The Evidentiary Value of DNA

Justice Renato C. Corona[*]

I. INTRODUCTION

The duty of a magistrate is to resolve cases with fairness and impartiality, while utilizing all the tools at his disposal in determining what is right and just, with the ferreting out of the truth from the maze of facts and circumstances presented and ultimately to serve the ends of justice.

Deoxyribunecleic Acid (DNA) testing is one of the tools which can assist judges in deciding a case. It provides scientific evidence based on biology and genetics. It is an adjunct of physical evidence which helps to decide certain cases more easily and more accurately. Such physical and scientific evidence is a mute but eloquent manifestation of truth, and ranks high in the hierarchy of trustworthy evidence.[1]

In the Philippines, evidence is defined as the means of ascertaining in a judicial proceeding the truth respecting a matter of fact.[2] Stated differently, it is the means by which any alleged matter of fact, the truth of which is under investigation, is established or disproved.

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* Associate Justice of the Supreme Court; A.B. (Ateneo de Manila Univ.), LL.B. (Ateneo Law School), LL.M. (Harvard Law School), D.C.L. Cand. (Univ. of Santo Tomas). He is the author of *The Use of Corporate Control Devices*, 35 ATENEO L.J. 50 (1991).

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1. People v. Uycoque, 246 SCRA 769, 779 (1995).
2. REVISED RULES ON EVIDENCE, RULE 128, § 1.

The use of DNA technology as evidence is a very recent development in the Philippines. Although the Supreme Court commented in passing on "DNA testing" as early as 1995,[3] it was only in 2002[4] that the Court actually gave it probative value.

It was in the United States that the use of matching techniques for DNA, as courtroom evidence, first gained prominence. After the first official results of DNA testing were released in 1985, DNA testing progressed to general acceptance in less than a decade.[5] It is now widely used for identifying the perpetrator in criminal suits[6] and determining paternity in civil suits .[7]

II. DEFINITION OF DNA

Deoxyribonucleic acid, or DNA, is an organic substance found in a person's cells, which contains his or her genetic code.[8] Each one's DNA profile is distinct and unique, except for identical twins. Thus, an individual's DNA profile can determine his identity.[9] Even tiny amounts of substances from

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3. People v. Teehankee, 249 SCRA 54 (1995) (this was where the court acknowledged the accuracy and authoritativeness of scientific forms of identification evidence such as fingerprint or DNA testing. This case was the one who made earliest mention of DNA testing.).

4. People v. Vallejo, 382 SCRA 192 (2002) (this was where the court gave DNA testing probative value.).

5. Blakesley, *Scientific testing and proof of paternity: Some controversy and key issues for family law counsel,* 57 LA L. REV. 379, 382 (1997).

6. State v. Pennell (Del Super) 1989 Del Super LEXIS 520; Martinez v. State (Fla App D5) 549 So 2d 694, 14 FLW 1989; Caldwell v. State, 260 Ga 278, 393 SE2d 436, later proceeding 263 Ga 560, 436 SE2d 488 (1993); 93 Fulton County D R 4139; Hopkins v. State *(Ind)* 579 NE2d 1297; Cobey v. State, 565 A2d 670; State v. Williams, 599 A2d 960.

7. Williams v. Williams 843 So. 2d 720 (Miss. 2003); M.A.S. v. Mississippi Dept. of Human Services, 842 So. 2d 527 (Miss. 2003); Kohl v. Amundson, 620 N.W.2d 606 (SD 2001); Erie County Department of Social Services on behalf of Tiffany M.H. v. Greg G., 273 AD 2d 919 (NY 2000); Rafferty v. Perkins, 757 So. 2d 992 (Miss. 2000); S.J.F. and J.C.F. v. R.C.W. 615 N.W. 2d 533 (ND 2000); R.E. v. C.E.W 752 So. 2d 1019 (Miss. 1999).

8. People v. Vallejo, 382 SCRA 192, 208 (2002) (citing WILLIAM C. THOMPSON, GUIDE TO FORENSIC DNA EVIDENCE, IN EXPERT EVIDENCE: A PRACTITIONER'S GUIDE TO LAW SCIENCE AND THE FJC MANUAL (1997)).

9. Herrera v. Alba, 460 SCRA 197, 209 (2005) (citing Maria Corazon A. de Ungria, *Forensic DNA Analysis in Criminal and Civil Cases*, 1 CONTINUING LEGAL EDUC. L.J. 57 (2001)).

any part or product of the person's body like semen, sweat, white blood cells, hair roots, saliva, skin tissue, bone and bone marrow, are enough to produce one and the same DNA profile.[10] A person's DNA is the same in each cell and it does not change throughout a person's lifetime.[11]

The unique traits of DNA make it a useful and valuable tool in judicial proceedings anywhere. In the Philippines, DNA technology has been slowly gaining acceptance. DNA testing has been used as a scientific form of identification and proof of paternity and filiation.

III. PRESENTING DNA EVIDENCE

A. Expert Testimony

DNA evidence is presented in court usually through expert testimony. The witness must be properly qualified as an expert. Rule 130 Section 49 which governs the admissibility of expert testimony, provides that: "[t]he opinion of a witness on a matter requiring special knowledge, skill, experience or training which he is shown to possess, may be received in evidence."[12]

As a general rule, witnesses must state facts from their personal knowledge and should not give opinions. It is the court's duty to draw conclusions from the evidence and form opinions upon the facts proved. However, conclusions and opinions of experts may be received if such testimony will aid the court in its judgment. Consequently, an expert is permitted wide latitude to offer his opinion. This is premised on an assumption that the expert's opinion will have a reliable basis in the knowledge and experience of his discipline.[13]

B. Tests of Admissibility

Evidence is admissible in court if relevant and competent.[14] The test of relevance is whether there is a logical relation between the evidence and the fact in issue and whether it induces belief in its existence or non-existence.[15]

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10. Jowi A. Carteciano/Rodel G. Offemaria, Top Science Cracks Tough Domestic and Violent Crimes, *at* http://www.dost.gov.ph/media/article.php (last accessed Dec. 8, 2005) [hereinafter Carteciano, Top Science].

11. People v. Yatar, 428 SCRA 504, 514 (2004) (citing K.M. Thurman, *Understanding DNA Evidence: A Guide for Victim Service Providers,* OVC Bulletin (U.S. Department of Justice, April 2001) at 1).

12. REVISED RULES ON EVIDENCE, RULE 130, § 49.

13. Daubert v. Merrell Dow, 509 U.S. 579 (1993).

14. REVISED RULES ON EVIDENCE, RULE 128, § 3.

15. *Id.* § 4.

Evidence is competent if it is not excluded by the Constitution, statute or the Rules of Court.[16]

With regard to scientific evidence, the Supreme Court, in *People v. Yatar*,[17] adopted additional tests for its admissibility. It applied the principles enunciated in the US case of *Daubert v. Merrell Dow*:[18]

> It was ruled that pertinent evidence based on scientifically valid principles could be used as long as it was relevant and reliable. Judges, under *Daubert*, were allowed greater discretion over which testimony they would allow at trial, including the introduction of new kinds of scientific techniques. DNA typing is one such novel procedure.[19]

Daubert provided certain parameters for the admissibility of scientific evidence: (1) whether the theory or technique can be or has been tested; (2) whether the theory or technique has been subjected to peer review and publication; (3) the known or potential rate of error; (4) the existence and maintenance of standards controlling the technique's operation and (5) whether the theory or technique is generally accepted in the scientific community.[20]

Aside from this, the Court also required that DNA evidence be offered in timely fashion. *Gan v. Reyes*[21] illustrates this point. The petitioner was a respondent in a complaint for support with prayer for support *pendente lite*. The lower courts ordered him to recognize the child and to give support. The petitioner questioned the immediate execution of the judgment. The Court rejected the petitioner's request to be first subjected to DNA testing to settle the issue of paternity. The Court ruled that judgments for support are immediately executory and cannot be stayed on appeal. According to the Court:

> [w]e note that no useful purpose would be served if we dwell on petitioner's... insistence that he be subjected, together with private respondent... to DNA testing to settle the issue of paternity. The futility of his arguments is very apparent. It is not for us at this instance to review or revise the decision rendered by the trial court for to do so would pre-empt

16. *Id.* § 3.

17. People v. Yatar, 428 SCRA 504 (2004).

18. Daubert v. Merell Dow, 509 U.S. 579 (1993).

19. *Yatar,* 428 SCRA at 516.

20. *Daubert*, 509 U.S. at 579.

21. Gan v. Reyes, 382 SCRA 357 (2002).

> the decision which may be rendered by the Court of Appeals in the main case for support.[22]

Results of DNA testing have been declared to be competent evidence. The Court has upheld the constitutionality of compulsory DNA testing. In *Yatar*, the Court ruled that this does not transgress the right against self-incrimination as embodied in the Constitution.[23] The right against self-incrimination applies to testimonial compulsion or the extraction of an admission of guilt from the lips of the accused. It does not apply to DNA, which is part of object evidence. The accused may be compelled to submit to a physical examination or test to determine his involvement in an offense of which he is accused.[24]

It is also not violative of a person's right to privacy. The Court addressed this challenge in *Agustin v. Court of Appeals*:[25]

> Nor does petitioner's invocation of his right to privacy persuade us. In *Ople v. Torres*, where we struck down the proposed national computerized identification system embodied in Administrative Order No. 308, we said:
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> > [i]n no uncertain terms, we also underscore that the right to privacy does not bar all incursions into individual privacy. The right is not intended to stifle scientific and technological advancements that enhance public service and the common good... Intrusions into the right must be accompanied by proper safeguards that enhance public service and the common good.
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> Historically, it has mostly been in the areas of legality of searches and seizures, and the infringement of privacy of communication where the constitutional right to privacy has been critically at issue. Petitioner's case involves neither and, as already stated, his argument that his right against self-incrimination is in jeopardy holds no water. His hollow invocation of his constitutional rights elicits no sympathy here for the simple reason that they are not in any way being violated. If, in a criminal case, an accused whose very life is at stake can be compelled to submit to DNA testing, we see no reason why, in this civil case, petitioner herein who does not face such dire consequences cannot be ordered to do the same.[26]

IV. DNA ANALYSIS

DNA analysis is a procedure in which DNA extracted from a biological sample obtained from an individual is examined. The DNA is processed to

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22. *Id.* at 363.

23. PHIL. CONST. art. III, §17 ("[n]o person shall be compelled to be a witness against himself.").

24. People v. Yatarm 428 SCRA 504, 518 (2004).

25. Agustin v. Court of Appeals, 460 SCRA 315 (2005).

26. *Id.* at 329-40.

generate a pattern, or a DNA profile, for the individual from whom the sample is taken.[27]

DNA identification is based on the universally accepted principle that no two people share exactly the same genetic configuration, that the length and composition of certain DNA base-pair sequences varies from one individual to another at several million sites along the human chromosome and that, by examining the sizes of enough fragments at different sites on different chromosomes, statistical procedures based on known sequence frequencies in the population can be employed to establish the uniqueness of a person's DNA pattern.[28] In other words, the ability to study in detail a person's genetic blueprint, with all its peculiarities, offers forensic investigators and law enforcers nearly absolute precision in determining the identity of their subjects.

The most commonly used DNA testing method is known as the Polymerase Chain Reaction and Short Tandem Repeat (PCR-STR) method which works on the principle that single DNA strands, subjected to certain chemical processes, replicate each other. The PCR-STR technique is used to amplify a targeted location on the sample DNA by replicating the process by which DNA naturally duplicates itself. Through this process, several specific targeted segments of DNA can be typed and compared. The typing and comparison of such segments are done through STR analysis. Statistics are then used to evaluate the likelihood that a similar match will occur if the DNA samples are drawn randomly from the population (e.g. one out of every 35 million African-Americans). This technique is widely accepted in the scientific community largely due to its very low rate of error.[29]

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27. Herrera v. Alba, 460 SCRA 197, 209 (2005) (*citing* THE UP-NSRI DNA ANALYSIS LABORATORY, A PRIMER ON DNA-BASED PATERNITY TESTING (2001)).

28. People v. Castro, 144 Misc 2d 956, 545 NYS2d 985 (1989).

29. State v. Tolliver, 689 N.W.2d 567 (Nebraska 2004) ([t]his case affirms the acceptance of PCR-STR method by the American courts. The Nebraska Supreme Court refers to prior cases such as State vs. Jackson, 582 NW 2d 317 (Nebraska 1998), and State v. Fernando-Granados, 682 NW 2d 266 (Nebraska 2004). In the slightly older case of People vs. Fontanez, 278 A.D.2d 933 (New York, App. Division, Fourth Department, 2000) it is also clear that the courts put particular premium on the value of DNA evidence because in this case, the Appellate Division of the New York Supreme Court pronounced that no hearing was required for the admission of expert testimony concerning the PCR method, given the method's wide acceptance in the scientific community.).

A. Identification in Criminal Cases

An innumerable number of cases have been decided on the basis of subjective tests like eyewitness identification.[30] More recently, the courts have accepted that, compared to subjective tests, DNA testing is an objective, accurate and authoritative way to identify a person.[31]

In *People v. Vallejo*[32] where the accused was found guilty of rape with homicide, the Supreme Court described the mechanics of DNA testing:

> When a crime is committed, material is collected from the scene of the crime or from the victim's body for the suspect's DNA. This is the evidence sample. The evidence sample is then matched with the reference sample taken from the suspect and the victim. The purpose of DNA testing is to ascertain whether an association exists between the evidence sample and the reference sample. The samples collected are subjected to various chemicals processes to establish their profile. The test may yield three possible results:
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> (1)The samples are different and therefore must have originated from different sources (exclusion). This conclusion is absolute and requires no further analysis or discussion;
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> (2) It is not possible to be sure, based on the results of the test, whether the samples have similar DNA types (inconclusive). This might occur for a variety of reasons including degradation, contamination, or failure of some aspect of the protocol. Various parts of the analysis might then be repeated with the same or a different sample, to obtain a more conclusive result; or
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> (3) The samples are similar, and could have originated from the same source (inclusion). In such a case, the samples are found to be similar, the analyst proceeds to determine the statistical significance of the similarity.[33]

DNA evidence can link the accused to a crime or exonerate him if found to be wrongly accused. When collected from the crime scene, it is helpful in proving that there was physical contact between the assailant and the victim.[34] In homicide or murder, DNA evidence can be used to pinpoint

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30. *See, e.g.,* People v. Pablo, 363 SCRA 37, 46-7 (2001); Andal v. People, 307 SCRA 650, 654 (1999).

31. *See* People v. Limpangog, 444 Phil. 691, 707 (2003); People v. Faustino, 339 SCRA 718, 739 (2000).

32. People v. Vallejo, 382 SCRA 192 (2002).

33. *Id.* at 208-9.

34. In the United States, another principal use for DNA testing is to determine whether blood or other bodily secretions found on the clothing of the accused matches the profiles of the victims of the crime. *See* State vs. Edwards, 750 So.2d 893 (Louisiana 1999) ([i]n this case the blood of the victims of the crime was a genetic match for that found on the bottom of the accused Edwards'

the accused as the perpetrator of the crime when there is direct contact between the perpetrator and the victim, as in a violent struggle or attack. In incidents of rape, semen or blood samples from the accused can be compared with those taken from the vagina of the victim.[35]

The Supreme Court has sustained the reliability of physical evidence over the biased and uncorroborated testimonies of witnesses. In criminal cases such as murder or rape where the accused stands to lose his liberty or even his life if found guilty, the Supreme Court has, in many occasions, relied principally on physical evidence in ascertaining the truth. Where the physical evidence on record runs counter to the testimonial evidence of the prosecution witnesses, the Court has ruled that physical evidence should prevail.[36]

In criminal cases, the Supreme Court has used DNA testing in deciding cases involving rape with homicide.[37] Because of the nature of rape where there is direct physical contact during the commission of the crime, the probability of the transfer of biological material is high.[38]

In the 2002 case of *Vallejo*, the Supreme Court accepted DNA analysis as valid evidence. In this case, the vaginal swabs taken from the victim yielded positive for the presence of DNA, which matched the DNA profile of the accused. Hence, the Court held that the accused was guilty of rape with homicide and sentenced him to death.[39]

In 2004, there were two significant cases involving DNA testing: *People v. Yatar*[40] and *In re: The Writ of Habeas Corpus for Reynaldo de Villa*.[41] In *Yatar*, a DNA match existed between the semen found in the victim and the blood sample given by the accused in open court. The Court, as in *Vallejo*, affirmed the conviction of the accused because, aside from the physical

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shoe); *Tolliver,* 689 N.W.2d 567 (Nebraska 2004) (where the Nebraska Supreme Court ruled that DNA test results showing that it was the victim's blood found on the tennis shoes of the accused Tolliver were admissible as evidence against him); State v. Johnson, 519 S.E.2d 221 (Georgia 1999).

35. People v. Yatar, 428 SCRA 504, 516 (2004).

36. People v. Roche, 330 SCRA 91, 109 (2002) (citing Jose v. Manila Central Bus Lines, 322 SCRA 25 (2000)).

37. *Yatar*, 428 SCRA at 504; *Vallejo,* 382 SCRA at 208.

38. Herrera v. Alba, 460 SCRA 197 (2005).

39. People v. Vallejo, 382 SCRA 192 (2002).

40. People v. Yatar, 428 SCRA 504 (2004).

41. In re: The Writ of Habeas Corpus for Reynaldo de Villa, 442 SCRA 706 (2004).

evidence, there was circumstantial evidence to prove he was guilty of rape with homicide.[42] In *de Villa*, the accused presented DNA test results to prove he was not the father of the child born of the rape. The Supreme Court ruled that the conviction was not based solely on a finding of paternity of the child but also on the testimony of the victim.[43]

B. Paternity and Filiation

DNA analysis can also be helpful in civil cases such as child support, disputed parentage and paternal identification. In a comparative analysis of the DNA prints of the putative father and the alleged child, the former cannot be deemed to be the father if his profile shows none of the half of the DNA prints the child should have inherited from him.[44]

In the past, our laws,[45] rules[46] and jurisprudence seemed to limit evidence of paternity and filiation to incriminating acts alone.[47] This has of

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42. *Yatar*, 428 SCRA at 517.

43. *In re*: *de Villa,* 442 SCRA at 726.

44. Carteciano, Top Science, *supra* note 10.

45. Family Code of the Philippines provides:

> Article 172. The filiation of legitimate children is established by any of the following:
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> (1) The record of birth appearing in the civil register or a final judgment; or
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> (2) An admission of legitimate filiation in a public document or a private handwritten instrument and signed by the parent concerned.
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> In the absence of the foregoing evidence, the legitimate filiation shall be proved by:
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> (1) The open and continuous possession of the status of a legitimate child; or
>
> (2) Any other means allowed by the Rules of Court and special laws.
>
> Article 175. Illegitimate children may establish their illegitimate filiation in the same way and on the same evidence as legitimate children…

46. REVISED RULES ON EVIDENCE, RULE 130 provides:

> Section. 39. *Act or declaration about pedigree*. — The act or declaration of a person deceased, or unable to testify, in respect to the pedigree of another person related to him by birth or marriage, may be received in evidence where it occurred before the controversy, and the relationship between the two persons is shown by evidence other than such act or declaration. The word "pedigree" includes relationship, family genealogy, birth, marriage, death, the dates when and the places where these facts occurred, and the names of the relatives. It embraces also facts of family history intimately connected with pedigree.

course changed and the courts have gradually come to acknowledge DNA analysis as a source of evidence to prove paternity and filiation.

In 1997, DNA testing was not yet accepted as a source of evidence to prove paternity. As stated by the Court in *Pe Lim v. Court of Appeals*,[48] "DNA, being a relatively new science, it has not yet been accorded official recognition by our courts. Paternity will still have to be resolved by such conventional evidence as the relevant incriminating acts, verbal and written, by the putative father."[49]

Even as late as 2001 when *Tijing v. Court of Appeals*[50] was decided, the Court still continued to give weight to the highly subjective tests of physical resemblance and similarity of features, by stating that: Resemblance between a minor and his alleged parent is competent and material evidence to establish parentage.[51]

However, the possibility of admitting DNA as evidence for parentage was already suggested in the same case:

> Parentage will still be resolved using conventional methods unless we adopt the modern and scientific ways available... Of course, being a novel scientific technique, the use of DNA test as evidence is still open to challenge. Eventually, as the appropriate case comes, courts should not hesitate to rule on the admissibility of DNA evidence. For it was said, that courts should apply the results of science when competently obtained in aid of situations presented, since to reject said result is to deny progress.[52]

In 2004, the Supreme Court, in *Cabitania v. Court of Appeals*,[53] reversed the decision of the Court of Appeals (and the trial court), which ruled that paternity was adequately proved by the testimony of the mother and the

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> Section. 40. *Family reputation or tradition regarding pedigree.* — The reputation or tradition existing in a family previous to the controversy, in respect to the pedigree of any one of its members, may be received in evidence if the witness testifying thereon be also a member of the family, either by consanguinity or affinity. Entries in family bibles or other family books or charts, engraving on rings, family portraits and the like, may be received as evidence of pedigree.

47. Herrera v. Alba, 460 SCRA 197 (2005).

48. Pe Lim v. Court of Appeals, 336 Phil. 741 (1997).

49. *Id.* at 742.

50. Tijing v. Court of Appeals, 354 SCRA 17 (2001).

51. *Id.* at 25.

52. *Id.* at 26.

53. Cabitania v. Court of Appeals, 441 SCRA 96 (2004).

personal appearance of the child. In dismissing the petition for recognition and support, the Supreme Court stated:

> In this age of genetic profiling and deoxyribonucleic acid (DNA) analysis, the extremely subjective test of physical resemblance or similarity of features will not suffice as evidence to prove paternity and filiation before the courts of law.[54]

Finally, in 2005, two decisions of the Supreme Court categorically held DNA testing to be a valid means of determining paternity and filiation. *Agustin v. Court of Appeals*[55] involved a complaint for support whereas *Herrera v. Alba*[56] stemmed from a petition for compulsory recognition. In both cases, the Court affirmed the order of the lower court directing the parties to submit themselves to DNA paternity-testing.

Similarly, in the United States, quantum leaps have been attained in determining paternity through DNA testing. The introduction of DNA testing effectively rewrote the rulebook on the determination of paternity, thus rendering obsolete techniques which depended on either the process of elimination or the credibility of the party asserting or denying paternity.[57]

In *Rafferty v. Perkins*,[58] Lisa Marie Rafferty sought, through court-ordered DNA testing, to prove that her ex-husband Vernon Perkins was not the father of her son Justin, even though the latter had been born during her marriage to the former. What was striking about this case in terms of the evidentiary premium placed on DNA test results was that, after the Mississippi High Court reiterated the long-standing doctrine that: "there (was) a rebuttable presumption of the legitimacy of a child born during the course of a marriage, and this presumption of legitimacy (was) one of the strongest known to the law," it declared in no uncertain terms that DNA

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54. *Id.* at 105.

55. Agustin v. Court of Appeals, 460 SCRA 315 (2005).

56. Herrera v. Alba, 460 SCRA 197 (2005).

57. Crego vs. Coleman, 615 N.W.2d 218 (Mich. 2000) (a case which involved a support agreement entered into before the advent of DNA testing as a means of determining paternity, the court described how difficult the pre-DNA-era process of establishing paternity could be:

> [t]hus, when the settlement agreement between the present parties was entered in 1980, establishing paternity was a far more difficult ordeal than at present. *Contested paternity actions at that time were often no more than credibility contests. Consequently, in every contested paternity action, obtaining child support depended not merely on whether the putative father was, in fact, the child's biological father, but rather on whether the mother could prove to a court of law that she was only sexually involved with one man* — the putative father.) (emphasis supplied).

58. Rafferty v. Perkins, 757 So. 2d 992 (Miss. 2000).

test results were enough to rebut such presumption. The Court, on the strength of such tests, overturned both the Court of Appeals and the trial court and declared Gerald Easter, Rafferty's lover during her marriage to Perkins, as the biological father of her son.

Even court orders several years old may be overturned on the basis of DNA test results alone. This was amply demonstrated in *Eerie County Department of Social Services vs. Greg*[59] where the Appellate Division of the Fourth Department of the New York Supreme Court vacated a six-year-old order of default against respondent Greg, the putative father, who challenged it only when the mother of the child asked for an increase in support. He was not even deemed estopped by the lapse of time.

The decision of the Mississippi Supreme Court in *M.A.S. vs. Mississippi Department of Human Services*[60] was arguably even more radical. M.A.S., the former boyfriend of the mother of the child, filed a motion to set aside a stipulated paternity order to which he had already agreed nine years earlier, after learning from a DNA test in an unrelated matter that he was not the child's biological father. The Court, citing substantial justice, vacated the earlier stipulated order, exclusively on the basis of such DNA finding.

V. PROBATIVE VALUE AND WEIGHT OF DNA EVIDENCE

In the United States, the courts have required that DNA tests should be conducted by accredited or at least credible laboratories or individuals using generally accepted techniques.[61] There is likewise a concern as to how the samples are handled, which can taint the evidence.[62] These are points attacked vigorously by defense attorneys but, from the relatively few cases that have been decided, it is clear that challenging the admissibility of DNA testing in US courts, absent a showing that the technician who conducted them was incompetent, is an uphill battle.

It is quite telling that a significant number of criminal cases in the United States involving DNA testing concerned convictions for heinous crimes. To put it another way, DNA test results have been a major part of the general or over-all basis for the imposition of the death penalty in several criminal cases since the technique was perfected.

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59. Eerie County Dept. of Social Services on behalf of Tiffany M.H. v. Greg, 273 A.D. 2d 919 (NY 2000).

60. *Id.*

61. People v. Knight, 280 A.D.2d 937 (New York 2001).

62. State v. Ramsey, 550 S.E.2d 294 (South Carolina 2001); State vs. Ford, 392 SE 2d 781 (South Carolina 1990).

The importance of DNA test results in determining paternity has also been recognized by legislators in the United States, as shown by the text of the Michigan Paternity Law and New York Family Court Act. The former provides:

> (5) If the probability of paternity determined by the qualified person described in subsection (2) conducting the blood or tissue typing or DNA identification profiling is 99% or higher, and the DNA identification profile and summary report are admissible as provided in subsection (4), paternity is presumed. If the results of the analysis of genetic testing material from 2 or more persons indicate a probability of paternity greater than 99%, the contracting laboratory shall conduct additional genetic paternity testing until all but 1 of the putative fathers is eliminated, unless the dispute involves 2 or more putative fathers who have identical DNA.[63]

The latter, on the other hand, provides:

> If the record or report of the results of any such genetic marker or DNA test or tests indicate at least a ninety-five percent probability of paternity, the admission of such record or report shall create a rebuttable presumption of paternity, and shall establish, if unrebutted, the paternity of and liability for the support of a child pursuant to this article and article four of this act.[64]

Notably, the standard of accuracy imposed by the New York Code is conspicuously lower than that now available through current testing techniques. As early as the 1990s, DNA testing methods capable of determining paternity with an accuracy of 99.999999%[65] already existed. Clearly then, the reverence which both the courts and the lawmakers accord DNA test results is largely a product of its reliability which extends to nearly the minutest decimal point.

Likewise, in the Philippines, DNA evidence, if properly obtained, carries great weight and high probative value.[66] The Supreme Court, in *People v. Vallejo*, provided some principles to consider in assessing the probative value of DNA analysis:

> In assessing the probative value of DNA evidence, therefore, courts should consider, among other things, the following data: how the samples were collected, how they were handled, the possibility of contamination of the

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63. MCLA 722.716 § 6(5).

64. NYSCL, Ch. 686, Art. 5, Part 1, § 516.

65. Shapiro, Reifler, & Psome, *The DNA Paternity Test: Legislating the Future Paternity Action*, 7 J Law & Health 1, 29 (1992- 93).

66. Jones v. State, 748 So.2d 1012 (Florida 2000) (shows quite clearly the value of such evidence. When the accused Jones was arrested, it was observed that "he had bloody scratches on his face and reddish stains on his jeans, which later DNA testing revealed 'almost conclusively' was McRae's blood.").

> samples, the procedure followed in analyzing the samples, whether the proper standards and procedures were followed in conducting the tests, and the qualification of the analyst who conducted the tests.[67]

However, even without a DNA test, an accused can be convicted by conventional means like the testimony of the victim for as long as it is credible,[68] as well as the positive identification[69] of the victim and other witnesses. In short, DNA testing is not indispensable for conviction.

VI. CONCLUSION

DNA testing is a valid probative tool in the Philippines to determine paternity and filiation. The conclusion it yields can provide solid physical evidence that can support existing evidence in proving the guilt or innocence of the accused in criminal cases.[70] The phenomenal accuracy with which such methods can determine the identity of the subject in question ensures that DNA testing techniques will remain a permanent fixture of the evidence-gathering process. These techniques can only get better and even more precise over time.

Aside from being a relatively swift procedure wherein results can be obtained in a matter of weeks, DNA analysis is a scientific methodology that is unbiased and objective.[71] DNA evidence can be used to corroborate testimonial evidence. Furthermore, it can be believed over testimonies, which are incredible, incoherent or riddled with inconsistencies. The fact that there are no statutory provisions or specific rules of procedure and evidence for DNA use, which have been formally adopted by the courts, does not diminish its value as a powerful tool to ascertain judicial truth.

Every person is entitled to enjoy the benefits and application of scientific progress.[72] The promotion of the use of DNA not only protects the rights of people. It also results in the improvement of the administration of justice.

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67. People v. Vallejo, 382 SCRA 192, 208-9 (2002).
68. People v. Baring, 374 SCRA 696, 708-9 (2002).
69. Andal v. People, 307 SCRA 650, 654 (1999).
70. Herrera v. Alba, 460 SCRA 197 (2005).
71. *Id.*
72. International Covenant on Economic, Social and Cultural Rights, G.A. Res. 2200A (XXI), 21 U.N. GAOR Supp. (No. 16) at 49, U.N. Doc. A/6316 (1966), 993 U.N.T.S. 3, *entered into force* Jan. 3, 1976, art. 15.