

1986

Utah v. Woods : Brief of Respondent

Utah Court of Appeals

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BRIEF

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CKET NO. 860163-CA IN THE SUPREME COURT

STATE OF UTAH

THE STATE OF UTAH, by and)	
through the Utah State)	
Department of Social Services	)	860163-CA
and MARY A. TURPIN,	)	Supreme Court No. 21051
)	
Plaintiffs-Respondents,	)	District Court No. C83-6237
vs.)	
)	
EDWARD L. WOODS,	)	District Court Judge
	)	J. Dennis Frederick
Defendant-Appellant.)	

RESPONDENT'S BRIEF ON APPEAL

On Appeal from the Third District Court
of Salt Lake County, State of Utah
The Honorable J. Dennis Frederick Presiding

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FILED

AUG 12 1986

Clerk, Supreme Court, Utah

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LIST OF ALL PARTIES

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2. Respondents, the State of Utah by and through the Utah State Department of Social Services, and Mary A. Turpin, represented by David S. Tibbs, Assistant Attorney General, State Capitol Building, Salt Lake City, Utah, 84115.

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STATEMENT OF ISSUES

I. Whether the district court's admission of expert testimony by Dr. Charles DeWitt, based upon the results of a Human Leucocytes Antigen (HLA) test performed approximately one year before the trial by his laboratory assistant, Paula Simenson Poglagen, violated the Hearsay Evidence Rule as defined in Article VIII, Utah Rules of Evidence 801-806?

II. Whether the district court erred in accepting the qualifications of Dr. Charles DeWitt to testify as an expert witness and the qualification of laboratory technician Paula Simenson Poglagen to perform and record the results of the Human Leucocytes Antigen (HLA) test?

III. Whether the district court erred in its treatment of testimony or evidence that Appellant Edward L. Woods did not have access to Respondent Mary A. Turpin during the time that she conceived, and its treatment of the allegation that Respondent Turpin had Herpes and other venereal diseases while Appellant Woods had none?

STATUTES INVOLVED

78-45-A-7, U.C.A. 1953, as amended.

78-25-18, U.C.A., as amended.

Chapter 45A of Title 78, U.C.A. 1953, as amended.

78-45(A)-10, U.C.A. 1953, as amended.

Utah R. Evidence 803(4)(6)(8)(24).

STATEMENT OF FACTS

Respondents, State of Utah, by and through the Utah State Department of Social Services, and Mary A. Turpin, allege that Appellant Edward L. Woods is the natural father of Angela A. Turpin, born July 22, 1983. Respondent Mary A. Turpin testified at trial that she had sexual intercourse with Appellant Edward L. Woods, and no other individual during the period when the child could have been conceived.

Expert testimony was presented at trial by Charles W. DeWitt, Ph.D., professor and associate chairman of the Department of Pathology and head of its experimental division and HLA Laboratory at the University of Utah, Medical Center. Dr. DeWitt's testimony was based, in part, upon two sets of "blind" Human Leucocyte Antigen (HLA) tests run by two separate laboratory technicians on Appellant Edward L. Woods at the University Medical Center Pathology Laboratory on October 20, 1983. These tests were run in connection with an earlier court action in which Appellant Woods had been named as the possible father of one Amanda Miller. Trial Transcript at 103, 104, 109, 110, 111, 123, 127, 128, 129, 144, 145, 146, Turpin v. Woods, Dist. Ct. No. C83-6237 (1985).

Based upon the October 20, 1983 HLA test on Appellant Woods, Dr. DeWitt testified that Appellant Woods could not be excluded as the father, and that there was a 94% probability that he was the father. Trial Transcript at 147, 158.

Based on all evidence presented, the trial court found Appellant Woods to be the father and ordered him to pay One

Thousand Four Hundred Eighty and No/100 Dollars (\$1,480.00) in medical expenses associated with the child's birth and to pay child support from the date of birth and during the child's minority. Appellant Woods filed a notice of intent to appeal on May 6, 1985.

Appellant Woods alleges that the testimony of Dr. DeWitt was improperly received at trial and that certain evidence which would have shown Appellant Woods not to be the father was disregarded by the court.

SUMMARY OF ARGUMENT

Contrary to Appellant's contentions, the trial court properly admitted into evidence the expert testimony of Dr. Charles DeWitt. Appellant's effort to discredit Dr. DeWitt and his laboratory assistant, Paula Simenson Poglagen, by relying upon the decision of the Utah Supreme Court in Phillips by and through Utah v. Jackson, 615 P.2d 1228 (Utah 1980), fails in that Appellant improperly interprets the Court's reasoning in that case. In Phillips, the Court recognized the expertise of both Dr. DeWitt and Paula Simenson Poglagen, but ruled against accepting the results of an HLA test because of questions it had at that time relating to the general reliability of such tests in determining paternity.

Since Phillips was decided in 1980, HLA testing in paternity cases has become widely accepted by both the medical community and by the courts as being extremely reliable. Dr. DeWitt's testimony at trial in the case at bar was properly accepted as evidence of Appellant Woods' paternal relationship to

his minor child Angela because of the highly reliable nature of the tests upon which Dr. DeWitt based his testimony, because of the admissibility of testimony based upon business and hospital records under the hearsay rule exception, and because of the proper use of discretion by the trial judge in allowing the testimony and related documentation.

Allegations of "errors and contradictions" in the HLA test data relied upon by Dr. DeWitt arise due to Appellant's misinterpretation of that data. Properly read and interpreted, the data excludes Greg Carlson (Mary A. Turpin's present husband, married November 10, 1983) as the possible father, and along with other evidence, demonstrates conclusively that Appellant Edward L. Woods is the father.

Finally, given the evidence that Mary A. Turpin only had intercourse with Mr. Woods during the time of conception and high degree of accuracy and reliability associated with HLA testing, Appellant's testimony that he did not have access to the mother during the time she conceived and his failure to contract a venereal disease, cannot overcome the prima facie case presented by the Respondent.

ARGUMENT

I. THE DISTRICT COURT PROPERLY ADMITTED THE EXPERT TESTIMONY OF DR. CHARLES DEWITT AND RELATED EVIDENCE OF APPELLANT'S PATERNITY BASED UPON THE RESULTS OF A HUMAN LEUCOCYTES ANTIGEN (HLA) TEST.

A. Appellant Misinterprets the Decision of the Utah Supreme Court in Phillips v. Jackson, 615 P.2d 1228 (Utah 1980).

Appellant Woods mistakenly relies upon the findings of the Utah Supreme Court in Phillips by and through Utah v.

Jackson, 615 P.2d 1228 (Utah 1280) in his effort to prove his contention that the results of an HLA test performed on Mr. Woods were improperly admitted as evidence at trial. The Court in Phillips ruled that admissibility of HLA tests is not barred by U.C.A. 78-45a-10 if such tests otherwise meet the relevant legal standards for the admission of scientific evidence. 615 P.2d at 1233. The Court also acknowledged the assertion in some literature that "the test is highly accurate when performed under the right conditions and is widely accepted, even though it is of recent vintage, at least in this country." 615 P.2d at 1235.

Nevertheless, the Court found that, absent expert testimony, it could not, at that time, determine as a matter of law the general admissibility of HLA testing to establish paternity. Therefore, the Court determined that the Plaintiff in Phillips had failed to establish an adequate foundation at trial for the admissibility of the HLA tests. 615 P.2d at 1238.

Appellant's counsel would seemingly have us believe that the HLA test results were rejected as evidence because Dr. DeWitt and his laboratory technician were not qualified to perform or analyze the tests. A careful reading of the Court's decision reveals that the Court's real concern was with the reliability of the HLA tests in general. References to the qualifications of Dr. DeWitt and his laboratory technician dealt not with their personal qualifications (indeed, counsel in Phillips stipulated that DeWitt is an expert), but whether HLA testing had sufficiently proven itself so as to be able to be relied upon generally in establishing paternity. 615 P.2d at 1236.

The Court's statement as to the qualifications of the laboratory technician was that she was "not qualified to testify with respect to the basic validity of the test." 615 P.2d at 1236. The Court finds no fault with her personal qualifications to perform the test. Conversely, the Court, in its very next sentence, observed that "most of her work with HLA tissue typing was used in connection with organ transplantation." 615 P.2d at 1236. Surely, if the laboratory technician is skilled enough to conduct an HLA test used in the life and death context of an organ transplant, she is qualified to conduct the HLA test in regards to paternity. The Court concluded: "It is not possible to discern from the record whether the reliability claimed for HLA tests in determining tissue compatibility in organ transplants is transferrable to paternity identification." 615 P.2d at 1236. It is impossible to conclude that the Court's concern is for anything other than whether HLA testing could be relied upon generally as affirmative evidence in a paternity action.

The Court's discussion as to Dr. DeWitt's qualifications leads to the same conclusion. The main concern was that "his testimony does not supply the necessary information as to the general acceptance of the test. . . ." 615 P.2d at 1236.

Appellant's arguments that: "Dr. DeWitt, Ph.D., was totally unqualified to testify in this case," and that: "The Laboratory Technician, Paula Simenson Poglagen. . . was clearly not qualified," are not true. Nor do these arguments accurately reflect the conclusions of the Court in Phillips. The truth is

that in 1980 HLA testing, as applied to determination of paternity, was sufficiently new to the Utah Courts, that the Utah Supreme Court was unconvinced of its reliability for that purpose. Much has changed since 1980!

B. HLA Tests are now Generally Accepted in the Scientific Community and by the Courts as Reliable Evidence on the Issue of Paternity.

Even in 1980, Utah's reluctance to accept HLA testing as positive evidence in a paternity suit may have been an anomaly. McCormick, in his 1984 treatise on evidence, called Utah's decision in Phillips "a notable exception. . . which declined to take judicial notice of the reliability and validity in evaluating claims of paternity." E. CLEARY, MCCORMICK ON EVIDENCE 619 (L.Ed. 3d ed. 1984). See Trial Transcript at 108.

HLA tests are now generally accepted in the scientific community as reliable evidence on the issue of paternity, and, if properly offered, are "admissible in evidence and should be considered along with all other evidence on the issue of paternity." 37 ALR 4th 167 (1985), and cases cited therein.

In Crain v. Crain, 662 P.2d 538 (Idaho 1983), the Court held that the trial court erred in excluding evidence that the defendant could not be excluded as the father of the child and that the probability of paternity, as a result of an HLA test, was over 98 percent. The Court found that the failure of the trial court to consider the HLA test might very well have changed the result and that the rejection of HLA evidence was, therefore, prejudicial.

Today, "the forensic use of HLA tests arises principally in two areas: (1) Identifying the perpetrators of violent crimes or sexual offenses from traces of blood or semen, and, (2) The ascertaining of paternity in child support cases or other litigation." McCORMICK at 618. "Errors involving misinterpretation, mislabeling, poor reagents, and the like, are always possible, but workers in this field report that with stringent procedures and quality control standards, the risk of error can be very small." McCORMICK at 618. "With the plethora of genetic markers now known, it is commonplace to determine that the biological father has genetic traits shared by one in several thousand men of the same race. Many laboratories are equipped to test reliability for enough antigens that such positive test results are simply too probative to be ignored." McCORMICK at 621. But, even as early as 1978, a California Appellate court found that: "Positive findings are neither irrelevant nor so innately prejudicial as to justify a rule against their admission." People v. Lindsey, 149 Cal. Rptr. 47, 84 CA.3d 851 (Ct. App. Cal. 1978). According to an annotation in 37 ALR 4th 181, Lindsey now represents the majority position.

C. An HLA Test Performed on Appellant Relative to an Earlier and Separate Trial is Admissible in the Case at Bar.

Error rates in HLA typing were reduced to 0.35% by 1976, and "even this low serologic error rate is too high an estimation of the rate of misclassifications of antigens, since assignments of HLA specificities are made using more than one antiserum to define each HLA group. Thus, HLA typing can be

considered highly reliable when performed under carefully controlled conditions. . ." TERASAKI, Resolution by HLA Testing of 1000 Paternity Cases Not Excluded by ABO Testing, 16 J. Fam. L. 543, 548 (1977-78). Thus, the possibility that a subsequent testing of Appellant Woods would yield a different result based upon a more recent HLA test due to improved methods is virtually nil. Tissue characteristics identified by HLA testing, like fingerprints, do not change. Therefore, given the highly reliable procedure involved in HLA testing, there exists no reason to suppose that a more recent test performed on Appellant Woods would yield a different result than the year-old test.

As to the admissibility of scientific evidence used in a former trial, Jenkins v. United States, 307 F.2d 637 (D.C. Cir. 1962) found that a psychiatrist, whose expert qualifications were unquestioned, was allowed to arrive at a valid diagnosis of an accused's mental capacity on the basis of an earlier examination and psychological test reports, since the psychiatrist's ability to make a revised diagnosis without conducting a personal re-examination presented a question for the jury, and not a question for the court upon which it might rest an exclusion of the diagnosis as a matter of law.

Furthermore, under the hearsay evidence rule, where there is compliance with requirements which are designed to guarantee an adequate opportunity of cross-examination, evidence given at a former trial or proceeding is admissible in a later action. McCORMICK at 759. Since Dr. DeWitt was present during trial of the case at bar for cross-examination relative to the

ELA testing used in the earlier trial, there should be no problem in using the results of that testing in the later trial.

D. Admission of the ELA Test Results by the Trial Court did not Violate the Hearsay Evidence Rule.

Appellant's counsel cites several cases to illustrate his contention that the ELA test results do not qualify as an exception to the Hearsay Evidence Rule. Appellant's Brief at 15, 16, Turpin v. Woods, S.Ct. No. 21051, (Utah 1986). Close examination reveals that the cases cited are distinguishable from the fact situation in the case at bar, and do not support his argument that the ELA test results and testimony should be excluded here.

In Coastal States Gas Producing Company v. Locker, 436 S.W.2d 592 (Ct. App. Tex. 1969), the Court excluded from testimony a notation made by an automobile dealer's service writer reflecting a complaint made by a customer. The Court properly found that the notation, although written upon a business record, was not made by an employee having personal knowledge of the matter recorded. Rather, it was found to be a self-serving declaration made to an employee by a customer. Another similar notation was found to be conjecture on the part of the service manager rather than a fact based upon personal knowledge of someone who had actually tested or examined the problem. Clearly, the Court's conclusion here that opinions based upon mere speculation and conjecture should be excluded, even though contained in an otherwise properly authenticated record, bears no resemblance to the facts in the case at bar, and is totally unapplicable.

the next case cited by Appellant, Noland v. Mutual of Omaha Insurance Co., 205 N.W.2d 388 (Wis. 1973), is also distinguishable from and inapplicable to the case at bar. Properly understood, it actually strengthens Respondent's rather than Appellant's argument. In Noland, a medical history made by a physician contained both the patient's description of his symptoms and the opinion or diagnosis made by the physician. Appellant apparently relies upon dicta in the opinion to the effect that "such evidence (referring to the opinion and diagnosis) may be excluded in the trial judge's discretion if the entry requires explanation or a detailed statement of the judgmental factors upon which the diagnosis or opinion is based." 205 N.W.2d at 392-393. The Court expressly states, however, that "a medical record containing diagnosis or opinion is not henceforth to be ipso facto excluded from evidence," but may be excluded under circumstances requiring explanation or a detailed statement of the "judgmental factors" involved. 205 N.W.2d at 393. ELA testing is now widely accepted as an empirical scientific test whose results are objectively observable. Appellant's desperate effort to show subjectivity by arguing that a colorblind pathologist could produce an inaccurate test result ignores the fact that physicians performing transplant operations rely routinely upon test results made by technicians such as in this case. There is no evidence that Paula Simenson Poglagen was colorblind or otherwise unqualified to accurately analyze ELA test results. Instead, her years of experience in successful testing are evidence of her responsibility and professionalism.

It is difficult to understand how Appellant finds support in Aunt Mid Inc. v. Fjell-Orange Lines, 458 F.2d 712 (7th Cir. 1972), which involved action by a shipper against a water carrier for damage to cabbages shipped from Rotterdam to Chicago, Illinois. There, the trial court refused to permit an opinion from an expert as testimony absent the party stating a good reason. The expert testimony was not relevant to the case, and the Circuit Court dealt with the question of admissibility only superficially in that the outcome of the case was clearly decided on other grounds and the exclusion of the expert testimony was not prejudicial.

Loper v. Andrews, 404 S.W.2d 300 (Tex. 1966), involved a court's refusal to admit as evidence a doctor's opinion which lacked requisite medical certainty to qualify under a statute authorizing admission of entries made in the regular course of business. 404 S.W.2d at 305. What this case really illustrates is an exception to the exception to the Hearsay Rule. Ordinarily, a physician's diagnosis records a condition "resting in reasonable medical certainty." 404 S.W.2d at 305. Therefore, such a diagnosis would ordinarily be admissible as an exception to the Hearsay Rule. Only when such a diagnosis lacks that "reasonable medical certainty" should it be excluded. 404 S.W.2d at 305. Once again, Appellant fails to recognize the highly reliable nature of HLA testing by trying to persuade the court that such testing is only conjecture. A host of cases since Phillips, have held otherwise. Appellant's effort to fit HLA testing into the category of "opinion lacking requisite medical

certainty" runs counter to established recognition and acceptance of HLA test results.

Mucci v. LeMonte, 157 Ct. 566, 254 A.2d 879 (Conn. 1969), like Noland, actually favors Respondent's position more than that of Appellant. Mucci deals with admissibility of police reports as a business record, and establishes that such records must be "based upon the entrant's own observations or on information of others whose business it was to transmit it to the entrant." 254 A2d at 881. The case also notes that if some portion of a police report is not admissible, it is incumbent upon the objecting party to point out the inadmissible parts with specificity and give reasons why those parts are inadmissible. Appellant fails to show any inadmissible parts with specificity.

Finally, Appellant cites Novakofski v. State Farm Mutual Automobile Ins. Co., 34 W.2d 154, 148 N.W.2d 714 (Wis. 1967) wherein the Court refused to allow a lay coroner's statement that the death of a decedent was due to coronary thrombosis since the testimony of the coroner supporting such a conclusion would have been inadmissible if he had been subpoenaed to testify as to the cause of death. Once more, Appellant seems to be relying on his assertion that Paula Simenson Poglagen and/or Dr. Charles DeWitt are not qualified to testify as to the methods and analysis of the HLA test performed on Edward L. Woods. The fallacy of this argument has already been discussed.

Another noteworthy observation by the Court in Novakofski (citing Casimere v. Herman, 28 W.2d 437, 137 N.W.2d 73 (Wis. 1965)) is that: "The law does, however, permit limited

testimony of a medical nature by one not licensed as a medical doctor, if he is, in fact qualified as an expert." 148 N.W.2d at 717, FN.3.

When used by an expert witness to reach and confirm his diagnosis, the results of tests, records, data, or even opinions of another are admissible evidence where such information is of the type reasonably relied upon by experts in the field. For example, in Bender v. State, 472 So.2d 1370 (Ct. App. Fla. 3 Dist. 1985), results of computerized brain scan tests upon which an expert witness relied in reaching and confirming his diagnosis were held admissible "despite the prosecutor's objection that the results of [a] C.A.T. scan, in the form of an opinion of the radiologist who read the test were inadmissible hearsay when testified to by the psychiatrist. . ." 472 So.2d at 1371. Bender further states that: "The hearsay rule poses no obstacle to expert testimony premised, in part, as here, upon tests, records, data, or opinions of another, where such information is of a type reasonably relied upon by experts in the field," and, ". . .while the reports and tests, if offered alone, may be inadmissible, testimony regarding diagnoses and opinions formulated in part through reliance upon this data is to be admitted." 472 So.2d at 1371.

Birdsall v. United States, 346 F.2d 775, 779-80 (5th Cir 1965) found that: "With the increased division of labor in modern medicine, the physician making a diagnosis must necessarily rely on many observations and tests performed by others and recorded by them; records sufficient for diagnosis in

the hospital ought to be enough for opinion testimony in the courtroom." (Emphasis added.) 346 F.2d at 779-80.

State v. Russo, 38 C.S. 426, 450 A.2d 857 (Super. Ct. Conn. 1982), citing WIGMORE, EVIDENCE § 665(b) (Chadbourn Rev. 1979), concluded that "when the expert witness has consulted numerous sources and uses that information, together with his own professional knowledge and experience, to arrive at an opinion, that opinion is regarded as evidence in its own right, and not as hearsay in disguise." 450 A.2d at 866.

Furthermore, "reports relied upon by experts but not entered into evidence can lay the foundation for an expert's testimony." Edwards v. United States, 483 A.2d 682 (Ct. App. D.C. 1984).

And, "Foundation has been laid for opinions of an expert witness when qualifications of the witness with respect to his knowledge or special experience is sufficiently established." Herman v. Speed King Mfg. Co., 675 P.2d 1271 (Wyo 1984).

Clearly, then, it is permissible under prevailing case law to allow an expert to base his opinion at trial even on data which could not otherwise be admitted in evidence provided it is the type reasonably relied upon by experts in forming opinions upon the subject in their particular field of competence. In the case at bar, as has been adequately shown, the data used in Dr. DeWitt's testimony would be admissible in its own right under the business and hospital records exceptions to the Hearsay Rule. It unquestionably qualifies as data upon which expert witnesses would and do rely in forming their opinions and conclusions in

this particular field. Trial Transcript at 24, Turpin v. Woods, Dist. Ct. No. C83-6237 (1985).

E. The Admission of the Expert Testimony and Qualifications of Dr. DeWitt was within the Sound Discretion of the Trial Court.

It is well-established that the determination of an expert witness' qualifications is a matter to be left to the discretion of the trial court. Childers v. State, 100 Nev. 280, 680 P.2d 598 (Nev. 1984), citing Jenkins, found that: "The admissibility of expert testimony, as well as qualifications of the expert, lies within the sound discretion of the trial court . . . A general practitioner may testify concerning matters within a medical speciality if his education or experience, or both, involves demonstrable knowledge of the subject." 680 P.2d at 600. And, Backes v. Valspar Corp., 783 F.2d 77 (7th Cir. 1986) held that persons other than medical doctors may be competent to offer opinion on causes of illness.

Pinock v. Dupnite, 703 P.2d 1240 (Ct. App. Ariz. 1985), discussing qualifications of expert witnesses, noted that: "As far as expert witness qualifications are concerned, all that is necessary is that potential witnesses have information from experience, training, or education that would be helpful to the trier of fact; it is not required that the witness have the best possible qualifications, nor highest degree of skill or knowledge, so long as he does have skill and knowledge superior to that of men in general." 703 P.2d at 1244. See also Larsen v. State Savings and Loan, 64 H. 302, 640 P.2d 286 (Hawaii 1982); I.H.C. Hosp. Inc. v. Board of Com'rs., 108 Ida. 136, 697 P.2d

1150, ovvrrld. on othr. grnds. 702 P.2d 800 (Idaho 1985); Tice v. Richardson, 7 KA.2d 509, 644 P.2d 490 (Ct. App. Kan. 1982).

Codified exceptions to the Hearsay Rule are provided in Utah's Rules of Evidence. These exclusions define the following exceptions applicable to the case at bar:

". . .(4) Statements made for purposes of medical diagnosis or treatment and describing medical history, or past or present symptoms, pain, or sensations, or the inception or general character of the cause or external source thereof insofar as reasonably pertinent to diagnosis or treatment. . .

(6) A memorandum, report, record, or data compilation, in any form, of acts, events, conditions, opinions or diagnoses, made at or near the time by, or from information transmitted by, a person with knowledge, if kept in the course of a regularly conducted business activity, and if it was the regular practice of that business activity to make the memorandum, report, record, or data compilation, all as shown by the testimony of the custodian or other qualified witness, unless the source of information or the method or circumstances of preparation indicate lack of trustworthiness. The term 'business' as used in this paragraph includes business, institution, association, profession, occupation, and calling of every kind, whether or not conducted for profit. . . See Trial Transcript at 108-113.

(8) Records, reports, statements, or data compilations, in any form, of public offices or agencies, setting forth: (A) the activities of the office or agency, or (B) matters observed pursuant to duty imposed by law as to which matters there was a duty to report, . . .

(24) A statement not specifically covered by any of the foregoing exceptions but having equivalent circumstantial guarantees of trustworthiness, if the court determines that (A) the statement is offered as evidence of a material fact; (B) the statement is more probative on the point for which it is offered than any other evidence which the proponent can procure through reasonable efforts; and (C) the general purpose of these rules and the interests of justice will be best served by admission of the statement into evidence" UTAH R. EVID. 803(4)(6)(8) (24).

Cases clarifying and substantiating the foregoing Rules and cases included the following:

Jenkins v. U.S., 307 F.2d 637 (D.C. Cir. 1962), citing Taylor v. Monogahela Ry., 155 F. Supp. 601, 604 (D. Pa. 1957), disagreed with "cases which bar an expert's opinion based upon facts not in evidence unless it is derived from his own observations." 307 F.2d at 641. Rather, the Jenkins Court insisted that: "The better reasoned authorities admit opinion testimony based, in part, upon reports of others which are not in evidence but which the expert customarily relies upon in the practice of his profession." 307 F.2d at 641.

In State Ex. Rel. Buechler v. Vinsand, 318 N.W.2d 208 (Iowa 1982), the Court addressed the validity of an Iowa statute related to admissibility of blood tests in paternity suits, and concluded that a statute making a verified expert's report admissible at trial was valid, and that "unless a challenge to the testing procedures or results of blood analysis has been made

before trial,' the evidence is exempt from the hearsay rule."
318 N.W.2d at 210.

In the absence of a statute such as the one in Vinsand, HLA tests must be made in the regular course of business and the actual report must be recorded at the time of the act or at a reasonable time thereafter. Rosemary v. Bruce, 449 N.Y.S.2d 886, 113 M.2d 745, (Fam. Ct. 1982). These requirements were met in the case at bar. See also: McCORMICK at 878; and Trial Transcript at 109.

It is now widely held that hospital records are admissible upon the same basis as other regularly kept records. This is because "the safeguards of trustworthiness of the records of the modern hospital are at least as substantial as the guarantees of reliability of the records of business establishments." McCORMICK at 882; and 38 Am. Jur. P.O.F.2d 145. The records kept in hospitals, including lab reports performed by technicians, are used routinely to make decisions upon which the health and life of the patient depend.

HLA testing is highly accurate on the issue of paternity and should be accorded great weight. Taken with other evidence, a result of HLA testing showing high probability of paternity constitutes clear and convincing evidence of that paternity. Bowling, on behalf of Morgan v. Coney, 459 N.Y.S.2d 183, 91 A.D.2d 1193 (Ct. App. N.Y. 1983).

- F. Sufficient Foundation was Laid for the Admission of Dr. DeWitt's Testimony, as Indicated in the Trial Court's Transcript and in Accordance with Phillips, but even if it hadn't the Trial Court could have Taken Judicial Notice of the HLA Test Results and Admitted the Evidence Upon its Own Motion.

Although a judge must hear testimony that an HLA test was, in fact, "made as a part of a business duty of the doctor who had made it, or on information imparted by persons who were under duty to impart such information," where properly admitted, a court may take judicial notice and admit the results of the test "without further foundation or testimony [being] required." (Emphasis added.) In Carmen I. v. Robert K., 441 N.Y.S.2d 926, 110 M.2d 310 (Fam. Ct. 1981), the Court took this approach, and, even in the absence of direction from the Legislature, ordered the laboratory report of the HLA test admitted into evidence. Thus, even if it is argued that Respondent failed to lay a proper foundation relative to the admissibility of the HLA test results in the case at bar, HLA testing is now viewed as being highly accurate and worthy of being accorded great weight--so much so that courts are now willing to take judicial notice of such evidence and admit such evidence upon its (the court's) own motion.

Phillips sets forth the elements that must be addressed to provide a sufficient foundation for the admissibility of ELA tests. Phillips v. Jackson, 615 P.2d 1228, 1235 (Utah 1980). It is clear from the trial court transcript that all foundational requirements specified in Phillips were met:

"(1) The correctness of the genetic principles underlying the test for determining paternity;" (See Trial Transcript at 107, 108, 109, 111, 112, 126, 127, 128, 129, 154, 162, Turpin v. Woods, District. Ct. No. C83-6237 (1985); 1 and 615 P.2d at 1235).

"(2) The accuracy and reliability of the methods utilized in application of the principle to determine paternity;" (See Trial Transcript at 109, 132, 133, 136, 140, 141, 148, 149, 154, 162; and 615 P.2d at 1235).

"(3) The effect of variables such as occur in persons of different nationalities or ethnic origins that would influence the accuracy of the test;" (See Trial Transcript at 113, 114, 135, 136; and 615 P.2d at 1235).

"(4) Other factors that might tend to invalidate the test or significantly change the probability of accuracy;" (See Trial Transcript at 122, 123, 131, 132, 147, 158; and 615 P.2d at 1235).

"(5) Establishing that the actual method employed and the particular test used in a given case were performed in accordance with proper procedures and with proper materials and equipment;" (See Trial Transcript at 109, 110, 113, 115, 116, 117, 118, 126, 127, 128, 129, 131, 132, 135, 136, 137, 138, 140, 141, 147, 148, 149, 155, 157, 158, 160, 161, 162, 163, 165; and 615 P.2d at 1235).

"(6) The qualifications of the necessary witnesses." (See Trial Transcript at 104, 105, 106, 111, 112, 119, 120, 121, 122, 123, 124, 151, 152; and 615 P.2d at 1235).

G. The Conclusions Reached by Dr. DeWitt's Analysis and by the District Court as to Paternity were Correct.

Appellant's Brief refers to certain supposed errors and inconsistencies in the HLA test data relied upon by Dr. DeWitt in his testimony. Properly understood, there are no errors or

inconsistencies in the data. Appellant's effort to discredit it only reveals a lack of understanding on his part of the nature of HLA testing. (See Addendum "B" for elaboration on the following information.)

First, Appellant refers to Edward L. Woods having been shown to carry a B-45 phenotype antigen by using serum M 5267, while a B-44 phenotype antigen was shown by using serum 041 not L 9849.01 as he claims. (See Plaintiff's Exhibit 5, Addendum "A").

In order to understand these seemingly different results, it is important to remember that the original HLA test on Woods was done relative to his possible paternity of Amanda Miller, the child in the Johns v. Woods case. (See Defendant's Exhibit 12, Addendum "A"). In that case, neither B-44 nor B-45 were relevant, because the child had neither of these antigens. But why did Dr. DeWitt show B-45 in the Johns case and B-44 in present case at bar? See Trial Transcript at 131-167.

Phenotype antigens B-44 and B-45 are "splits" of the same thing. Before either can be determined, serological tests must first determine a positive B-12 (See Plaintiff's Exhibit 5, Addendum "A"). Since B-44 and B-45 are subgroups of B-12, an additional test must be run on the tissue sample to determine which subgroup is present.

When the HLA test was run on Edward L. Woods, 144 separate "blind" tests were performed on his blood samples by two separate technicians on the same day. See Trial Transcript at 165. Tests performed are "blind" in the sense that they are

identified by numbers not names, nor is the purpose of the test known at the time performed, nor do the technicians work together. The set of tests represented by Tray Lot No. 28 showed a "4" for B-45 which is ranked as "doubtful positive" on the recording scale. (See Plaintiff's Exhibit 5, Addendum "A"). The other Tray Worksheet (LT3-D3) yielded a result of "6" for B-44 ranked as Positive and a "1" for B-45 or negative.

As mentioned earlier, in the Johns v. Woods case, whether the antigen was B-44 or B-45 was not relevant, because the child had neither, and, therefore, that antigen group was not determinative in showing paternity. Stated simply, it did not matter whether the subgroup of B-12 was B-44 or B-45. See Trial Transcript at 163, 164. Nevertheless, interpreting Woods as having a B-45 antigen was not precise, but in the Johns case was totally irrelevant. Basically the precise determination of B-44 or B-45 was not required in the first test. Tray LT3-D3 properly assigns him a B-44 antigen.

Actually, even in the Turpin case (at bar), the B-44 antigen, although important to showing paternity, is not determinative. Here, Greg Carlson, Mary Turpin and Edward Woods all carry a B-44 antigen. Any one of them could have passed it to the child. See Trial Transcript at 164, 165.

In the Turpin case, the critical question is: Where did the Child get the A-29 antigen? The mother, Mary Turpin, has two A-2 antigens. Greg Carlson also has two A-2 antigens. Thus, Angela Turpin did not get the A-29 antigen from either Greg Carlson or Mary Turpin. Greg Carlson is conclusively excluded as

the father (contrary to Appellant's arguments). Edward L. Woods, on the other hand, does carry an A-29 antigen. Thus he is not excluded. And, there is great probability that he is the father. Only by showing that Mary Turpin had sexual contact with some third male who also has an A-29 antigen could any serious doubt be raised as to Edward L. Woods being the father. For that reason alone the probability of paternity is less than 100%. See Trial Transcript at 140, 141.

Finally, Appellant questions the fact that one of the A-2's on Greg Carlson is lined out (see Plaintiff's Exhibit 7, Addendum "A"), and why one of the A antigens on Mary Turpin shows simply as "A_". The Answer is somewhat technical, but simple: Every person has two "A" antigens and two "B" antigens. Whenever only one "A" antigen can be detected, two possibilities exist. First, it is 99% possible (probable) that both "A" antigens are the same; second, there is a 1% possibility that the "A" antigen is some "A" antigen not yet known or discoverable by present test techniques. When this situation occurs, it is appropriate to either record two identical "A" antigens or record only one, recognizing that the person has to have two, and there is a 99% probability that they are identical.

II. THE DISTRICT COURT PROPERLY ACCEPTED THE QUALIFICATIONS OF DR. CHARLES DEWITT TO TESTIFY AS AN EXPERT WITNESS, AND THE QUALIFICATIONS OF PAULA SIMENSON POGLAGEN TO PERFORM AND RECORD THE RESULTS OF THE HUMAN LEUCOCYTES ANTIGEN (ELA) TEST.

As has already been mentioned, numerous cases recognize the considerable discretion given to the trial court judge relative to the admission of expert testimony. In the case at bar, Dr. DeWitt's qualifications as an expert in ELA testing are

more than adequately set out. See Trial Transcript at 103-107. As the following additional authorities indicate, an appellate court will not overturn a decision based upon that discretion unless it is clearly erroneous.

Executive Car and Truck Leasing v. DeSerio, 468 So.2d 1027, pet. rev. den. 480 So.2d 1293 (Ct. App. Fla. 4th Dist 1985): "In general, it is the trial court's responsibility to determine the range of subjects on which an expert witness may testify, and this determination will not be disturbed on appeal absent a clear showing of abuse of discretion." 468 So.2d at 1028. "Expert testimony may be given only if a witness is skilled in the subject matter of the inquiry. . ." 468 So.2d at 1028. But, "the determination, should be based on the overall qualifications of the expert and not solely on an academic degree." 468 So.2d at 1028. DeSerio then held that: "The trial court did not abuse its discretion in allowing a clinical psychologist who was not a medical doctor to testify to the existence of organic brain damage. A clinical psychologist's lack of a medical degree properly can be raised during cross-examination, or during closing argument, to affect the weight of such testimony." 468 So.2d at 1029.

Payne v. Soft Sheen Products, Inc., 486 A.2d 712, 726 (Ct. App. D.C. 1985), citing Jenkins, states that: "The decision whether to admit expert testimony . . . lies within the discretion of the trial court, whose ruling should be sustained unless clearly erroneous." (Emphasis added.) See also: District of Columbia v. Davis, 386 A.2d 1195, 1200 (Ct. App. D.C.

1978); Salem v. U.S. Lines Co., 370 U.S. 31, 35 (1962); Watson v. State, 94 Nev. 261, 578 P.2d 753 (Nev. 1978); Beins v. U.S., 695 F.2d 591, 609 (Cir. Ct. D.C. 1982); Trujillo v. Puro, 683 P.2d 963 (Ct. App. N.M. 1984); Barson v. E.R. Squibb & Sons, Inc., 682 P.2d 832 (Utah 1984); Terry v. ZCMI, 605 P.2d 314, aff'd 617 P.2d 700 (Utah 1979); Tias v. Proctor, 591 P.2d 438 (Utah 1979).

Since 1983, Dr. DeWitt has testified in Utah courts approximately eighty (80) times relative to the application of HLA tests in determining paternity. He and his assistants perform all HLA tissue typing required by the University of Utah Hospital and virtually all such work done in the state of Utah for other hospitals and for the Courts and their officers relative to criminal and paternity identification. As a state employee, Dr. DeWitt receives no direct compensation for his expert witness services. All funds received relative to his court work are paid to the University Hospital.

As has been mentioned previously, counsel in the trial court stipulated as to Dr. DeWitt's expertise in the field of HLA testing and analysis. Dr. DeWitt is, undeniably, the most qualified individual in the state relative to this field. He has written numerous professional articles on the subject of tissue typing, and is well known both in and out of the state of Utah for his expertise in this area. (See attached professional history for documentation, Addendum C.)

III. THE DISTRICT COURT PROPERLY CONSIDERED THE ALLEGED LACK OF ACCESS TO MARY CARLSON (TURPIN) BY EDWARD L. WOODS DURING THE TIME THAT SHE CONCEIVED AND THE ALLEGED FACT THAT MARY HAD HERPES AND OTHER VENEREAL DISEASES WHILE MR. WOODS HAD NO SUCH DISEASES.

In connection with the trial court's alleged disregard for Appellant's alleged lack of access to the mother during the possible time of conception, and the allegation about the venereal diseases, Appellant also refers to the trial court's "disregard of all scientific tests." It is unclear what "test" was disregarded by the trial court as alleged by Appellant in his statement on Issues. The only scientific tests at issue are the HLA tissue tests, and the Appellant wants those disregarded! As to the questions of the putative father not having access to the mother at time of conception, and the fact that the mother has Herpes, etc., while the putative father does not, it simply becomes a matter of which evidence is the most credible.

Because, by its nature, paternity arises from a private act, testimony as to whether the putative father had access to the mother at the time of conception often becomes a credibility contest between the two alleged participants. This is one of the primary reasons blood grouping, and now HLA testing have come to be so widely accepted. The contradictory evidence presented by the two parties can now be subjected to scientific certainty as to excluding certain putative fathers, and very high probability as to predicting who the father actually is. Both types of testing are now well accepted by both the medical community and the courts. Faced with a choice between the contradictory testimony of the parties and HLA testing, it is not difficult to understand why a trier of fact will choose to consider other reliable (near certain) tests to decide between the conflicting testimonies of the parties.

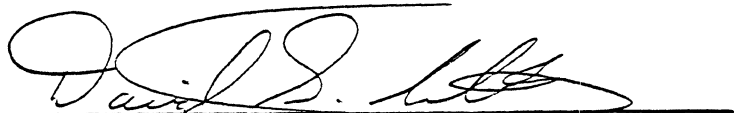
The real question here, however, is the degree of certainty existing that a male would contract venereal disease from an infected female. If the likelihood is significantly less than 100%, this argument would be overcome by the greater probability shown by the HLA test results. Evidence suggests the probability is considerably less than 100%. It should also be recognized that some venereal diseases can be quickly cured by a visit to a Doctor's office. Also, Appellant may simply not have reported the problem.

Presumably, the Appellant had ample opportunity to present expert testimony at trial regarding the likelihood of a female transmitting a venereal disease or diseases to 100% of male contacts. If the argument were credible, one would assume it would have received more attention at the trial than Appellant's Brief seems to suggest.

CONCLUSION

For all the foregoing reasons, the judgment of the Third District Court of Salt Lake County, State of Utah, should be affirmed.

Respectfully Submitted

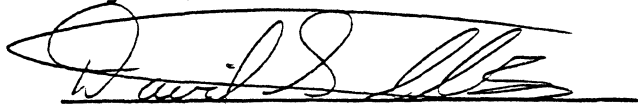
A handwritten signature in dark ink, appearing to read "David S. Tibbs", is written over a horizontal line.

DAVID TIBBS
Assistant Attorney General
Attorney for Respondents
236 State Capitol
Salt Lake City, Utah 84114
Telephone: 533-5261

CERTIFICATE OF SERVICE

I hereby certify that I hand delivered four copies of the foregoing Respondent's Brief on Appeal to Mark S. Miner, attorney for the Appellant, 525 Newhouse Building, 10 Exchange Place, Salt Lake City, Utah, 84111.

DATED this 12 day of August, 1986.



TRIAL COURT EXHIBITS

FILED IN CASE NO. 83-6237
SALT LAKE COUNTY, UTAH

T.L. "TED" CANNON,
Salt Lake County Attorney
By, Sandy Mooy,
Deputy County Attorney
3195 South Main Street
P.O. Box 15450
Salt Lake City, Utah 84115-0450
Telephone: 483-6333

JUL 15 1985
CLERK OF DISTRICT COURT
SALT LAKE COUNTY, UTAH

IN THE DISTRICT COURT OF THE THIRD JUDICIAL DISTRICT,
IN AND FOR SALT LAKE COUNTY, STATE OF UTAH

THE STATE OF UTAH, BY AND)	
THROUGH UTAH STATE DEPARTMENT)	
OF SOCIAL SERVICES,	)	JUDGMENT, ORDER AND DECREE
Plaintiff,)	
Vs.	)	Civil No. C 83 6237
EDWARD L. WOODS,)	
Defendant.)	

This matter came on for hearing before the Honorable J. Dennis Frederick the 12th day of April, 1985. The State of Utah appeared through counsel, Sandy Mooy, the Defendant, Edward L. Woods, appeared in person and through counsel of record, Mark Miner. Based upon the trial being had and based upon the testimony, the evidence received by the Court, it is hereby

ORDERED, ADJUDGED AND DECREED AS FOLLOWS:

1. The Defendant, Edward L. Woods, is the natural father of Angela A. Turpin, born the 22nd day of July, 1983, to Mary A. Turpin.

2. The issues of child support arrearages and reimbursement

Judgment, Order and Decree
C 83 6237
Page 2

of medical expenses are reserved for determination at a later date.

DATED this 25 day of June, 1985

ATTEST
H. DIXON HINDLEY
Clark

J. DENNIS FREDERICK, JUDGE

By

I hereby certify that I mailed a copy of the foregoing Judgment, Order and Decree to Mark S. Miner, Attorney for Defendant, at 525 Newhouse Building, 10 Exchange Place, Salt Lake City, Utah 84111 this 13th day of June, 1985.

STATE OF UTAH) 96
COUNTY OF SALT LAKE)
I, J. DENNIS FREDERICK, CLERK OF THE DISTRICT
COURT FOR THE COUNTY OF SALT LAKE, UTAH, DO HEREBY
CERTIFY THAT THE FOREGOING IS
A TRUE AND FULL COPY OF THE
JUDGMENT, ORDER AND DECREE AS
ENTERED IN MY OFFICE ON JUNE 13, 1985
BY H. DIXON HINDLEY CLERK
BY W. D. BAR DEPUTY

JUDGMENT

FILED
FILED IN CLERK'S OFFICE
Salt Lake County Utah

T.L. "TED" CANNON
SALT LAKE COUNTY ATTORNEY
BY: SANDY MOOY
Deputy County Attorney
3195 South Main Street
Salt Lake City, Utah 84115
Telephone: 483-6333

NOV 12 1985
H. Dixon
Clerk 3rd Dist Court
Deputy Clerk

IN THE DISTRICT COURT OF THE THIRD JUDICIAL DISTRICT
IN AND FOR SALT LAKE COUNTY, STATE OF UTAH

STATE OF UTAH, BY AND THROUGH)
UTAH STATE DEPARTMENT OF)
SOCIAL SERVICES)

JUDGMENT AND ORDER

Plaintiff,)

vs.)

Civil No. C 83 6237

EDWARD L. WOODS,)
Defendant.)

Bk 201 No. 3799
11-13-85-812am

This matter came on for hearing before the Honorable Judge Dennis Frederick the 1st day of October, 1985. The State of Utah appeared through counsel, Sandy Mooy, Deputy County Attorney, the Defendant, Edward Wood, failed to appear in person, however his counsel of record appearing, Mark Miner. Based upon the stipulation of the parties, and evidence received by the Court, it is hereby

ORDERED, ADJUDGED and DECREED as follows:

1. Judgment is entered against the Defendant, Edward L. Woods in favor of the State of Utah, in the sum of \$1,480.00 representing reimbursement for reasonable medical expenses incurred by the State of Utah relative to the pregnancy and birth.

2. The Court orders that the Defendant Edward L. Woods is liable for child support arrearages from the date of birth of the

minor child through the time of this hearing and is also liable for ongoing child support payments for the support of the minor child. However, based upon the information and evidence available to the Court at this time, the Court is unable to enter a specific sum for such child support arrearages or ongoing support due to the Defendant's mental condition and his unemployed status during the time which the arrearages accrued and the current date.

DATED this 12 day of ~~October~~^{Nov.}, 1985.

BY THE COURT:



JUDGE J. DENNIS FREDERICK

APPROVED AS TO FORM:

Mark Miner
Attorney for Defendant

ATTEST
H. DIXON HINDLEY
Clerk


By  _____
Deputy Clerk

EXHIBIT "C"

MARK S. MINER
Attorney for the Defendant
525 Newhouse Building
10 Exchange Place
Salt Lake City, Utah 84111
Phone 363-1449
Utah State Bar No. A2273

MAY 6 4 08 PM '85

H. D. CLERK
BY *Margaret Sweet* CLERK

FILMED

IN THE THIRD JUDICIAL DISTRICT COURT OF SALT LAKE COUNTY

STATE OF UTAH

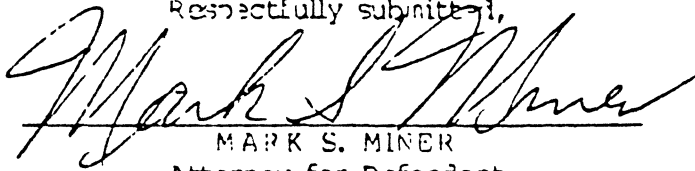
STATE OF UTAH, BY AND)	
THROUGH UTAH STATE)	
DEPARTMENT OF SOCIAL	)	NOTICE OF INTENT TO APPEAL
SERVICES,	)	THE ISSUE OF PATERNITY AS
Plaintiff,	)	PERMITTED BY RULE 72A
)	
vs.)	
)	
EDWARD L. WOODS,)	
)	
Defendant.	)	Civil No. C-83-6237
	)	Judge Dennis Frederick

COMES NOW the Defendant and gives notice to the Plaintiff and all of them, that Edward L. Woods preserves his right to appeal the issue of paternity until a final determination of all other claims have been adjudicated by the Court.

We preserve the right to appeal all of Dr. Dewitt's testimony and all of the supporting evidence that was introduced concerning paternity under the hearsay rule and other rules. Said evidence being considered and directly contra to the Utah Supreme Court decision in the case of Deborah J. Phillips and Utah State Department of Social Services v. Jeffrey Walker Jackson, Supreme Court file No. 15618.

DATED this 4th day of May, 1985.

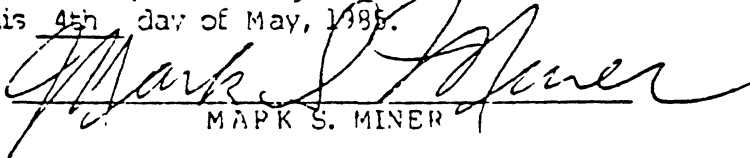
Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Mark S. Miner", written over a horizontal line.

MARK S. MINER
Attorney for Defendant

CERTIFICATION OF MAILING

I hereby certify that I mailed a true and correct copy of the foregoing NOTICE OF INTENT TO APPEAL THE ISSUE OF PATERNITY AS PERMITTED BY RULE 72A to Sandy Mooy, Deputy County Attorney, 3195 South Main, Salt Lake City, Utah 84115; by depositing same in the United States Mail at Salt Lake City, Utah this 4th day of May, 1985.

A handwritten signature in cursive script, appearing to read "Mark S. Miner", written over a horizontal line.

MARK S. MINER

(- PARTIES PRESENT) COUNSEL: (- COUNSEL PRESENT)

State of Utah : Sandy Mooney ←

- vs - :

Edward L. Woods ✓ : Mark Miner ✓

By : Hon. Dennis Frederick JUDGE

Hellberg : DATE: 4-12-85

I. Brill :
CLERK
REPORTER
CITY CLERK

This case comes now on before the Court
trial. Appearances as shown.

Charles D. Watt is sworn and examined
behalf of the plaintiff. The state
is to be furnished is argued to the Court
Court being fully advised in the premises
to the motion. Mary Carlson is sworn
examined in behalf of the state. The
to rest.

The defendant's motion to dismiss is
ed and submitted to the Court. The Court being
advised in the premises denies the motion.
Edward L. Woods and Ralph Woods are
in and examined in behalf of the defendant.
defendant rests.

The case is argued to the Court and submitted.
Court being fully advised in the premises,
Edward L. Woods is the biological father, and
the issue of amount owing for further trial. PAGE 06

FILE NO. C-83-627

LE: (✓ PARTIES PRESENT)

COUNSEL: (✓ COUNSEL PRESENT)

State of Utah

Sandy May

- vs -

Edward (Ward) (NO)

Mark Miner

S. G. S. J.

CLERK

E. Haller

REPORTER

H. Bell

BAILIFF

HON. S. Dennis Frederick
JUDGE

DATE: Oct. 1, 1985

This case comes now on before the Court for
amendatory hearing. In accordance as shown.

That Edward, son and Mary Carter are
born and parent in behalf of the plaintiff
Plaintiff rests. Both sides rest.

The case is argued to the Court and submitted.
The Court being fully advised in the premises rules
the defendant is responsible for normal delivery
charges, the child support arrears and on con-
signment. Based on stipulation of counsel Court
rules the delivery charges were \$1,480.00.

MARK S. MINER
Attorney for the Defendant and Appellant.
525 Newhouse Building
10 Exchange Place
Salt Lake City, Utah 84111
Phone 363-1449
BAR LICENSE A2273

IN THE THIRD JUDICIAL DISTRICT COURT OF SALT LAKE COUNTY
STATE OF UTAH

STATE OF UTAH, BY AND	)	AMENDED
THROUGH UTAH STATE	)	NOTICE OF APPEAL
DEPARTMENT OF SOCIAL	)	TO UTAH SUPREME COURT
SERVICES, and MARY TURPIN,)	
)	
Plaintiffs,)	
)	
vs.)	
)	
EDWARD L. WOODS,)	
)	
Defendant.	)	CIVIL NO. C83-6237
)	

NOTICE IS HEREBY GIVEN that Edward L. Woods, the above named defendant, hereby appeals to the Supreme Court of the State of Utah, from the JUDGMENT and ORDER signed and entered in this action on November 12, 1985, by the Honorable Judge J. Dennis Frederick. Appeal is further taken from the intermittent Judgment, Order, and Decree that was rendered from the hearing on the 12th day of April, 1985; signed by the Honorable J. Dennis Frederick, District Judge, on the 25th day of June, 1985. This appeal is taken on the law and the facts set forth in the FINDINGS OF FACT and CONCLUSIONS OF LAW and INTERMITTENT JUDGMENT and on the Law and the Facts set forth in the FINDINGS OF FACT and CONCLUSIONS OF LAW in the FINAL ORDER AND the FINAL JUDGMENT. Said cause is appealed in its entirety.

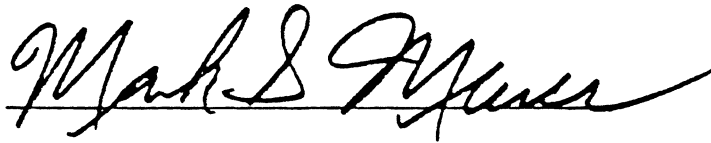
Respectfully submitted,


MARK S. MINER

Attorney for the Defendant Edward L. Woods.

CERTIFICATE OF MAILING

I hereby certify that I duly served the foregoing AMENDED NOTICE OF APPEAL on T.L. Cannon (Ted Cannon), Salt Lake County Attorney; and, Sandy Mooy, Deputy County Attorney, by mailing a true and correct copy of the foregoing AMENDED NOTICE OF APPEAL to said attorneys at their office 3195 South Main Street, Salt Lake City, Utah 84115 on this 6th day of December, 1985, and that said Amended Notice of Appeal was duly served according to law.

A handwritten signature in black ink, reading "Mark S. Miner", written over a horizontal line.

MARK S. MINER
Attorney for the Defendant Edward L. Woods.
525 Newhouse Building
10 Exchange Place
Salt Lake City, Utah 84111
Phone 363-1449

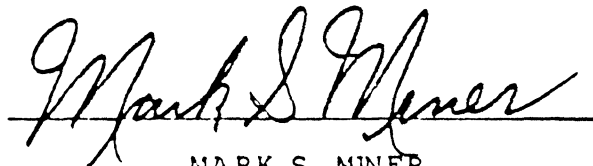
MARK S. MINER
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525 Newhouse Building
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IN THE THIRD JUDICIAL DISTRICT COURT OF SALT LAKE COUNTY
STATE OF UTAH

STATE OF UTAH, BY AND)	
THROUGH UTAH STATE	)	NOTICE OF APPEAL
DEPARTMENT OF SOCIAL	)	TO UTAH SUPREME COURT
SERVICES, and MARY TURPIN,)	
)	
Plaintiffs,)	
)	
vs.)	
)	
EDWARD L. WOODS,)	
)	
Defendant.	)	CIVIL NO. C83-6237
)	

NOTICE IS HEREBY GIVEN that Edward L. Woods, the above named defendant, hereby appeals to the Supreme Court of the State of Utah, from the JUDGMENT and ORDER signed and entered in this action on November 12, 1985, by the Honorable Judge J. Dennis Frederick. This appeal is taken on the law and the facts and on the JUDGMENT and ORDER in its entirety.

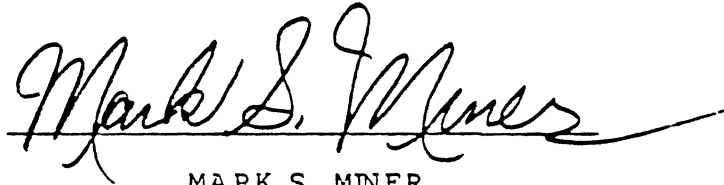
Respectfully submitted,



MARK S. MINER
Attorney for the Defendant Edward L. Woods.
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10 Exchange Place
Salt Lake City, Utah 84111
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CERTIFICATE OF MAILING

I hereby certify that I duly served the foregoing NOTICE OF APPEAL on T.L. Cannon (Ted Cannon), Salt Lake County Attorney; and, Sandy Mooy, Deputy County Attorney, by mailing a true and correct copy of the foregoing NOTICE OF APPEAL to said attorneys at their office 3195 South Main Street, Salt Lake City, Utah 84115 on this 6th day of December, 1985 and that said Notice of Appeal was duly served according to law.

A handwritten signature in black ink, reading "Mark S. Miner", with a long horizontal flourish extending to the right.

MARK S. MINER
Attorney for the Defendant Edward L. Woods.
525 Newhouse Building
10 Exchange Place
Salt Lake City, Utah 84111
Phone 363-1449

IN THE SUPREME COURT OF THE STATE OF UTAH

Deborah J. Phillips and State
of Utah, by and through Utah
State Department of Social
Services,
Plaintiffs and Respondents,

No. 15618

FILED
July 22, 1980

v.

Jeffrey Walker Jackson,
Defendant and Appellant.

Geoffrey J. Butler, Clerk

STEWART, Justice:

Plaintiffs initiated this lawsuit to establish defendant's paternity of a child born out of wedlock to plaintiff Phillips and to compel defendant to support the child. The case was tried to a court sitting without a jury. The court found the defendant to be the father and ordered support payments to be paid. The central issue on this appeal is whether the trial court erred in admitting the results of a relatively new scientific test known as the HLA (Human Leucocyte Antigen) test which purportedly proved the defendant to be the father of the child in this case to a 97% degree of probability. Defendant in addition contends that the trial court's finding of paternity was contrary to the weight of the evidence and that the cumulative effect of the trial court's evidentiary rulings constituted reversible error.

We reverse and remand for further proceedings because it was prejudicial error for the trial court to admit the HLA test results without a proper foundation as to the reliability of both HLA tests in general and the particular test in this case.

The testimony of plaintiff Phillips at trial was self-contradictory and also controverted by defendant. Phillips testified that she and the defendant had had sexual intercourse with one another three to four times a week from the middle of January 1975 to March 15, 1975. She first testified that she had not had intercourse with anyone else during that period, but later admitted having had sexual relations with another man about January 15. Her child was born full term October 14, 1975. Phillips testified that she disclosed her pregnancy to the defendant in February 1975 and that she telephoned him on Thanksgiving Day of the same year to inform him of the birth. On both occasions, she claimed, he made admissions to her concerning his paternity. At trial defendant denied paternity and testified that he had not engaged in sexual intercourse with the plaintiff Phillips at any time. He also testified that Phillips had not informed him of her pregnancy until after the child was born when she telephoned him on Thanksgiving.

Prior to trial plaintiff Phillips, the child, and defendant had blood samples taken and submitted to an HLA tissue-typing test.¹ The test indicated that the defendant was the father of the child in question.

As we understand the HLA test, it is based on the identification and typing of antigen markers found in white blood cells and other tissues of the body. In recent years a number of different tests or systems--by one account as many as fifty--have been developed to resolve questions of disputed parentage. Wiener and Socha, *Methods Available For Solving Medico-Legal Problems of Disputed Parentage*, 21 J. For. Sci. 42, 61 (1975). The tissue-typing test is a genetic test based upon the chromosomal makeup of the test subject. Human body cells have 23 pairs of chromosomes which carry genetic markers called HLA antigens. An antigen is a substance which can stimulate antibody production when introduced into another individual. Antigens, which are produced under genetic control by genes, have been scientifically identified and classified. The basic theory is that by identifying the antigen markers of a child and of the mother, the child's antigen genetic markers which could only be inherited from the father can generally be determined, thereby identifying the father to a high degree of certainty.² This is so because, it is claimed, most people are "rare" types in the sense that only about one out of a thousand people have a similar HLA type. Therefore, a rare type that occurs in a putative father and that also occurs in a child produces a high degree of probability that the putative father is in fact the father. See Terasaki, *Resolution by HLA Testing of 1000 Paternity Cases Not Excluded by ABO Testing*, 16 J. Fam. L. 543, 544-45 (1977-78).

1. The trial court's findings of fact indicate the parties voluntarily submitted to the blood tests. There is no court order or stipulation of the parties regarding blood testing in the record. Appellant claims that counsel agreed only to the performance of the HLA test, not to the admissibility of its results. In passing we note that the trial court has authority pursuant to para. 78-45a-7 to order blood tests of "the mother, child and alleged father . . ." in a paternity action and that a refusal to submit to such a test may be used as a basis for resolving the question of paternity against a party. The court may also order blood tests pursuant to para. 78-25-18. It should be noted, however, that the Uniform Act on Paternity, which constitutes Chapter 45a of Title 78, does not specify what types of blood tests may be ordered or are admissible in evidence.
2. See, *Current Status of Paternity Testing*, 9 Fam. L.Q. 615, 621 (1975). See also Joint AMA-ABA Guidelines: *Present Status of Serologic Testing in Problems of Disputed Parentage*, 10 Fam. L.Q. 247, 272-78 (1976), for an explanation of HLA blood typing.

In the instant case, plaintiffs called two witnesses to establish the admissibility of the HLA test. Paula Simenson, a medical technologist with a B.S. degree in bacteriology, a chemistry minor, and 2-1/2 years' work experience, testified that she had witnessed the taking of the blood sample from the defendant. She traced the chain of custody of the blood sample. Over defendant's objection to the admissibility of the test evidence, she also explained how the test works and described the testing procedure in this particular case. Ms. Simenson conducted the laboratory work for the HLA test and prepared a work sheet which represented her findings. The work sheet was admitted into evidence over defendant's objection.

Plaintiff's second witness, Dr. Charles DeWitt, a pathologist, based his opinion as to the paternity of the father on the work sheet and on tables of percentages published by another person. Dr. DeWitt testified that the test has been used for approximately 15 years for "medical purposes." He did not specify for which medical purposes although it appears that the use referred to by Dr. DeWitt was primarily for determination of tissue compatibility in organ transplantation procedures. Dr. DeWitt also testified without elaboration that the HLA test, when performed under certain conditions, is highly accurate and widely accepted.

Dr. DeWitt stated that the statistical probability that a particular man could be correctly identified as the father of a child ranged from 70% to over 90%, depending on the number of men with whom the mother had sexual intercourse at the time of ovulation. That is, assuming the mother had had sexual intercourse with 15 different men near the time of her ovulation, there would be a 70% likelihood that a person identified as the father was in fact the father. If the mother had had sexual intercourse with only two men during the same period of time, there would be a 97% likelihood that the man identified as the father by the test was in fact the father. Dr. DeWitt was not able to recall the title of the publication from which he obtained these percentages, nor did he give any information as to how widely accepted the tables were for determining paternity, what limitations or variables the tables were subject to, or the extent or nature of verification studies that had been done with respect to the tables. Although he stated that the "literature [was] full of reports" regarding the HLA test he did not refer to any specific authority for his statements regarding the reliability of the HLA test or its alleged widespread use for determining parentage. Nor does it appear that he himself had done any research in developing the test or compiling and verifying the tables showing probabilities of parentage.

Dr. DeWitt concluded that the HLA blood test in the instant case did not exclude the defendant as the father, and that, based on calculated statistical probabilities taken from tables published in a book, there was a 97% degree of probability that defendant was in fact the father of plaintiff's child.

HLA tissue typing is a comparatively new form of test insofar as its use in the courtroom is concerned, and, according to our research, its admissibility has been dealt with by only a few appellate courts. In *Cramer v. Morrison*, 88 Cal.App.3d 873, 153 Cal. Rptr. 865 (1979), a California court of appeals reversed a trial court's refusal to admit the results of HLA testing in a paternity action. The trial court had ruled (1) that California statutory law allowed only evidence of an alleged father's nonpaternity and not evidence affirmatively showing paternity, and (2) that statistical evidence of this nature would have a prejudicial effect on the jury which would outweigh its probative value. In an evidentiary hearing before the trial judge, evidence was adduced that the HLA test indicated a 98.3% degree of probability that the defendant was the father. The trial court found that available data indicated the test was reliable but nevertheless held the test inadmissible for the reasons stated.

The court of appeals held that California law did not require "that the admissibility of scientific-test evidence must be predicated on a 100 percent degree of accuracy." (153 Cal.Rptr. at 872.) The court also held that California statutory law did not prohibit the admission of a California statutory law did not prohibit the admission of a test affirmatively tending to prove paternity. That law is based in part on the Uniform Act on Blood Tests to Determine Paternity which provides for the admission of tests such as the Landsteiner classification of red blood cell groups into evidence to exclude paternity. The Uniform Act also permits the admission of such tests, in the discretion of the trial court, to prove probability of paternity. However, in adopting the Uniform Act, California refused to adopt the latter provision. The court of appeals in *Cramer* held that the omission of the latter provision did not indicate a legislative intent to bar the admissibility of all tests which affirmatively identify a father. The court also noted that at the time the California Legislature adopted the Uniform Act the HLA test was not in use for paternity testing.

Finally, the court of appeals declined to address the issue as to whether the test had received general acceptance in the scientific community and therefore met the foundational requirements for admissibility. Accordingly, the court remanded for a determination of that issue. The court stated that the issue, being one of mixed fact and law, should be determined by the trial court on the basis of expert testimony, legal and scientific publications, and judicial opinions.

We found only two lower appellate court cases which have held that HLA tests are admissible. The Superior Court of New Jersey in *Malvasi v. Malvasi*, 167 N.J.Super. 513 (1979), held that the HLA test had received general scientific acceptance and could be used along with other evidence to determine parentage. *Commissioner of Social Services v. Lardo*, 100 Misc.2d 220, 417 N.Y.Supp.2d 665 (1979), also held the test admissible.

The Wisconsin court of appeals in *J.B. v. A.F.*, 92 Wis.2d 696, 285 N.W.2d 880 (1979), refused to admit the results of an HLA tissue-typing test because of Wisconsin's highly restrictive statutory approach to the use of medical evidence in paternity disputes. The court, however, suggested that a review of the limiting nature of its statute might be in order in light of "medical advances and changed social conditions." In *Simons v. Jorg*, Fla., 375 So.2d 288 (1979), the court refused to admit the test on grounds no having to do with its reliability, and the court did not address that issue.

In sum, no state court of last resort has held that the HLA test meets all the necessary foundational requirements for admission in evidence.

In this case, the threshold issue is whether the test is inadmissible under the Uniform Act on Paternity, adopted in Utah as paragraphs 78-45a-1 et seq. This Act expressly authorizes the use of blood tests for the purpose of excluding paternity. Section 78-45a-10 of the Act states that "[i]f the court finds that the conclusions of all experts, as disclosed by the evidence based on the tests, are that the alleged father is not the father of the child, the question of paternity shall be resolved accordingly."

Under this statute blood tests may also be used to show a probability of paternity. The above-cited section provides further: "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 on the infrequency of the blood type."

There are two reasons why the Utah Act constitutes no bar to the admissibility of HLA tests if they otherwise meet the appropriate criteria for establishing reliability. First, the statute was enacted with reference to blood tests based on red blood cell groupings and was not intended to apply to HLA tests, which are of a different nature. *Cramer v. Morrison*, supra. HLA tests are not necessarily properly characterized as blood tests. Antigens may be found in most tissues of the body, including the liver and the kidneys, as well as component parts of the blood. *J.B. v. A.F.*, supra, 225 N.W.2d at 882. Second, even if the statute is deemed applicable, admissibility is left in the discretion of the court. Since red blood cell group tests produce relatively lower probabilities in affirmatively identifying paternity than the probabilities claimed for HLA tests, the latter, if otherwise admissible, should also be admissible. We conclude that para. 78-45(a)-10 does not preclude the admissibility of HLA tests if they otherwise meet the relevant legal standards for the admission of scientific evidence.

We turn next to the issue of the legal standards which determine the admissibility of scientific evidence. The most widely used standard for making that determination was formulated in *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923). The *Frye* test has been adopted by a majority of those jurisdictions in this country which have established standards to be applied in admitting scientific evidence which is new to the courtroom.³ *Frye* held that scientific tests still in the experimental stages should not be admitted in evidence, but that scientific testimony deduced from a "well-recognized scientific principle or discovery" is admissible if the scientific principle from which the deduction is made is "sufficiently established to have gained general acceptance in the particular field in which it belongs." (293 F. at 1014.)

General acceptance in the scientific community, or more specifically the particular discipline or disciplines of the scientific community which deal with the principles involved, assures the validity of the basic principle. Verification of the basic principle and its application through widespread replication and practical usage is an appropriate indicium of reliability. *People v. Kelly*, 129 Cal.Rptr. 141, 549 P.2d 1240 (1976). The *Frye* standard, however, does not demand infallibility as a condition to admitting scientific evidence. *United States v. Franks*, 511 F.2d 25 (6th Cir. 1975); *United States v. Stifel*, 433 F.2d 431 (6th Cir. 1970); *United States v. Alexander*, 526 F.2d 161 (8th Cir. 1975).

Although a computation of probabilities not based on scientifically established data is inadmissible, *People v. Collins*, 68 Cal.2d 319, 66 Cal.Rptr. 497, 436 P.2d 33 (1968), it generally is the case that "[t]here is a probability factor in even the most carefully structured scientific inquiry; seldom is it possible to exclude all possible chance for error in human endeavor. But there is no requirement in our law that the admissibility of scientific test evidence must be predicated on a 100 percent degree of accuracy." *People v. Slone*, 76 Cal.App.3d 611, 625, 143 Cal.Rptr. 61, 70 (1978). Indeed, nonscientific evidence often falls far short of such accuracy, especially in the area of paternity identification.

The courts in admitting new scientific evidence have frequently relied on the practical application of a principle in a given discipline or area of endeavor as a sufficient indication of reliability. The widespread use of x-rays and radar prior to their judicial acceptance was an important factor in achieving test acceptance. *Strong*, Questions Affecting the Admissibility of Scientific Evidence 1970 U. of Ill. L.F. 1, 12. However, the rule requiring general acceptance should not be too restrictively applied. "[N]either newness nor lack of absolute certainty in a test suffices to render it inadmissible in court. Every useful new development must have its first day in court." *United States v. Stifel*, supra, at 438.⁴

3. Comment, The Psychologist as Expert Witness: Science in the Courtroom, 38 Md. L. Rev. 559, 557-78 (1979).

4. In *United States v. Franks*, the court stated:

Though *United States v. Stifel*, 433 F.2d 431, 438, 441 (6th Cir. 1970), cert. denied, 401 U.S. 994, 91 S.Ct. 1232 (1971), applied the *Frye v. United States*, 54 App.D.C. 46, 293 F. 1013 (1923), standard governing admissibility of scientific evidence as [to] whether the scientific process has gained "general acceptance in the particular field in which it belongs," we deem general acceptance as being nearly synonymous with reliability. If a scientific process is reliable, or sufficiently accurate, courts may also deem it "generally accepted." Accord, *United States v. Brown*, 13 Crim.L.Rep. 2203, 2204 (D.C. Super.Ct. May 1, 1973, 1511 F.2d at 33, n.12.)

Moreover, admissibility is not governed solely by the general acceptance test, although a showing of general acceptance would generally be sufficient. The Frye test has been criticized as being overly rigorous, and some jurisdictions have held that a conflict in expert opinion affects weight rather than admissibility,⁵ and consequently have modified the rule.

Various legal scholars have proposed other foundational standards by which to determine admissibility of new scientific evidence.⁶ The paramount concern is, of course, whether the evidence is sufficiently reliable. Different types of scientific evidence may pose varying and sometimes difficult problems for the integrity of the fact-finding process, but in an age when one scientific advancement tumbles in rapid succession upon another and may be known only among a limited circle of scientists, we are not inclined to adopt a standard that would deprive the judicial process of relevant scientific evidence simply because it is of recent vintage or because knowledge of the principles, or the process for applying a principle, is limited to a small but highly specialized group of experts. Tests that have passed from the experimental stage may be admissible if their reliability is reasonably demonstrable.³ Jones on Evidence para. 15.9 (6th ed. 1972).

An analysis of the admissibility of scientific evidence, while taking into account general scientific acceptance and widespread practical application, must focus in all events on proof of inherent reliability. A scientific test designed specifically for the purpose of a lawsuit may pass muster with sufficient proof of reliability and an adequate explanation of the pertinent variables and potential inaccuracies so that a trier of fact may make a rational appraisal.⁷ We do not intend, however, that a courtroom should be a forum for scientific experimentation. Adjudication means fact-finding, and while speculation is not legitimate in that process, a trier of fact should not be deprived of scientific data because some controversy attaches to it. Management of doubt is a major aspect of our rules of procedure and evidence, and that which reasonably leads to resolution of doubt and ascertainment of truth should be admissible.

In this light it is appropriate in determining reliability to give some consideration to the nature and the reliability of the evidence that must be relied upon in the absence of the scientific evidence. In any event, when the underlying scientific principle and the means for applying that principle to resolution of legal issues, have received widespread acceptance, there will usually be no reason to reject the test.

In the instant case the following elements must be addressed to provide a sufficient foundation for the admissibility of HLA tests: (1) the correctness of the genetic principles underlying the test for determining paternity; (2) the accuracy and reliability of the methods utilized in application of the principle to determine paternity; (3) the effect of variables such as occur in persons of different nationalities or ethnic origins that would influence the accuracy of the test; (4) other factors that might tend to invalidate the test or significantly change the probability of accuracy; (5) establishing that the actual method employed and the particular test used in a given case were performed in accordance with proper procedures and with proper material and equipment; and (6) the qualifications of the necessary witnesses.⁸

We recognize that it has been asserted in some literature that the test is highly accurate when performed under the right conditions⁹ and is widely accepted,¹⁰ even though it is of recent vintage, at least in this country.¹¹ A number of articles in medical and legal periodicals assert that the HLA test is an improved and reliable method for determining paternity. Joint AMA-ABA Guidelines: Present Status of Serologic Testing in Problems of Disputed Parentage, 10 Fam. L. Q. 247 (1976); Polesky & Krause, Blood Typing in Disputed Paternity Cases: Capabilities of American Laboratories, 10 Fam. L. Q. 287 (1976); Terasaki, Resolution by HLA Testing of 1060 Paternity Cases Not Excluded by ABO Testing, 16 J. Fam. L. 513 (1978).

5 United States v. Baller, 519 F.2d 463 (4th Cir. 1975) stated:

Unless an exaggerated popular opinion of the accuracy of a particular technique makes its use prejudicial or likely to mislead the jury, it is better to admit relevant scientific evidence in the same manner as other expert testimony and allow its weight to be left untroubled by cross-examination and refutation. [519 F.2d at 466.]

6 Boyce, Judicial Recognition of Scientific Evidence in Criminal Cases, 8 Utah L. Rev. 313 (1962-63); Eaton, Tinnich, and White, Remote Sensing, Evidence and Environmental Law, 64 Cal. L. Rev. 1300 (1976); Street, Questions Affecting the Admissibility of Scientific Evidence, 1970 U. of Ill. L. F. 1; McCormick, Law of Evidence, para. 203 (1972).

7 An illustration of the need for flexibility is *Coppolino v. State*, Fla. App., 223 S.2d 68, cert. denied, 399 U.S. 927 (1970), in which was developed specifically for that trial and its results were admitted in evidence. Obviously, in this case general acceptance in the scientific community was impossible.

8 Published articles and books may also be used as evidence supporting points (1) and (2) above.

9 The accuracy of the HLA test is clearly dependent on, among other things, the quality of the ser used in a given test and the sophistication of the laboratory involved. Weiner and Siehe, Methods Available for Solving Medico-Legal Problems of Disputed Parentage, 21 J. For. Sci. 42-61 (1975), in discussing the claims that HLA testing can exclude the chance of parentage to a 99% certainty stated the following:

It would seem from these considerations that the virtual solution of problems of disputed parentage is now at hand. Unfortunately, this solution is beset with numerous pitfalls and few laboratories, if any, are equipped to carry out all the necessary tests. The performance of all the tests mentioned in this report would be a laborious task indeed, and too costly in time and material for routine use. Furthermore, the HLA tests are reputed to have the reproducibility of only about 90% so that the possibility of errors is real one indeed.

10 In fact, there may be some question as to the extent of the use of the HLA test. In a survey of 100 courts in 1974, 10 of the American Association of Forensic Sciences (AAFS) reported that they had the capacity for HLA typing, and only 2% of the non-AAFS laboratories had the capacity for the HLA typing. [150 FR.]

Although these articles are helpful in ascertaining the extent to which the HLA test, or that test in conjunction with others, is demonstrably reliable and has achieved acceptance in the scientific community for paternity identification, the articles are not sufficient, absent expert testimony, for this Court to determine as a matter of law the issue of general admissibility, especially in view of the paucity of legal opinions on this point. The articles require expert interpretation and elaboration. It is not clear, for example, that they all define the HLA test in the same manner, or require that the same procedures be followed to achieve the degree of reliability claimed. Nor is it clear what other tests, if any, should be used in conjunction with the HLA test to achieve the highest degree of accuracy. In short, there are numerous unanswered questions which should be addressed by expert testimony to lay the necessary foundation, if indeed it can be laid.

In this case the plaintiff failed to establish an adequate foundation at trial for the admissibility of the HLA tests. This conclusion is required for several reasons. First, the laboratory technician who did the basic workup on the blood samples for the test was clearly not qualified to testify with respect to the basic validity of the test. Her testimony indicated that most of her work with HLA tissue typing was used in connection with organ transplantation. It is not possible to discern from the record whether the reliability claimed for HLA tests in determining tissue compatibility in organ transplants is transferable to paternity identification. She did, however, testify to the necessary chain of custody of the blood samples and the actual use of the blood samples in performing the test.

Dr. DeWitt, a pathologist, was relied on to establish the necessary scientific foundation. Counsel stipulated that he is an expert, a practice wholly appropriate in many cases, but one that leaves this record devoid of evidence of his qualifications—evidence that is essential in this particular case. In a case dealing with the proposed admissibility of a new scientific test which presumably will be relied on innumerable times in the future, the stipulation leaves a hiatus in the necessary foundation.

Furthermore, his testimony does not supply the necessary information as to the general acceptance of the test, the existence of verification studies, if any, and the particular tests that were in fact performed in this case. There is no evidence in the record which establishes his expertise either in the theory or in the use of HLA testing for paternity purposes. In addition, there is no evidence indicating whether special training in pathology or some other field is a necessary prerequisite to qualify a witness to testify concerning the test.

Dr. DeWitt did state that the test is highly accurate and has been in use for some fifteen years, and that "the figures that we used to deduce the possibilities are based on the analysis of a large number of families." He further testified that the test was widely used "for medical purposes." The difficulty with this testimony is that it is too general, too vague, and too unrelated to the specific requirements for establishing a foundation for the test as a means for determining reliability. Since his testimony did not focus specifically on paternity identification, it may and, as best as can be determined from the record, in fact does refer to other medical uses such as tissue compatibility for purposes of organ transplantation. Furthermore, Dr. DeWitt did not indicate how the table of percentages used to establish paternity probabilities was arrived at, although he did testify generally that the probabilities "were widely accepted" and "supported by similar work elsewhere done in public by other people." But he did not explain what he meant by "widely accepted," or by whom, and he did not supply any detail as to the work done by others. Nor does it appear that he had particular knowledge obtained from a technical background and training in the area, or from familiarity with the scientific literature on the subject. The general statement that the method is used widely and has wide scientific acceptance is not sufficient, especially in view of the fact that the test applications apparently were unrelated to paternity identification.

Furthermore, in order to make a proper determination of the advisability of admitting HLA test results in any given case, the foundational information before the court should include the number and type of other blood and tissue tests which have been administered to the persons involved in the litigation and the cumulative effect of the additional tests on the predictive accuracy of the HLA test. As stated in *J.B. v. A.F.*, supra, 285 N.W.2d at 883:

The mean probability of excluding a male who in fact is not the father of a child through HLA testing, alone, is between 78% and 80% for blacks, whites and Japanese. If six systems (ABO, Rh, MNSs, Kell, Duffy and Kidd) plus HLA are used, the cumulative probability of excluding a male who in fact is not the father of a child rises to 91.21% for blacks, 93.31% for whites and 91.42% for Japanese. [Footnotes omitted.]

In the instant case there is no evidence at all that the ABO, Rh, MNSs, Kell, Duffy or Kidd tests were employed, yet the percentage Dr. DeWitt testified to seems to assume that those tests were administered. It may be that there was no necessity for administering these tests, but if so, the record must so demonstrate.

(Footnote Con't. No. 10).

laboratories surveyed, none indicated they routinely used HLA typing in paternity testing. Podolski and Krause, Blood Typing in Disputed Paternity Cases—Capabilities of American Laboratories, 10 Fam. L. Q. 287, 289-92 (1976).

- 11 HLA tissue typing was originally developed to match donor and recipient pairs for organ transplantation. The importance of HLA tissue typing for purposes of paternity testing has only been recently studied. Sherry and Kay, HLA Typing in Child Support and Paternity Testing, 14 Hous. L. Rev. 41, 56 (1977).

SUPREME COURT DECISIONS

Also, evidence should be adduced showing the effect, if any, of the particular racial or ethnic origin of the subject on the calculated probability of exclusion or inclusion of paternity. In addition, qualified witnesses should address the significance of the particular genetic markers relied upon, whether they were inherited from only one parent or both, and the frequency with which they may appear in the population at large. As stated in *Lee*, *Current Status of Paternity Testing*, 9 *Fam. L.Q.* 615, at 628:

Each genetic marker or system of genetic markers provides different chances of exclusion. . . . The white blood cell isoantigen system alone provides a 76% chance of exclusion. The next 13 systems provide from 32% to 13.8% chance of exclusion. By using the first 4 systems, a cumulative chance of over 90% is reached; by the first 7 systems, a 95% chance; and by all systems, a chance of 99.27%. In practice, only a limited number of laboratories presently have the capability of testing nearly all these genetic markers. The amount of involvement may not be justified by the small increase in chance of exclusion. . . . In the United States, tests with a chance of 70% of exclusion can be carried out by a number of laboratories. If demand and interest increase, the capability of conducting tests with a 90% or higher chance of exclusion could be reached in a short time.

Finally, and in addition, the proponent must establish that the sera used in the test and the sophistication of the laboratory are of the quality necessary to obtain the degree of reliability claimed:

Were blood specimens drawn from the right parties? Were the tests done properly with reliable reagents, suitable instruments, appropriate techniques and by experienced technologists? Were results of the tests correctly interpreted? Has the validity of an indirect exclusion been seriously and carefully examined? Have all the known genetic variations, ethnic differences, as well as physiologic and pathologic conditions been taken into consideration? If any of these aspects are neglected, a true father may be relieved from supporting his child, a true parent may be denied his child, or an immigrant child may be barred from reunion with its true parents. These considerations will become even more pertinent as soon as a variety of genetic markers not yet customarily used in many laboratories are included. [*Id.* at 625-26.]

See also Footnotes 9 and 10.

For the foregoing reasons, we hold that admission of the HLA test was without proper foundation and was clearly prejudicial error. In view of this conclusion, it is unnecessary to address other assignments of error by the defendant.

Reversed and remanded for a new trial. No costs awarded.

WE CONCUR:

Richard J. Maughan, Justice

D. Frank Wilkins, Justice

CROCKETT, Chief Justice: (Dissenting)

It is my belief that the majority opinion itself demonstrates that the parties have had their entitlement to a fair trial in which the rulings on evidence complained of were well within the latitude of discretion of the trial court and that it is therefore the duty of this Court to affirm the judgment.

There are several propositions which should be considered and which support that conclusion. The first is that this was a trial to the court, and not to a jury. For that reason, the rulings on evidence need not be as restrictive, because the court should be more knowledgeable than a jury in analyzing and determining the weight and effect to be given the evidence.¹

From the admirably informative and lucid exposition in the main opinion, it appears that the HLA test provides proof to a very high degree of probability on the question of paternity. As the opinion states, Dr. DeWitt was relied on to establish the necessary foundation for its admission. His qualifications were sufficient to satisfy counsel for both sides and the trial court. I see no reason for this Court to doubt either their knowledge or integrity, or the propriety of entering into such a stipulation; and it seems to me quite anomalous for this Court to do so. It being so agreed by the parties, Dr. DeWitt's qualifications should be taken as unquestioned.

As the main opinion states, he testified that the test is highly accurate and has been in use for some fifteen years, and the figures that are used to deduce the possibilities are based on the analysis of a large number of families. He further testified that the test was widely used for medical purposes.

1. See *Del Porto v. Nicolo*, 27 *Utah 2d* 286, 495 *P.2d* 811 (1972) and authorities therein cited, including 5A *C.E.S.* Appeal and Error Sec. 1715. No. 15618.

The opinion also correctly points out that Sec. 78-45a-10 provides that the admissibility of blood tests showing the possibility of paternity is within the discretion of the court; and by sound reasoning points out that the HLA test should be considered as included within that statute.²

I heartily approve and subscribe to the statement from *United States v. Stifel*³ that every new and useful acquisition of knowledge must sometime have its use for the first time; and that neither newness nor lack of absolute certainty in such a test should prevent its results from being received and considered as evidence.

To whatever degree the evidence in question may be lacking in certainty, that should be considered as going to the weight to be given it, rather than to its admissibility. This would have the advantage of allowing the court to receive evidence which appears to have substantial probative value, to be considered along with all of the other evidence in the case, rather than to forego entirely the use of such evidence.

It is upon the basis of what is said in the main opinion and what has been said herein that it is my judgment that there was no prejudicial error, because the receipt of such evidence was well within the latitude of discretion which should be allowed the trial court, and that, consequently the judgment should be affirmed.

HALL, Justice, concurs in the dissenting opinion of Chief Justice Crockett.

- 2. See main opinion and *Cramer v. Morrison*, 88 Cal.App.3d 873, 153 Cal. Rptr. 865 (1979).
- 3. 433 F.2d 431 (6th Cir. 1970).

LEUKOCYTE PHENOTYPING TRAY WORKSHEET

Patient Name Carlson, Mary I.D. No. 704
Race _____ Age _____ ABO Group _____

Control No. LT3-F1

Exp. Date 18 OCT 1984

Date Collected _____

Other Patient Data Paternity

Date Plated 1-27-84 By B88

Date Read 1-27-84 By B88

Comments Mother

Date Reviewed _____ By am

Phenotype A2, A-, B44, B60

Carlson no Wadoks

Serum I.D.	Well	Specificity (ies)	Result	Serum I D	Well	Specificity (ies)	Result
001	1A	Positive Control	8	037	7A	B8	1
002	1B	Negative Control	8	038	7B	B8	1
003	1C	A1	8	112	7C	B12	8
* 004	1D	A1	8	090	7D	B12	6
005	1E	A2	8	041	7E	Bw44	6
126	1F	A2	8	* 114	7F	Bw45	6
* 146	2F	A28,w33,w34		044	8F	B13	
* 117	2E	A28		045	8E	B13	
009	2D	A3		046	8D	B14	
010	2C	A3		047	8C	B14	
013	2B	A9		* 125	8B	B15	
014	2A	A9		* 136	8A	B15	
015	3A	Aw23		* 141	9A	Bw62	
143	3B	Aw24		076	9B	B17	
121	3C	A10		052	9C	B17	
* 020	3D	A25		* 053	9D	B18	
107	3E	A25		054	9E	B18	
* 022	3F	A26,w34		055	9F	Bw16	
* 018	4F	A26,w30		082	10F	Bw38	
024	4E	A11		* 123	10E	Bw39	
079	4D	A11		057	10D	Bw21	
026	4C	A29		140	10C	Bw21	
113	4B	A29		* 106	10B	Bw49	
* 147	4A	Aw30		* 073	10A	Bw22	
084	5A	Aw30,w31		* 139	11A	Bw22	
133	5B	Aw31		092	11B	B27	
* 019	5C	Aw32		093	11C	B27	
120	5D	Aw32		* 064	11D	Bw35,5	
* 119	5E	Aw33,B17		* 138	11E	Bw35	
031	5F	B5		* 065	11F	B37	
* 135	6F	B5		* 065	12F	B37	
033	6E	Bw51		103	12E	B40	8
034	6D	B7		067	12D	B40	8
132	6C	B7		* 081	12C	Bw60	8
* 089	6B	Bw42		* 134	12B	Bw4	8
* 105	6A	Bw42		* 130	12A	Bw6	4

PLAINTIFF'S
EXHIBIT

EXHIBIT "3"

Carlton May (Mother's blood) *June* *88/1/1*

LAST NAME: *Carlton* FIRST NAME: *May* CENTER: *June* INVESTIGATOR: *88/1/1*
 BLEEDING DATE: *2-28-84* SEX: *M* AGE: *34* RACE: *A* DISEASE: *Paternity* ANTIGEN GROUPS OBTAINED: *A2, A, B14, B10, C3, C4* COMPLEMENT LOT: *100*

ID NO.	2					3					4				
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
FACTORY	1	8													
EFFICIENCY	1	1	1	2	3	9	23	24	10	25	26	33	11	11	28
LEADON	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS

ID NO.	6					7					8				
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
FACTORY	1	8													
EFFICIENCY	1	1	1	2	3	9	23	24	10	25	26	33	11	11	28
LEADON	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS

CELL LYMPHOCYTE TESTING

ADING DIRECTIONS is given by the arrow.
 in a serpentine order starting with well 1A. In well 1A is the negative control.
 1. well 1B is the positive control.
STING CONDITIONS
 1) to 2,000 lymphocytes in 1 lambda, incubate 30 min with antibody, 60 min.
 5 lambda rabbit complement, all at room temperature.

RECORDING SCALE
 1- Negative (same viability as well 1A)
 2- Doubtful negative
 4- Doubtful positive
 6- Positive (viability is noticeably different from well 1A)
 8- Strong positive
 9- Not readable


UCLA TISSUE TYPING LABORATORY

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 TE: (213) 825-7661
 11147 TERASAKI LSA

EXHIBIT "3"

LEUKOCYTE PHENOTYPING TRAY WORKSHEET

Patient Name Turpin, Angela I.D. No. 702

Race _____ Age _____ ABO Group _____

Control No. LT3-F1

Exp. Date 18 OCT 1984

Date Collected _____

Other Patient Data Paternity

Date Plated 1-27-84 By BSS

Date Read 1-27-84 By BSS

Date Reviewed _____ By CWD

Phenotype A2, A29, B44, B60

Comments Child

Carlson vs Woods

Serum I.D.	Well	Specificity (ies)	Result	Serum I.D.	Well	Specificity (ies)	Result
001	1A	Positive Control	8	037	7A	B8	1
002	1B	Negative Control	8	038	7B	B8	8
003	1C	A1	8	112	7C	B12	8
* 004	1D	A1	8	090	7D	B12	8
005	1E	A2	8	041	7E	Bw44	8
126	1F	A2	8	* 114	7F	Bw45	8
* 146	2F	A28, w33, w34	8	044	8F	B13	8
* 117	2E	A28	8	045	8E	B13	8
009	2D	A3	8	046	8D	B14	8
010	2C	A3	8	047	8C	B14	8
013	2B	A9	8	* 125	8B	B15	8
014	2A	A9	8	* 136	8A	B15	8
015	3A	Aw23	8	* 141	9A	Bw62	8
143	3B	Aw24	8	076	9B	B17	8
121	3C	A10	8	052	9C	B17	8
* 020	3D	A25	8	* 053	9D	B18	8
107	3E	A25	8	054	9E	B18	8
* 022	3F	A25, w34	8	055	9F	Bw16	8
* 018	4F	A26, w30	8	082	10F	Bw38	8
024	4E	A11	8	* 123	10E	Bw39	8
079	4D	A11	8	057	10D	Bw21	8
026	4C	A29	8	140	10C	Bw21	8
113	4B	A29	8	* 106	10B	Bw49	8
* 147	4A	Aw30	8	* 073	10A	Bw22	8
084	5A	Aw30, w31	8	* 139	11A	Bw22	8
133	5B	Aw31	8	092	11B	B27	8
* 019	5C	Aw32	8	093	11C	B27	8
120	5D	Aw32	8	* 064	11D	Bw35, 5	8
* 119	5E	Aw33, B17	8	* 138	11E	Bw35	8
031	5F	B5	8	* 065	11F	B37	8
* 135	6F	B5	8	* 065	12F	B37	8
033	6E	Bw51	8	103	12E	B40	8
034	6D	B7	8	067	12D	B40	8
132	6C	B7	8	* 081	12C	Bw60	8
* 089	6B	Bw42	8	* 134	12B	Bw4	8
* 105	6A	Bw42	8	* 130	12A	Bw6	8

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1100 VETERAN AVENUE

TRAY WORKSHEET

Control No. LT3-D3

Exp. Date 18 AUG 1984

Comments

Johns N's

Woods Edward

Patient Name I.D. No. 8220

Race Age ABO Group O B5

Date Collected 0-20-83

Other Patient Data

Date Plated 0-20-83 By BS

Date Read " " " By [Signature]

Date Reviewed By

Phenotype A1A29 B8B44

Serum I.D.	Well	Specificity (ies)	Result	Serum I.D.	Well	Specificity (ies)	Result
001	1A	Positive Control	8	037	7A	B8	X
002	1B	Negative Control	1	038	7B	B8	X
003	1C	A1	8	112	7C	B12	X
* 004	1D	A1	8	090	7D	B12	X
005	1E	A2	1	041	7E	Bw44	6
095	1F	A2	1	114	7F	Bw45	1
* 008	2F	A28,w34,B8	8	044	8F	B13	1
* 117	2E	A28	1	045	8E	B13	1
009	2D	A3	1	046	8D	B14	1
010	2C	A3	1	047	8C	B14	1
013	2B	A9	1	* 125	8B	B15	1
014	2A	A9	1	127	8A	B15	1
015	3A	Aw23	1	* 049	9A	Bw62	1
078	3B	Aw24	1	* 049	9B	Bw62	1
121	3C	A10	1	076	9C	B17	1
* 020	3D	A25	1	052	9D	B17	1
107	3E	A25	1	053	9E	B18	1
* 022	3F	A25,w34	1	054	9F	B18	1
* 018	4F	A26,w30	1	055	10F	Bw16	1
024	4E	A11	1	082	10E	Bw38	1
079	4D	A11	1	* 123	10D	Bw39	1
025	4C	A29	8	057	10C	Bw21	1
113	4B	A29	8	* 106	10B	Bw49	1
133	4A	Aw31	1	* 118	10A	Bw50	1
084	5A	Aw30,w31	1	* 073	11A	Bw22	1
* 019	5B	Aw32	1	092	11B	B27	1
120	5C	Aw32	1	093	11C	B27	1
* 119	5D	Aw33,B17	1	* 064	11D	Bw35,5	1
031	5E	B5	1	099	11E	Bw35	1
* 135	5F	B5	1	* 065	11F	B37	1
032	6F	Bw51	1	* 065	12F	B37	1
033	6E	Bw51	1	103	12E	B40	1
034	6D	B7	1	067	12D	B40	1
132	6C	B7	1	* 081	12C	Bw60	1
* 089	6B	Bw42	1	* 134	12B	Bw4	1
* 105	6A	Bw42	1	* 130	12A	Bw6	1

* Refer to reverse side for additional specificity characteristics

PLAINTIFF'S

UCLA HLA-ABC Second TRAY - LOT NO. 28

Wood's Edward (Johns Vs)

Home Dep

LAST NAME FIRST CENTER INVESTIGATOR
 120-83 CBS Potomac A-15950 B/S
 BLEEDING DATE SEX RACE AGE ABO DISEASE ANTIGEN GROUPS OBTAINED COMPLEMENT LOT

ROW	1						2						3						4						5					
IL NO.	A	B	C	D	E	F	F	E	D	C	B	A	A	B	C	D	E	F	F	E	D	C	B	A	A	B	C	D	E	F
ACTION		6	6	8														4	4									8	8	8
SIFICITY			1	1	2	3	9	23	24	10	25	26	33	11	11	28	2	29	29	30	30	32	5	5	5	7	7	8	8	12
			36									34	34			28				31	13	25		49			42			
NUM	NS	ALS	M4346.B0	F9234.01	M4648.A0	C4051.J2	L7183.B0	M4187	M4639	M1732.A0	M3628	M0618	G9297.A1	M1799.01	M4212	M0600.02	M5142	M4960.A0	M4570.A0	M3438	L9862.F0	M3408.G0	M5171	L6944.D0	L0778.01	M1688	M1645.A0	M3244.B0	M4189	M2116.B0

ROW	6						7						8						9						10					
IL NO.	F	E	D	C	B	A	A	B	C	D	E	F	F	E	D	C	B	A	A	B	C	D	E	F	F	E	D	C	B	A
ACTION	1	4																												
SIFICITY	44	45	13	14	15	62	16	39	17	17	18	18	21	50	22	54	55	27	27	35	35	37	40	40	60	41	CW1	CW2	CW3	CW4
NUM	L9849.01	M5287	M5198	M2112.A0	L7710.C0	M2759.B0	M1428.B0	M5583.B0	M5213	M2239.01	M4789.B0	M4790.C0	M3005.A0	M4602	M4229	M4312.01	M3295.A0	L8585.02	M4933	M1479.01	M3661	M2834.C0	M5193.A0	M3451.A0	M5561	M4351	M3236.B0	M5208.B0	M5219.A0	M4600

CELL LYMPHOCYTE TESTING

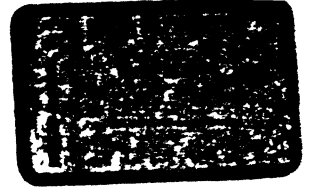
DIRECTING DIRECTIONS is given by the arrows.
 a serpentine order starting with well 1A. In well 1A is the negative control,
 well 1B is the positive control
 KING CONDITIONS

RECORDING SCALE
 1. Negative (same viability as well 1A)
 2. Doubtful negative
 4. Doubtful positive

UCLA TISSUE TYPING LABORATORY

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HLA COMPREHENSIVE TRAY



Control No. LT4-F1

Exp. Date June 12, 1985

SPECIFICITY CHARACTERISTICS

<u>Specificity(ies)</u>	<u>Serum I.D.</u>	<u>Well No.</u>	
A1,w36	004	1D	Weak reactions may occur with HLA-Aw36 positive cells. Results are based on fewer than required HLA-Aw36 positive cells.
Aw24	151	2B	Weak or negative reactions may occur.
A26	109	3B	Weak reactions may occur.
A28,w33,w34	160	3F	Weak or negative reactions may occur with HLA-Aw34 positive cells.
Aw31	133	4B	Weak reactions may occur.
Aw33,w31	196	5B	False positive reactions may occur with HLA-A29 and HLA-Aw30 positive cells.
Aw33,w34	231	5C	Weak or negative reactions may occur with HLA-Aw34 positive cells.
Bw45	225	6A	Results are based on fewer than required positive cells.
Bw62	161	8F	Weak reactions may occur.
Bw38	082	8D	Results are based on fewer than required positive cells.
Bw39	202	8C	Weak reactions may occur.
Bw22	218	9F	Weak reactions may occur.
Bw42,w22	221	10E	Weak reactions may occur with HLA-Bw42 positive cells.
Bw53,5	135	11A	Weak or negative reactions may occur with HLA-Bw53 positive cells.
B37	065	11B	Weak reactions may occur.
B40	206	11D	False positive reactions may occur with HLA-B7 positive cells.

EXHIBIT "7"

HLA COMPREHENSIVE TRAY WORKSHEET

Patient Name Carlson, Greg I.D. No. 889

Race _____ Age _____ ABO Group O

Date Collected 9-26-84

Other Patient Data Pat.

Date Plated 9-26-84 By SE

Date Read " " " By DR

Date Reviewed _____ By CUE

Phenotype A2, B2, B7, B44

Control No. LT4-F1

Exp. Date June 12, 1985

Comments Paternity
Woods vs Carlson

Serum I.D.	Well	Specificity (ies)	Result	Serum I.D.	Well	Specificity (ies)	Result
001	1A	Positive Control	2	045	7A	B13	
002	1B	Negative Control	1	168	7B	B13	
003	1C	A1		047	7C	B14	
* 004	1D	A1,w36		167	7D	B14	
126	1E	A2	2	184	7E	B15	
182	1F	A2	3	185	7F	B15	
009	2F	A3		* 161	8F	Bw62	
227	2E	A3		055	8E	Bw16	
014	2D	A9		* 082	8D	Bw38	
180	2C	Aw23		* 202	8C	Bw39	
* 151	2B	Aw24		199	8B	B17	
169	2A	A10		076	8A	B17	
107	3A	A25		054	9A	B18	
* 109	3B	A26		233	9B	B18	
024	3C	A11		140	9C	Bw21	
172	3D	A11		224	9D	Bw21	
145	3E	A28		106	9E	Bw49	
* 160	3F	A28,w33,w34		* 218	9F	Bw22	
113	4F	A29		139	10F	Bw22	
228	4E	A29		* 221	10E	Bw42,w22	
147	4D	Aw30		092	10D	B27	
084	4C	Aw30,w31		093	10C	B27	
* 133	4B	Aw31		138	10B	Bw35,w53	
019	4A	Aw32		164	10A	Bw35,w53	
120	5A	Aw32		* 135	11A	Bw53,5	
* 196	5B	Aw33,w31		* 065	11B	B37	
* 231	5C	Aw33,w34		175	11C	B37	
204	5D	B5		* 206	11D	B40	
033	5E	Bw51		103	11E	B40	
034	5F	B7	2	149	11F	Bw60	8
132	6F	B7	2	144	12F	Bw4	8
037	6E	B8		162	12E	Bw6	8
038	6D	B8		173	12D	Cw1	
090	6C	B12	2	171	12C	Cw2	
211	6B	Bw44	2	198	12B	Cw3	
* 225	6A	Bw45		087	12A	Cw4	

EXTENDED RED CELL

Assoc. Regional & University Pathologists

Date: 1-30-84

Technologist: DZ

No.-Name	anti-A	anti-B	anti-AB	A ₁ Cell	A ₂ Cell	B Cell	O Cell	Coombs		Control
								Direct	Indirect	
1. Son Mary	4+	0	4+	0		4+		neg. ✓		0
2. pin Angela	4+	0	4+	0		1+		neg. ✓		0

No.-Name	D	CDE	D ^u	C	D ^w	\bar{e}	\bar{e}	E	M	N	anti-S	S	Fy ^a	Fy ^b	Jk ^a	Jk ^b	K	\bar{k}	
1. Son Mary	0		0	✓		4+	4+	0	1+	1+	3+	0	2+	1+	2+	1+			All controls good
2. pin Angela	3+			4+		4+	3+	0	2+	0	2+	3+	0	3+	1+	0			16 panels colls ex. date 2-9-84

No.-Name	Phenotype
4. Son Mary (M)	A ₁ / dce / MNS / Fy ^a b / Jk ^a b
2. pin Angela	A ₁ / DCce / MSS / Fy ^b / Jk ^a

PLAINTIFF'S
EXHIBIT

Curt Date: 10-1-84

Technologist: Pag/9

ie	anti-A	anti-B	anti-AB	A ₁ Cell	A ₂ Cell	B Cell	O Cell	Coombs		Control	A ₁ Lectin
								Direct	Indirect		
tsen g	=	=	=	4+	3+	3+	=	=		=	

e	D	CDE	D ^u	C	D ^w	c̄	ē	E	M	N	anti-S		Fy ^a	Fy ^b	Jk ^a	Jk ^b	K	k̄
											S	s̄						
tsen g	4+			3+		2+	3+	=	=	3+	3+	2+	2+	=	=	3+		

e	Phenotype
tsen g	O D Cc̄ē NS3 Fy ^a a Jk ^b b

DISCHARGE SUMMARY

NAME: TURPIN, MARY
CLASS: 50-13-14/
UNIT: ObGyn HOSP. NO.
DATE ADMITTED: 7/22/83
DATE DISCHARGED: 7/28/83

ATTENDINGPHYSICIAN:
INTERN:
RESIDENT:

James R. Scott, M.D.
L. Michael Kettel, M.D.
Gayle Carter, M.D.

CHIEF COMPLAINT:

Uterine contractions.

PRESENT ILLNESS:

The patient is an eighteen year old white female g-1, p-0 followed in teen mother clinic at 40-weeks gestation with complaints of uterine contractions beginning at approximately 0300 a.m. day of admission, now q3-4 minutes apart. One day prior to admission the patient was seen in clinic and discovered to have an active herpetic lesion on the right labia. The lesion was cultured and sent to lab, results not available at the time of admission. Cervix was fingertip 50% minus two. Her pregnancy has otherwise been uncomplicated.

PAST MEDICAL HISTORY:

Medical- positive GC culture 8/82, urinary tract infection times one, congenital scoliosis
Allergies- none known. Medications- none. Surgeries- none. Prenate labs- blood type 'A' negative, rubella 1 to 32, RPR negative.

FAMILY HISTORY:

Father/paternal grandmother with hypertension.

SOCIAL HISTORY:

Single female, lives with parents.

SYSTEMS REVIEW:

Negative.

PHYSICAL EXAM:

GU- right herpetic lesion in labia as noted in clinic, previously there was no vaginal or cervical lesions apparent. Pelvic- cervix 1 cm. dilated 60-70% effaced minus two station with vertex presentation by Leopold's, fetal heart tones 144 regular.

HOSPITAL COURSE:

The patient was admitted and placed on monitor and approximately two hours after admission the patient was rechecked and found to be almost completely dilated zero station and 100% effaced. At this time it was decided to take the patient to C-section for suspicious herpetic lesions. The patient was taken to operative suite where primary low transverse C-section was performed without difficulty.

The patient was placed on Ampicillin intra-operatively. She delivered a viable healthy female infant with Apgars 8&9 under spinal anesthesia. One day post-op herpes cultures returned from lab as grossly positive. She had an uncomplicated post-op course until the fifth post-partum day when it was noted that she had a b/p 138/98 and this remained elevated for next two post-op days being systolic in range of 140-124/80-100. An SMA7 and urinalysis were obtained which revealed normal results, BUN 14, creatinine 0.7 and urine was clear.

It was elected to discharge the patient at this time with followup as outpatient.

POSTPARTUM AND/OR NEWBORN REFERRAL
FOR PUBLIC HEALTH NURSING

UNIVERSITY HOSPITAL
UNIVERSITY OF UTAH

113 C
OPEN

ADDRESS

TURPIN MARY
914796-8 F 03-31-65 619
392 BRAHMA DR MURRAY UT
84107

TE 7/19/83

RENTS OR HUSBAND Melinda Shaw (Mama)

GNOSIS AND PROGNOSIS TUP on active herpes

YSICIAN'S INSTRUCTIONS REGARDING CARE:

MEDICATIONS AND TREATMENTS: Hydrex 3

DIET Select

ACTIVITY As tolerated

SPECIAL REQUESTS OR REMARKS

DATE AND TIME OF CLINIC RETURN August 4, 1983 Teen Mom Clinic

PHYSICIAN'S SIGNATURE

NURSING INFORMATION: 10 yo white ♀ admitted in active labor

reporting c/o 3-4 min - active labor C-section for active
herpes. Pt is single parent living w/ parents. Had good
care of baby. Stay in the hospital was complicated by
low blood pressure. It will be seen Aug 11
in clinic for BP check-up. PH - mom Phlegm given -

M. Sullivan

NURSE'S SIGNATURE



Office of the Salt Lake County Attorney

TED CANNON
County Attorney



May 3, 1984

Mark S. Miner
Attorney at Law
525 Newhouse Building
10 Exchange Place
Salt Lake City, Utah 84111

RE: State of Utah
Vs. Edward L. Woods

Dear Mr. Miner:

Enclosed is a copy of the blood test results for your information.

Very truly yours,

TED CANNON, Salt Lake County Attorney

SANDY MOOY,
Deputy County Attorney

SM:b1

Encl.

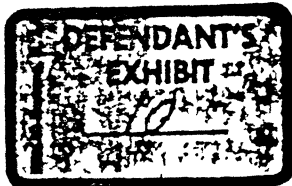


EXHIBIT "10"

231 East 4th South Salt Lake City, Utah 84111 (801) 363-7900

Investigative Agency
DC - Harmin
Sgt. A. Agent in Charge
4th Floor

Administration
Michael N. Martinez
Chief Deputy County Attorney
4th Floor

Recovery Division
Donald Sawaya - Chief Deputy
4th Floor

Justice Division
John T. Newson - Chief Deputy

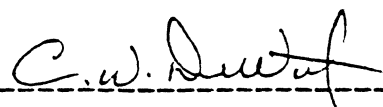
Civil Division
William R. Hyde - Chief Deputy

University of Utah Medical Center, Salt Lake City, UT

TID ER EN	PHENOTYPE			PATERNITY INDEX
	CHILD	MOTHER	ALLEGED FATHER	
	TURPIN ANGELA	CARLSON MARY A.	WOODS EDWARD	
	A1 A2, A29 B44, B60	A1 A2, A2 B44, B60	0 A1, A29 B8, B44	.91 8.6 ND ND ND ND ND.

MED PATERNITY INDEX 9.51
 PROBABILITY OF EXCLUSION OF NON-FATHER (PROBABILITY OF PATERNITY) 90.48 %

26 APRIL 1984
 FAF

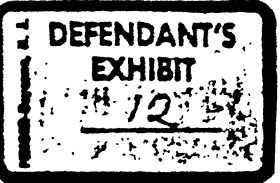

 Charles W. DeWitt, Ph.D.
 Prof. and Director

Neal E. Fote, Ph.D.
 Asst. Prof. and Assoc. Director

THE
UNIVERSITY
OF UTAH

DEPARTMENT
OF PATHOLOGY
SCHOOL OF MEDICINE
SALT LAKE CITY, UTAH 84132
801-581-7773

October 25, 1983



Sandy Mooy
231 East 400 South
Fourth Floor
Salt Lake City, Utah 84111

Edward Woods
4367 Gordon Lane
Murray, Utah 84107

Dear Sir:

The results of testing of blood samples received in our laboratory are:

<u>Name</u>	<u>ABO</u>	<u>HL-A</u>
Johns, Bonnie (mother)	A	A2,A24,B51,B21
Miller, Amanda (child)	A	A1,A24,B8,B21
Woods, Edward	O	A1,A29,B8,B45

Interpretation:

Mr. Woods cannot be excluded as the father on the basis of either ABO or HL-A typing. The probability of paternity for Mr. Woods as the father of Amanda is 76%.

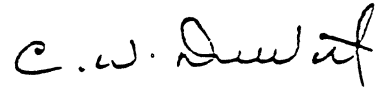
If more than one man, in addition to Mr. Woods, is considered as a putative but untested father, the probability of paternity for Mr. Woods is as follows:

<u>Number of sexual consorts at time of conception</u>	<u>probability</u>
3	61%
4	51%
5	44%

The probability of paternity is calculated by comparing a) the probability that a mating of a random male in the population (same race as the putative father) with a female of mother's phenotype would produce an offspring of the child's phenotype, and b) the probability that a mating of a male of the putative father's phenotype with a female of the mother's phenotype would produce such an offspring. Probabilities of less than 90% are considered to be inconclusive.

If I may be of further assistance, please advise me.

Sincerely,

A handwritten signature in cursive script, appearing to read "C.W. DeWitt".

C.W. DeWitt, Ph.D.
Professor

Neal S. Rote, Ph.D.
Assistant Professor

D:jl

APPENDIX B

		<u>ABO</u>	<u>HLA</u>	<u>Summary of Material Included in Brief</u>
Exhibit #12 (Johns vs. Woods)	Johns, Bonnie (Mother)	A	A2, A24, B51, B21	B45 was an incorrect reading of Exhibit #5, and wasn't relevant since not present in child.
	Miller, Amanda (Child)	A	A1, A24, B8, B21	
	Woods, Edward (Defendant)	O	A1, A29, B8, B45	
Exhibit #11 (Tah & Turpin vs. Woods)	Carlson, Mary A (Turpin) (Mother) Based on Exhibit #3	A1	A2, A2, B44, B60	Woods has A29 which is also present in child, but not in mother.
	Turpin, Angela (child) Based on Exhibit #4	A1	A2, A29, B44, B60	Reading of both trays, (Exhibit #5), shows that B44 is the more accurate reading.
	Woods, Edward (Defendant) Based on Exhibit #5	O	A1, A29, B8, B44	
Exhibit #7	Carlson, Greg	O	A2, A2, B7, B44	Carlson lacks the A29 which the natural father <u>must</u> give the child, in that the mother (Turpin) does not have it. (He is thus excluded).

DR. CHARLES W. DeWITT'S CURRICULUM
CILAE

CURRICULUM VITAE

I. PERSONAL DATA

A. NAME: Charles W. DeWitt
B. DATE & PLACE OF BIRTH: October 16, 1921 Akron, Ohio
C. CITIZENSHIP: United States of America
D. SOCIAL SECURITY NO: 236-24-4690

II. EDUCATION

1949	B.S.	Morris Harvey College, Charleston, W. VA.
1950	M.S.	Microbiology, Ohio State University, Columbus
1952	Ph.D.	Microbiology, Ohio State University, Columbus
1950-52		Research Fellow, Ohio Tuberculosis Association Ohio State University, Columbus
1962 (summer)		Research Fellow, American Assoc. of Microbiologists, Jackson Laboratories, Bar Harbor, Maine

III. PROFESSIONAL EXPERIENCE

1947-49	Teaching Assistant-Anatomy, Mathematics, Psychology Laboratory Assistant- Bacteriology, Zoology	Morris Harvey College, Charleston, W. Va.
1949-50	Graduate Assistant-Bacteriology	Ohio State University, Columbus
1952-56	Research Scientist-Microbiology	The Upjohn Company, Kalamazoo, Michigan
1956-61	Research Associate-Infectious Diseases	The Upjohn Company, Kalamazoo, Michigan
1961-62	Assistant Professor of Immunology, Departments of Surgery and Microbiology	Tulane University, New Orleans
1962-66	Associate Professor of Immunology	Tulane University, New Orleans
1966-68	Professor of Immunology, Depart- ments of Surgery and of Microbio- logy and Immunology	Tulane University, New Orleans

1968-	Professor of Immunology, Departments of Pathology and Surgery	University of Utah, Salt Lake City, Utah
1982-85	Head, Division of Experimental Pathology	University of Utah, Salt Lake City, Utah
1983-85	Associate Chairman, Department Pathology	
	Consultant:	
1964-68	Consulting Immunologist	Department of Psychiatry, Tulane University
1968	Consulting Immunologist	VA Hospital, Gulfport, Miss.
1965-68	Visiting Scientist, Clinical	Charity Hospital, New Orleans Renal Transplantation
1982-	Consultant, Blood Bank Specialty Training	Latter Day Saints Hospital, Salt Lake City, Utah

Editorial Experience:

1971-77	Editorial Board, <u>Transplantation</u>	
1974-76	Ad hoc Reviewer	National Science Foundation Div. Developmental Biology
1977	Ad hoc Referee, <u>Transplantation</u>	
1978	Ad hoc Reviewer	NCI, NIH

Professional Scientific, and Honorary Society Memberships:

American Association of Immunologists
 American Society of Microbiologists
 American Academy of Microbiology, Fellow
 American Association for the Advancement of Science
 Transplantation Society
 Society of Sigma Xi
 Academy of Clinical Laboratory Physicians and Scientists
 American Society Histocompatibility and Immunogenetics

IV. ADMINISTRATIVE EXPERIENCE

1964-68	Research Advisory Committee	Cancer Association, Louisiana
1967-68	Admissions Committee	School of Medicine, Tulane University

ADMINISTRATIVE EXPERIENCE (Continued)

1968-	Director, Tissue Typing Laboratory	School of Medicine, University of Utah
1970-79	Animal Care Committee	School of Medicine, University of Utah
1970-78	Chairman	
1970-71	Talent Search and Recruitment Coordinating Committee Chairman	School of Medicine, University of Utah
1973-76 1983-86 1976-77	Promotion, Retention and Tenure Committee Chairman	School of Medicine, University of Utah
1974-81	Director, Graduate Education	Department of Pathology University of Utah
1973-76	Advisory Committee, Clinical Research Center	School of Medicine, University of Utah
1975-76	Chairman	
1974-81	Graduate Programs Committee	School of Medicine, University of Utah
1974-	Director, Histocompatibility Laboratory, Div. Clinical Pathology	University of Utah Medical Center Hospital
1977-	Blood Bank Specialty Program Advisory Committee	L.D.S. Hospital
1980-83	University Senate	University of Utah
1981-	Dean's Research Advisory Committee	School of Medicine, University of Utah
1985-	Director, Flow Cytometry Laboratory	School of Medicine, University of Utah
1984-	Board of Directors, and other Committee Assignments	Associated Regional and University Pathologists

PUBLICATIONS

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2. DeWitt, C.W. 1958. Differential effect of hog gastric mucin on properdin and host resistance to infection. *J. Bact.* 76:631-639.
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