must be delayed for several months.

The blood specimens should be discharged into duplicate sets of tubes which are identified personally by the individual whose blood is being taken. These blood specimens should be independently analyzed by the expert serologist, along with another technically competent individual, both working independently.

Serum typing, as well as cell typing, to confirm the OAB blood groups should be performed on the adult bloods. The Coombs reaction should be performed on the Rh₀(D) tests if initial reactions are negative. Known blood controls should be included for all typings and preferably duplicate antisera should be employed for all Rh-Hr tests. Further, special attention should be devoted to the M-N typings employing duplicate or even triplicate tests with different antisera. It is essential to use known type M, N, and MN blood controls.

All blood specimens should be handled in an identical manner and tested at the same time under the same conditions. It is advantageous that the serologist work alone without interruptions, a condition which is often only available outside regular laboratory hours. Some of the precautions which must be observed in carrying out the grouping procedures have been emphasized by Sussman¹⁸ and also by Sturgeon.¹⁹

17. State *ex rel.* Carter v. Smith, No. 163682, Cuyahoga County, Ohio, Juv. Ct., Feb. 27, 1956.

18. Sussman, *Pitfalls of Paternity Blood Grouping Tests*, 33 AMERICAN J. OF CLINICAL PATHOLOGY 406 (1960).

19. Sturgeon, Fisk, Wintler, & Chertock, *Observations with Pure Anti-C on a Variant of C Common in Negroes*, PROCEEDINGS OF THE SEVENTH CONGRESS OF INTERNATIONAL SOCIETY OF BLOOD TRANSFUSION 293 (1958).

An exclusion result which is not accepted by the mother, either directly or tacitly by her request that the complaint be dismissed, should be retested by another expert. The rules of the Juvenile Court of Cuyahoga County, Ohio, provide that such second test shall be at the expense of the complainant.²⁰ To insure absolute objectivity the second expert should not be informed of the results of the first test.

In a few cases the authors have been able to arrange for a polygraph test following the complainant's refusal to accept the exclusion result. In one such case²¹ where the defendant denied relations with the girl, and she, on the other hand, denied relations with anyone else, the polygraph detected them both to be lying — the defendant having had relations with her and she with several men besides the defendant.

ACCURACY OF RESULTS

The question of the accuracy of the blood grouping results is occasionally raised. There are two possibilities of error, either that an exclusion will be overlooked and a nonexclusion report submitted or that an exclusion itself will be in error.

With regard to the first possibility, that an exclusion will be missed in the first instance, this appears to be remote. Included in the study was one series of 200 cases²² set up independently by the serologist and his technically competent assistant, with each compiling his own data. Discrepancies between the two sets of data occurred only rarely and never involved an exclusion of a putative father. Each of the thirty-two exclusions in this series of 200 was found independently by the serologist and his technician and would, therefore, not have been missed by either of them working alone.

The second possibility that an exclusion, once found, will be in error, is difficult to conceive because in each of the thirty-two exclusions found in this series the particular reactions were again set up and read at least once, and often several times. That an exclusion could be first observed and then deliberately checked, using fresh cell suspensions and redoing all procedures, and still be in error is such a remote possibility as to be almost incalculable.

As to what should be expected from the expert, Littell and Sturgeon relate the following:

The expert will also have complete records of his tests indicating that the necessary precautions have been taken to avoid . . . mistakes Sufficient information should be available to enable the proponent

20. CUYAHOGA COUNTY, OHIO, JUV. CT. R. 16.

21. *State ex rel. Przeracka v. Pekar*, No. 149057, Cuyahoga County, Ohio, Juv. Ct., *dismissed*, June 19, 1951.

22. Marsters, *Determination of Nonpaternity by Blood Groups*, 2 J. FOR. SCI. 15 (1957).

of paternity to ascertain whether any necessary safeguard against inaccuracy was omitted and to dispel fanciful speculations of conceivable error. The expert should be able to provide evidence demonstrating that the parties have been properly identified and blood specimens correctly labelled, that at the time of testing all blood specimens and reagents had not deteriorated, all tests agreed and were run in duplicate with duplicate sets of reagents, that the blood cells of the various parties did not agglutinate spontaneously in any of the several suspending solutions employed, that all reagents were identified and, if need should arise, could be returned to for future reference, that both positive and negative control reactions were obtained and that testing procedures appropriate to the various reagents were followed.²³

On occasion lawyers have requested that the court select an expert of their choice. The Cuyahoga County, Ohio, Juvenile Court has only done so after ascertaining that the person suggested was qualified by education, experience, and especially by having day-to-day responsibility for an active blood grouping or blood banking service. While the primary responsibility for absolute accuracy of the tests rests with the serologist, judges and attorneys must insist that only duly qualified experts be employed.

EFFECT OF DEATH OF MOTHER OR CHILD ON STATUTORY RIGHT TO BLOOD TEST

Section 3111.02 of the Ohio Revised Code provides that in case of the death of the mother, the action may be brought by her legal representative. Section 3111.17 provides that in case of the child's death, the accused, in the event he is found guilty, is required to pay the maternity expenses, the accrued support to the time of the child's death, and the funeral expenses. It might be asserted that in both such situations the accused would be deprived of his statutory rights to a blood test. This is not entirely so. In the case of the death of the mother the blood testing of the accused and the child can yield an exclusion, since the child may have blood types which would not be possible if the accused was the father, as is shown by Table 4. Of course, in such a situation the probability of exclusion would be considerably lessened. In the case of the death of the child before the blood test, the accused will not have whatever benefit the test might be to him, and he will have to accept this as he would the death or failure to appear of one of his witnesses.

23. Littell & Sturgeon, *Defects in Discovering and Testing Procedures*, 5 U.C.L.A.L. REV. 629, 642 (1958).

TABLE 4
IMPOSSIBLE FATHER-CHILD COMBINATIONS
GROUP OF

MAN	CHILD
O	AB
AB	O
M	N
N	M
C/C	c/c
c/c	C/C

CONCLUSION

Experience during this fourteen year period, 1948-61, leads to the conclusion that exclusionary blood tests, accurately performed, have now attained such a position, both scientifically and legally, as to justify the enactment of a statute which would make such tests conclusive evidence of nonpaternity.

This is not to say that the authors believe that the Uniform Act on Blood Tests²⁴ should be enacted since this act contains the provision that tests showing "the possibility of the alleged father's paternity" are admissible in evidence. As related elsewhere in this article²⁵ the authors agree completely with the Ohio Supreme Court that the admission of such evidence is highly prejudicial to the accused.

Further statutory provision should be made empowering the court, in the event of an exclusion, to make a finding of "not guilty" if the complainant does not present evidence of the inaccuracy of the test by means of a second test or otherwise.

24. UNIFORM ACT ON BLOOD TESTS TO DETERMINE PATERNITY.

25. See note 12 *supra* and accompanying text.