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GENETICS AND THE LAW

THE continually changing *mores* of the people are reflected in the law. For example, three centuries ago a husband was permitted to beat his wife with a switch, provided said switch was no thicker than the husband's thumb.¹ Under our present alimony laws and criminal code such extra-matrimonial activities are expensive and discouraged. To a lesser extent the constant advances in scientific knowledge are reflected in the law. An outstanding example of a science whose tenets are receiving recognition by the courts is biology. It is the purpose of the writer to confine this article to one related phase of biology: genetics; to show the tenets already accepted by courts, and to discuss other tenets which might be developed to permit their use as evidence by lawyers.

For ease in presentation the writer will first discuss the biological principles involved and their acceptance as fact by science; second, the law governing the admission as evidence of those biological principles already accepted by the courts; and third, the writer's conclusions.

THE BIOLOGICAL CONCLUSIONS.

Genetics has been defined as "that portion of evolutionary science dealing with natural development uncomplicated by human interference,"² and genetics has found that the medium which transmits and generates this "natural development" is a mechanism called chromosome. These chromosomes are definite masses (composed to a large extent of chromatin, whose chemical composition is still unknown) that have a characteristic number, size, and shape in any given species.³ Contained in some particular chromosome is a unit of inheritance, called a gene.⁴ It is the transmission in the chromosome of these genes that causes children to inherit the inheritable traits of their parents.

¹ SHARSWOOD'S BLACKSTONE'S COMMENTARIES (1859) 444.

² FUNK AND WAGNALLS, PRACTICAL STANDARD DICTIONARY (1929).

³ NEWMAN, EVOLUTION, GENETICS AND EUGENICS (Univ. of Chicago Press, 3rd ed. 1932) Glossary.

⁴ *Ibid.*

It would be impracticable to discuss in detail the various biological rules, as developed by Mendel and others, which govern the effects of these genes. For that reason only one of the many types of Mendelian inheritance will be discussed. In the simple type of Mendelian inheritance both parents take the same part in inheritance. A more complicated and more interesting type, and also one which is more illustrative, is the criss-cross type such as that by which color-blindness is transmitted.

Gates, a famous English scientist and a professor at Oxford University, very concisely gives this explanation:⁵

"The mechanism of sex determination and the inheritance of sex-linked characters is essentially the same. Males have an unequal XY pair of sex chromosomes, the X usually being larger than the Y, while females have a pair of X chromosomes (XX). In the spermatogenesis of the male, the X passes undivided into half of the sperm, while the other half receives the Y. Since the females have a pair of X chromosomes, all the eggs before fertilization will contain one X. In fertilization there is an equal chance that a sperm containing an X will enter an egg, and produce a female, or, that a sperm bearing a Y will function and so produce a male.

"We are now in a position to understand the mechanism of inheritance of sex-linked characters, such as color-blindness, in man."

Let us assume that the male parent is color-blind, his chromosomes would therefore be XY, the italicized X carrying the factor for color-blindness. Mated with a normal woman, their male children would all be normal. The X chromosome of the father, however, goes to all his daughters, who although *not* color-blind themselves, are all, therefore, transmitters of the defect to future generations. These daughters, because they carry this defect, are called heterozyotes; similarly persons whose chromosomes contain allelomorphous or contrasted characters in their reproduction

⁵ GATES, HEREDITY AND EUGENICS (Constable and Co., Ltd., London, 1923) at 22.

cells are said to be *heterozygous*. With a husband who is normal, these daughters will transmit the defect to half their children of both sexes, but only the sons will be color-blind. A color-blind father and a heterozygous mother will have a family in which half the daughters show the defect and half the sons will show it.⁶ If the mother were heterozygous for color-blindness and the father also carried it, then all the children would be color-blind. There is no instance of a color-blind father transmitting the condition to the next generation, except in connection with a mother who transmits it.⁷ In other words, the heterozygous dominants will continue to produce both types when mated to normals, while the normals derived from such a cross, being recessive, have entirely lost the defective *X* chromosome (or rather, never had it), and will therefore have only normal offspring if two such normals mate together.⁸ In a case where both father and mother were color-blind, all the children would be color-blind and in addition would be *homozygous* because their chromosomes would contain similar genetic factors.

Thus we find that the following rules as stated by Newman⁹ govern the transmission of sex-linked characters:

"1. Where the *homozygous* transmits the *dominant* factor, all of the offspring in the first generation exhibit the dominant character and the second generation is composed of three dominants to one recessive, the latter being of the same sex as the recessive grandparent.

"2. When the *homozygous* sex transmits the *recessive* factor, both dominant and recessive characters are exhibited in the first generation, but exclusively upon the opposite sexes, and in the second generation both sexes show the sex-linked characters in equal numbers."

Keeping in mind this brief description of the fundamental rules of inheritance, it will be possible to understand

⁶ There appear to be some irregular cases in which color-blindness shows in a heterozygous woman. *Supra* note 5, at 24.

⁷ *Supra* note 5, at 24; see also *supra* note 3, at 454.

⁸ *Supra* note 5, at 11.

⁹ *Supra* note 3, at 284.

the manner in which biologists can determine what inheritable traits of either or both parents will be apparent in their child or children. For examples of the various types of physical traits inheritable by man, Newman is again a source of information:¹⁰

“Two postulates underlying the study of the heredity of human traits may be set down as follows: (1) When characters are inherited according to the laws of Mendel, that is, when one of a pair of characters is dominant, or partly so, and the other recessive, and they segregate in Mendelian ratios in subsequent generations, such character differences are determined by genes. (2) Allelomorphic (contrasted) differences have arisen through the process of gene mutation, a process so well established for lower organisms. These postulates are justified, for it is hardly likely that so universal a method of heredity as the Mendelian method operates for the rest of the organic world and not for man. Also, the method of gene mutation is the only method by means of which allelomorphic differences are yet known to arise, and it is hardly likely that man is an exception to the rule. * * *

“Studies of nearly 200 human traits have been made. In the majority of cases they can be classified as dominants, ordinary recessives, and sex-linked recessives. The latter are the easiest to detect, for they follow the familiar mode of heredity described for sex-linked characters in *Drosophila*. Dominants may fairly readily be distinguished by the fact that at least one of the parents, one grandparent, one great-grandparent, etc., exhibit the character; a dominant character appears in every generation. Ordinary autosomic, or non-sex-linked, recessives are characterized by the irregularity of their incidence in pedigrees. They may skip one or several generations and only appear at all when the same recessive gene is present in the germ-plasm of two mating individuals, in which case it will appear in the following

¹⁰ *Supra* note 3, at 446-450.

ratios according to the genetic make-up of the parents: (a) If both are heterozygous, three out of four offspring will show the dominant and one the recessive character; (b) If one is a heterozygote and one a recessive, the offspring will be half heterozygous dominants and half recessives. Thus we see that recessive characters may be hidden for a long time awaiting a favorable mating to give them expression.

“Most of the best pedigrees of human characters deal with relatively rare and atypical or abnormal characters; in fact, most of them deal with what we ordinarily call freaks or pathological conditions. The reason for this is that rare and unusual conditions are much more easily detected and recognized. Ordinary, common differences are hard to detect and hard to distinguish, and therefore difficult to follow in pedigrees. * * *

“The following is a list of human unit characters classed as dominants, ordinary recessives, and sex-linked recessives:

“A. DOMINANT CHARACTERS

Skin and Hair:

- Dark Skin.....Dominant over blond or albino (probably due to two or more pairs of genes)
- Spotted with white.....Dominant over uniformly colored
- Tylosis and ichthyosis....Thickened or scaly skin
- Epidermolysis.....Excessive blisters of skin
- Brown or black hair.....Dominant over red and flaxen (probably due to more than one gene)
- Red hair.....Dominant over flaxen
- Beaded hair.....Single hairs are not uniform in diameter
- White forelock.....White patch of hair in front
- Hypotrychosis.....Hairlessness associated with lack of teeth
- Pattern baldness.....Partly sex-limited

Eyes:

Front of iris pigmented (eyes black, brown, hazel, etc.).....	Dominant over lack of pig- ment in front of iris (blue eyes)
Hereditary cataract.....	Opacity of lens ¹¹
Night-blindness, when not sex-linked.....	Inability to see in dim light
Displaced lens.....	Causing defective vision
Glaucoma.....	Swelling of eyeball due to internal pressure
Coloboma.....	Open suture of the iris
Pigmentary degenera- tion of retina.....	Causing blindness

Skeleton and Muscles:

Brachydactyly.....	Digits lacking one joint ¹²
Polydactyly.....	Extra digits ¹³
Syndactyly.....	Fused or webbed digits ¹⁴
Symphalangy.....	Fused joints of digits, stiff fingers
Split hand.....	Palm cleft to the wrist
Loeber claw.....	No digits but thumb
Exostoses.....	Abnormal outgrowths of long bones
Brittle bones.....	Bones very fragile
Absence of palmaris longus muscle.....	Lack of a certain muscle in palm of hand
Muscular atrophy.....	Partially dominant

Body Build:

Achondroplasy.....	Dwarfs with short, stout limbs, ¹⁵ normal body and head
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¹¹ See also Harman, *Congenital Cataract: A Pedigree of Five Generations* (1909) 29 TRANS. APHTHALMAL. SOC. 101.

¹² See also *supra* note 5, at 78.

¹³ See also *ibid.* at 93.

¹⁴ See also *ibid.* at 93.

¹⁵ See also *ibid.* at 34.

Short stature.....Partly dominant over tall-
ness
Obesity, not due to
glandular defects.....Partially dominant

Nervous System and Kidneys:

Huntington's chorea.....A type of St. Vitus' dance
Diabetes insipidus.....Partially dominant
Diabetes mellitus.....Partially dominant

“B. AUTOSOMIC RECESSIVE CHARACTERS

Albinism.....Lack in pigment in skin
and hair — sometimes
pink eyes
Ateleosis.....True dwarfs, body small
with parts in normal
proportions ¹⁶
Cretinism.....Dwarfism due to heredi-
tary thyroid deficiency
Alkaptonuria.....Urine dark after oxidation
Otosclerosis.....Thickening of ear-drum
Left-handedness.....Probably recessive ¹⁷
Tendency to twinning.....Probably recessive
Susceptibility to tuber-
culosis.....Probably recessive
Thomsen's disease.....Lack of muscular tone
Menier's disease.....Dizziness and roaring in
ears
Deaf-mutism.....Congenital deafness
Frederick's disease.....Degeneration of the upper
part of the spinal cord
Multiple sclerosis.....Diffuse degeneration of
nervous tissue
Chorea.....Ordinary St. Vitus' dance
Hereditary feeble-mind-
edness.....Probably recessive ¹⁸

¹⁶ *Ibid.*

¹⁷ See also *ibid.* at 73.

¹⁸ See also GODDART, KALLIKAK FAMILY (Macmillan, 1912).

Hereditary epilepsy.....Probably recessive
 Manic depressive in-
 sanity.....Probably recessive
 Dementia praecox.....Probably recessive

"C. CHARACTERS DUE TO CUMULATIVE FACTORS

"It is suspected that a good many of the characters listed as incompletely dominant may be due to cumulative factors producing the condition usually called 'blending hereditary.' Those that almost certainly belong to this category are: stature, body weight (except certain types of obesity), skin color, shape of head, and proportion of features.

"D. SEX-LINKED RECESSIVES

Color-blindness.....Lack of discrimination between red and green
 Night-blindness.....One form of this defect, which involves inability to see in dim light¹⁹
 Haemophilia.....Free bleeding²⁰
 Gower's disease.....Muscular atrophy
 Neuritis optica.....Progressive atrophy of the optic nerve."

The mechanism which conveys the inheritable physical traits from the parents to the offspring, is essentially the same mechanism which transmits the biological characteristics of the blood stream from the parents to the offspring.²¹ Lattes,²² tells us that:

"Landsteiner discovered that the iso-agglutinating properties of normal blood were not the same in

¹⁹ Newman, *Night Blindness* (1913) 3 JOUR. GENETICS 25.

²⁰ See also *supra* note 5, at 109.

²¹ Smith, *Blood Tests for Paternity* (1930) 95 J. A. M. A. 1195.

²² LATTES, *INDIVIDUALITY OF THE BLOOD* (Oxford Univ. Press, 1932) at 15.

all individuals, but that these could be divided into groups. This was soon confirmed by v. Decastello and Sturli, Langer, Bezzola, Capogrossi, Landsteiner and Leiner, Hektoen, Dudgeon, and many others. The groups described by Landsteiner were the three following:

1. Those persons whose red corpuscles were not agglutinated by the serum of Groups II and III, but whose serum agglutinated corpuscles of Groups II and III.
2. Those whose corpuscles were agglutinated by sera I and II, and whose serum agglutinated Group II corpuscles.

“According to this classification any given human serum should contain iso-agglutinins capable of acting on suitably selected corpuscles. But from the very first observations of v. Decastello and Sturli, Hektoen, and others, this was seen not to be invariably the case, for rare ‘exceptions’ were met with, i.e., persons whose serum contained no iso-agglutinins for corpuscles of any sort.

“Jansky and Moss, working independently, explained these apparent ‘exceptions,’ and showed that they were due to the existence of a fourth group, which had escaped the notice of earlier observers on account of its infrequent occurrence. The serum of this group contains no iso-agglutinins; but on the other hand, the corpuscles of this group are agglutinated by the sera of the three other groups.

“Hence it follows that there are four blood groups. * * *”

Dr. Alexander S. Wiener, of the Jewish Hospital of Brooklyn, who performed the blood-tests in a recent case²³ involving the paternity of an illegitimate child, summarized the subject of blood tests as proof of paternity in the following words:²⁴

²³ N. Y. Times, Jan. 18, 1933, at 14.

²⁴ Wiener, *Blood Tests for Paternity* (1930) 95 J. A. M. A. 681; see also Editorial (1933) 89 N. Y. L. J. 656.

"As for the determination of paternity, the courts will permit the use of an ancient and notoriously reliable method of demonstrating similarity of the features of the putative father and the child. In only rare instances is this method justified, however, as when a white woman gives rise to a colored child and the putative father is colored, or when the child and putative father both have six fingers on each hand.

"The inheritance of certain physiologic traits may be made use of to prove non-paternity in certain cases. In order to be applicable in medico-legal cases, such traits must fulfil three requirements: (1) They must be so sharply defined that all qualified observers will reach the same conclusion as to their presence or absence, (2) the traits must be constant throughout life, and (3) they must be inherited according to an exact mechanism. Such characters as the color of the hair, or finger prints, cannot be used medico-legally as they do not fulfil the three prerequisites mentioned. The type agglutinogens of human red blood cells, however, fulfil all the requirements and therefore can be applied to prove non-paternity in certain cases.

"The agglutinogens A and B which determine the four classic Landsteiner blood groups are well known. Their inheritance is now known to depend on three allelomorphic genes, A, B and R, as was first pointed out by Bernstein. How they can be used in special cases to prove non-paternity is briefly illustrated in the following table:

Groups of Parents	Groups of Children Not Possible
O x O	A, B, AB
O x A	B, AB
O x B	A, AB
A x A	B, AB
A x B
B x B	A, AB
O x AB	O, AB
A x AB	O
B x AB	O
AB x AB	O

“More recently Landsteiner and Levine have discovered two additional agglutinogens M and N. Unlike A and B, however, M and N form only three combinations instead of four, for M and N are never absent at the same time from any person’s blood. Thus, only three types M + N +, M + N —, and M — N + are possible, and the type M — N — has never been found to occur. How the new agglutinogens M and N may be used in special cases to prove non-paternity is briefly shown in the following table:

Groups of Parents	Groups of Children Not Possible
M + N + x M + N +
M + N + x M + N —	M — N +
M + N + x M — N +	M + N —
M + N — x M + N —	M + N +, M — N +
M + N — x M — N +	M + N —, M — N +
M — N + x M — N +	M + N +, M + N —

“We have examined specimens of the blood of 130 families with 637 children for A, B, M and N by a simplified technic (the results of this investigation are now being prepared for publication). We found only one exception for the inheritance of A and B and two for the inheritance of M and N, all of which we believe attribute to illegitimacy.

“The use of the Landsteiner blood groups to prove non-paternity is now beginning to receive universal recognition, and we believe that M and N can be used in a similar manner. In a case such as the Chicago case,²⁵ the chances that A, B, M and N together would solve the problem would be one in two, whereas A and B alone give only one chance in four. The reason why blood groups will not always prove of value in a case like this is that in certain instances, as when the parents in both families have the same combina-

²⁵ This is in reference to an incident which occurred in a Chicago hospital where two babies born to different parents at approximately the same time were accidentally deprived of their identity. Subsequent blood tests apparently proved which baby was the offspring of which pair of parents.

tions of agglutinogens, the types of children possible will be the same for the two families.

"We presume that A and B have already been used in the Chicago case, or if they haven't been used they certainly should be. If A and B fail to give a conclusive answer, the bloods should also be tested for M and N. Thus, in a case recently reported by Francois Morel (*les groupes sanguines*, Gaz. d. hop. 1:389-399, 1930) the author was able to differentiate two new-born infants with the aid of the classic Landsteiner blood groups. Had the agglutinogens A and B failed to give a conclusive answer here, tests for the agglutinogens M and N of Landsteiner and Levine would have been indicated."^{25a}

^{25a} See also Landsteiner and Levine, *On the Inheritance of Agglutinogens of Human Blood Demonstrable by Immune Agglutininus* (1928) 48 JOUR. OF EXPER. MED. 731, 748, wherein the authors state

"that isoagglutinogens A and B are inherited as Mendelian dominants * * *" and that

"The heredity of two agglutinable structures demonstrable by immune agglutinins was studied in 166 families. From the data collected it is evident that one deals with a case of Mendelian inheritance. The main result of the studies is the demonstration that it is feasible to investigate the heredity of serological structures of human blood other than the group agglutinogens. Irrespective of the ultimate theory it seems very probable that the properties M and N do not appear in the offspring when they are absent in both parents—a conclusion substantiated by the examination of ten families with 46 children. These findings offer the prospect of forensic application to cases of disputed paternity and, in our opinion, a correct decision could already be given, at least with great probability, provided the reagents are available and method properly applied. *Of course, further work is needed before the test can be adopted as a routine procedure.*" (Italics ours.—Ed.)

For later studies see Landsteiner and Levine, *On Inheritance and Racial Distribution of Agglutinable Properties of Human Blood* (1930) 18 JOUR. OF IMMUNOL. 87:

"With regard to the occurrence of isogglutinin reactions of human blood distinct from those defining the blood groups * * *"

"From these results it cannot be doubted that the appearance of the agglutinable property studied is determined by heredity. That the agglutinable property is not a single Mendelian factor like the isoagglutinous A and B seems *probable* from the occurrence of positive reactions (classes 1 and 2) in children of matings 3 x 3 and negative reactions in the offspring of matings 1 x 1, even if one considers that the division into three classes is arbitrary. *The results, however, could be understood on the assumption of a property depending upon multiple genetic factors.* * * *"

"The studies reported substantiate the view that an agglutinable property of human blood detected by an agglutinable present in certain exceptional sera ('extra agglutinin?') is inherited and that its frequency

THE LEGAL ASPECTS.

The preceding summary of the biological aspects, brief as it is, should convince even the most skeptical that only a trained scientist should be allowed to testify in a court as to the inferences to be drawn when such evidence is introduced. The necessity of obtaining the assistance of especially trained experts to interpret for the jury the true value of evidence of this nature has long been recognized in this state (New York). In the case of *Ferguson v. Hubbel*²³ there is dicta to the effect that:

“The general rule of law is that witnesses must state facts within their knowledge, and not give opinions or their inferences. To this rule there are some exceptions, among which is expert evidence. Witnesses who are skilled in any science, * * * may not only testify to facts, but are sometimes permitted to give their opinions as experts. This is permitted because such witnesses are supposed, from their experience and study, to have peculiar knowledge upon the subject of inquiry which jurors generally have not, and are thus supposed to be more capable of drawing conclusions from facts, and to base opinions upon them, than jurors are generally supposed to be. Opinions are also allowed in some cases, where from the nature of the matter under investigation, the facts cannot be adequately placed before the jury so as to impress their minds as they impress the minds of a competent, skilled observer * * *.

“It is not sufficient to warrant the introduction of expert evidence that the witness may know more of the subject of inquiry, and may better comprehend and appreciate it than the jury; but to warrant its introduction, the subject of inquiry must be one relating to some science * * * in which persons instruct-

shows a racial difference in the two populations [white and negroes] examined. Consequently it must be considered as a constitutional property. The same conclusion *seems* to hold for other properties of red cells demonstrated by atypical human sera. * * *” (Italics ours.—Ed.)

²³ *Ferguson v. Hubbel*, 97 N. Y. at 512 (1884).

ed therein, by study and experience, may be supposed to have more skill and knowledge than jurors of average intelligence may be presumed generally to have. * * *

Greenleaf also argues that:²⁷

“Since the so-called expert will, by hypothesis, usually be better able than the jury to draw inferences on such matters, it occurs in practice that experts are usually able to be helpful with opinions and are, therefore, usually, but not necessarily, allowed to state them. Thus, in practice opinions are receivable, first, from persons having special skill (whether the data in question have been personally observed by them or are stated to them) whenever that special skill enables them, better than the jury, to draw inferences on the subject; secondly, from persons who have no special skill, but have personally observed the matter in issue, and cannot adequately state or recite the data so fully and accurately as to put the jury completely in the witness' place and enable them equally well to draw the inference.”

Two facts are known, then, *first* that biologists have convinced themselves that certain physical traits are inherited in an ascertained manner, and *second* that the law permits biologists to testify in the capacity of “expert witnesses” in respect to certain issues. What these “certain issues” are, and the evidential use that can be made of these “certain issues” are the matters to be determined.

Perhaps the most popularly known biological tenet, and also the most popularly misconstrued, is the fact that usually the child resembles in features one of its parents. While science admits that the combination (“blending hereditary”) of *all* the physical traits inherited will create an illusory resemblance between child and parent, science, as has already been pointed out, does not consider such resemblance a scientific test of parentage.

²⁷ 1 GREENLEAF, ON EVIDENCE (ed. 1899) §441, cited in *Ferguson v. Hubbel*, *ibid.*

It is common knowledge that one of Nature's best jokes is the fecundity of "doubles" of famous men and women ^{27a} ("doubles" of lesser folk is not news), and it was inevitable therefore that the shrewder members of the legal profession should find long-lost heirs of huge estates and attempt to prove their case on the sole evidence that the claimant resembled the deceased. The most celebrated case is the *Tichborne Peerage* case in England, which held the attention of the English jurists from 1867 to 1874.²⁸ In this famous case the resemblance of the claimant to a picture of his alleged deceased father, and to the missing heir was admitted by the court as evidence.²⁹ The modern counterpart of the *Tichborne* case is our own *Wendel* case;³⁰ in each case a huge sum of money was at stake; in each case the claimant's story made many a writer of fiction squirm with envy of the claimant's imaginary powers; and in each case the claimant was proved to be a fraud. The amusing part about the *Wendel* case was the attempt by the claimant to hocus-pocus the court with a bronze statue claimed by its sculptor to have been made from certain pictures of the deceased by a "dynamic symmetry" method, and said statue having a removable derby hat and spectacles similar to those worn by the claimant. So ridiculous was the whole procedure that the counsel for the defense refused to object.³¹ With such a background it is easy to understand why Surrogate Foley in his opinion in the *Wendel* case discusses the rule followed in some jurisdictions in the following manner:³²

"In some jurisdictions, when the paternity of a child is in issue, the child may be exhibited to the jury to show resemblance to the putative father, but

^{27a} See New York World-Telegram, March 21, 1933, p. 16, col. 1: "The late James J. McCabe, district superintendent of New York schools, was a dead ringer for Woodrow Wilson. Even the President's personal bodyguard was fooled. * * * Judge S. H. King of Tulsa, Oklahoma, is the exact image of Lloyd George to the most delicate sculpturing of his face. The Emperor Franz Josef had his double in a Vienna hat maker who was frequently embarrassed by mistakenly receiving the royal salute."

²⁸ Cited in *In re Wendel*, 262 N. Y. Supp. 41 (1933). See also Editorial, *Proof of the Paternity of Children by Blood Tests and Other Methods* (1933) 89 N. Y. L. J. 656.

²⁹ *Ibid.*

³⁰ *In re Wendel*, *supra* note 28.

³¹ *Ibid.*

³² *Ibid.*



the youth of the child and the immaturity of its features go to the weight of the evidence. * * * ³³

"The New York rule is to the contrary. The rule is based, as all rules of evidence should be, not upon theory, but upon reason, common sense and experience. Certainly the experience of trial lawyers and trial judges should prevail over theory and hypothesis. * * *

"In paternity cases the rule of evidence in our state prohibits the exhibition of the child to the jury to prove resemblance to the alleged father (*Bilkovic v. Loeb*, 156 App. Div. 719). * * *"

And so like Justice Holmes,³⁴ Surrogate Foley announces his belief that experience molds the law, but the Surrogate's experience is tainted, and he is deaf to Professor Wigmore's argument that such "testimony should be competent, and its possible abuse should not lead to a rule of absolute exclusion."³⁵ The ancients spent centuries debating as to the number of angels that could dance on the point of a needle; it is to be regretted that they had no rules of evidence to argue about.

The *Wendel*³⁶ opinion cites the *Bilkovic v. Loeb*³⁷ case as authority for a rule of evidence *contra* to the rule that "when the paternity of a child is in issue, the child may be exhibited to the jury to show resemblance to the putative father, but the youth of the child and the immaturity of its features go to the weight of evidence,"³⁸ but a brief review of the *Bilkovic* case and the cases cited therein, will not affect the decision in the *Wendel* case one iota.

³³ Cites the following cases as authorities: *Scott v. Donovan*, 153 Mass. 378, 26 N. E. 871 (1891); *Finnegan v. Dugan*, 96 Mass. 197, 14 Allen 197 (1867); *Montclair v. Eason*, 92 N. J. Law 199, 104 Atl. 291 (1918); Lord Mansfield, in the Douglas case, in 2 Hargr. Collect. Jurid. 402, cited in 1 WIGMORE, ON EVIDENCE, at 396.

³⁴ "The life of the law has not been logic: it has been experience." HOLMES, THE COMMON LAW (1881) 1.

³⁵ 1 WIGMORE, ON EVIDENCE (2d ed.) 395, cited in *In re Wendel*, *supra* note 28.

³⁶ *Supra* note 28.

³⁷ *Bilkovic v. Loeb*, 156 App. Div. 719, 141 N. Y. Supp. 279 (1st Dept. 1913).

³⁸ *Supra* note 28.

The *Bilkovic* case was an action to recover damages for assault and rape. The Appellate Division reversed the decision of the trial court on the grounds that the exhibition to the jury of a child alleged to have been born because of the rape, over the objections of the defendant, was reversible error. At the time of the trial the child would have been approximately two years old if the mother had conceived the day of the alleged rape and had had a normal period of gestation. The cases cited in the opinion³⁹ as authorities for the exclusion of this exhibition of the child were as follows:

- Gray v. State*, 43 Tex. Crim. Rep. 300, 65 S. W. Rep. 375 (1901);
Barnes v. State, 37 Tex. Crim. Rep. 320, 39 S. W. Rep. 684 (1897);
State v. Neel, 23 Utah 541, 65 Pac. Rep. 494 (1901);
State v. Danforth, 48 Iowa 43 (1878).

In the *Danforth* case, in addition to the complainant's Arabian Night's story, the child sought to be exhibited was only three months old. The opinion does, however, try to distinguish an earlier Iowa case⁴⁰ by stating that:

"In the case at bar the defendant objected to the child being shown to the jury, and excepted to the instructions, and insists that the action of the court was erroneous, not because the instruction was not clear and distinct in language, but because the resemblance of infants to the father is too indistinct and uncertain to be allowed as evidence in a case of this character. In this view we concur. *This child was about three months old at the time of the trial.* We have found that aside from this there was no corroborating evidence to warrant a verdict of guilty, and it would be a most unwise and dangerous rule to hold that a man may be deprived of his liberty by reason

³⁹ *Supra* note 37, at 723, N. Y. Supp. at 281.

⁴⁰ *Stumm v. Hummell*, 39 Iowa 478 (1874). The age of the child was not considered by the Court in this case, merely the erroneous charge to the jury.

of a supposed resemblance between a child of that age and himself." ⁴¹ (Italics ours.—Ed.)

Two years later, 1880, the same court in a somewhat similar case, *The State v. Smith*,⁴² said that:

"Precisely what should be deemed the proper age [of the child] we need not determine. It was held in *State v. Danforth*, that it was error to allow a child three months old to be exhibited. That case is relied upon by the defendant in this. But a child which is only three months old has that peculiar immaturity of features which characterizes an infant during the time that it is called a babe. A child two years old or more has, to a large extent, put off that peculiar immaturity. In allowing a child of that age to be exhibited, we think the court did not err, especially under the instruction given * * *." ⁴³

The "instruction given," refers to the charge of the trial judge to the jury that they, the jury, must clearly see for themselves the resemblance between child and defendant.⁴⁴ This charge seems to have overcome an exception taken to the prosecutor's calling the jury's attention to the fact that the eyes of both child and defendant were hooked and the eyes of the mother were not.

In the *Barnes v. State* case,⁴⁵ which was a prosecution for seduction the Court said:

"In this case, however, no proof was made as to the features, complexion, color of hair or eyes, etc., of the defendant on trial, and whatever benefit the jury might derive from an observation of the defendant is not brought into the record. We are of the opinion that such proof, as in this case, of a child *only three or four months old*, is not admissible for

⁴¹ 48 Iowa at 43. Cites with approval *Risk v. State*, 19 Kerr. 152 (Ind. 1862) and *Keniston v. Rowe*, 16 Me. 38, 4 Shepley 38 (Kennebec 1839).

⁴² *State v. Smith*, 54 Iowa 104 (1880).

⁴³ *Ibid.* at 105.

⁴⁴ *Ibid.* at 106.

⁴⁵ 37 Tex. Crim. Rep. 320, 39 S. W. 684 (1897).

the purpose of comparison in order to establish paternity." ⁴⁶ (Italics ours—Ed.)

And then, being a little doubtful, the Court hedged and continued: ⁴⁷

"Even if it were admissible, and proof had been offered as to the complexion, features, etc., of the defendant, the charge of the court was erroneous, in calling attention to a particular part of the testimony that could be used by the jury for no other reason than to show paternity." (Italics ours—Ed.)

In the second and later Texas case,⁴⁸ the Texas Court remembered the reason for the decision in the *Barnes* case, for the Court reiterates its decision as follows:

"The second bill of exceptions complains that the court erred in permitting the child of the prosecutrix to be exhibited to the jury. The district attorney stated he desired the exhibition of the child in order to corroborate the prosecutrix. The exhibition of the child could not corroborate the prosecutrix, except upon the fact that she was the mother of the child, if there was other proof that she was its mother. The mere fact that the prosecutrix has brought the child into court would not of itself establish that it was her child. If there were extraneous proof of the fact that this particular child was prosecutrix's, then it would not be evidence that appellant had committed the offense of rape upon prosecutrix; nor would the mere fact that prosecutrix had the child corroborate her testimony that appellant had committed the rape. We have heretofore held this character of testimony could not be introduced where accused was being tried for seduction, and the reason for holding such testimony inadmissible in such character of cases applies with force to the case at bar. *Barnes v. State* * * *"⁴⁹

⁴⁶ *Ibid.* at 329, S. W. at 687.

⁴⁷ *Ibid.*

⁴⁸ 43 Tex. Crim. Rep. 300, 65 S. W. 375.

⁴⁹ *Ibid.* at 301, S. W. at 375.

The alleged rape in this case occurred "on or about the 1st day of September, 1899"; the trial took place on July 17, 1900.

State v. Neel,⁵⁰ the fourth and last case cited in *Bilkovic v. Loeb*,⁵¹ is also a case where the child of the alleged rape is being exhibited to the jury to show resemblance between child and defendant. In this case the child was less than a year old when the appeal was heard. The rape was alleged to have happened on December 14, 1898, and the decision appealed to the Supreme Court of Utah was handed down on June 15, 1901. In his opinion the learned judge cites *Keniston v. Rowe*⁵² and *Risk v. State*⁵³ among others as authorities for his decision. Of course this digging out of old masters can go on almost indefinitely, but we have almost reached the end for one court anyway.

In 1839 in the *Keniston v. Rowe* case,⁵⁴ a bastardy action, the Court in its opinion said that:

"It is said that the testimony offered should have been admitted because the color of the child might have been such as to prove conclusively, that the defendant was not the father of it. But it was not the color, or any peculiarity of conformation, or form of features, as matters of fact, that were proposed to be proved, it was to prove a resemblance, which is a matter of opinion; and witnesses, if they could have sight of the persons, might be indefinitely multiplied, without affording any satisfactory ground of judgment for a jury. Witnesses, *except* in some art, trade or profession, requiring peculiar skill or science, are not called to form comparisons, and to testify to opinions arising from them.

"The facts being proved, *the jury were to be the judges of the effect of similarity or dissimilarity in form or complexion.*"⁵⁵ (Italics ours—Ed.)

⁵⁰ 23 Utah 541, 65 Pac. 494 (1901).

⁵¹ *Supra* note 37.

⁵² *Supra* note 41.

⁵³ *Ibid.*

⁵⁴ *Ibid.*

⁵⁵ *Ibid.*; 16 Me. at 40, 4 Shepley at 40.

In 1862 in the *Risk* case,⁵⁶ the Court in a *Per Curiam* side-stepped the issue rather neatly in the following manner:⁵⁷

“On the trial, the State gave the bastard child in evidence, so that the jury might compare it with the defendant, who was present; this was done without objection, and the court instructed the jury that if they discovered a resemblance between the child and the defendant, they might regard it as a circumstance tending to prove its paternity; tending to prove that the defendant was its father. We doubt the right to introduce the child in evidence. *We have seen no authority on the point.* It would be an uncertain rule of evidence. It would involve the necessity of giving the alleged father in evidence. A child changes often and much in looks, *in the first three months of its existence.* But, in this case, as the evidence went in without objection, the jury had a right to consider it.” (Italics ours—Ed.)

Recapitulating, the *Bilkovic* case disregards one Iowa case practically on “all-fours” with its own facts, to cite an earlier Iowa case, but the decision in which was more compatible to the Appellate Division’s idea of what the law should be. The facts in the other cases cited in the *Bilkovic* case would logically lead to the decisions handed down by those respective courts, but for the Appellate Division to flat-footedly pronounce a rule of evidence on the ground of *stare decisis*, and at the same time to ignore the reasons for the decisions abided by, is unfortunate. Whether the Court of Appeals would reverse the Appellate Division and follow the so-called more logical rule, to wit, that in those cases where the child to be exhibited to the jury has matured to such an extent that its features have assumed a definite and distinct contour, such exhibition is proper, is a matter of speculation.

The review of the authorities cited in the *Bilkovic* case have revealed one important fact, however, and that is, that

⁵⁶ *Supra* note 41.

⁵⁷ *Ibid.* 19 Kerr (Ind.) at 153.

Keniston v. Rowe is the apparent fountainhead of authority for cases of this nature in the United States. What is more important is the *dictum* in the opinion to the effect that:

“But it was *not* the color, or any peculiarity of conformation, or form of features, as matters of fact that were proposed to be proved, it was to prove a resemblance, which is a matter of opinion * * *.”

The court by its statement infers that it would allow evidence of color, peculiarity of conformation, or form of features, and yet less than a hundred years later that same court's decision and cases based upon it are being cited as authorities by New York courts for just the opposite rule.

Professor Wigmore in his exhaustive work on Evidence summarizes the subject of resemblance as evidence of paternity, as follows:⁵⁸

“The English practice seems always to have admitted this evidence without question. In the United States the early practice was probably the same; but as the chief use of the evidence was found in filiation proceedings to charge the defendant with the paternity of a bastard, the possible abuses of the evidence led to an unfortunate questioning of its validity under any circumstances * * *.”

“Some courts in the United States now exclude this kind of evidence, partly through misunderstanding the precedents in its favor, partly for the reasons above quoted (Professor Wigmore here reviews and compares all the important cases decided in the various states in the Union—Ed.). Moreover, by a curious contrariety of views, in some instances, the evidentiary fact of resemblance is excluded only when offered through testimony of those who have seen the child; in other instances, only when offered by the presentation of the child in court. The partial exclusion of the former mode of evidence is based chiefly on the Opinion rule—the fallacy of which, in this application, needs no further exposition; and partly

⁵⁸ 1 WIGMORE, ON EVIDENCE 397.

also on the ease with which a resemblance can be affirmed in general terms, but the simple correction for this danger is to require detailed statements of specific traits, for the force of the inference rests on these and not on a general resemblance. The partial exclusion of the other mode of evidence—presentation of the child in court—rests on no good reason whatever * * *. The sound rule is to admit the fact of similarity of specific traits however presented, provided the child is in the opinion of the trial court old enough to possess settled features or other corporal indications.”

So we find that one of the greatest authorities on evidence recommending the admission in evidence of specific traits, which science claims it has proven hereditary.

In an early Arkansas case,⁵⁹ where the plaintiffs were suing for freedom, the plaintiffs in corroboration of their claim that they belonged to the white race were permitted to take off their shoes and stockings, and exhibit their bare feet for the observation of the jury, because, as the Court states:⁶⁰

“Physicians, whose testimony was introduced, and who professed to be acquainted with physiology, and the distinguishing features of the races, state that the color, hair, feet, nose and form of the skull and bones, furnish means of distinguishing negro blood or descent.

“The experience of every intelligent observer of the race, whether in the instances of mixed or unmixed negro blood, will doubtless attest the truth of the professional witnesses. No one who is familiar with the peculiar formation of the *negro foot*, can doubt that an inspection of that member would ordinarily afford some indication of the race—though the evidence of race, thus afforded, would, of course, be stronger or weaker, according to the extent of the admixture of the blood.”

⁵⁹ Daniel v. Guy, *et al.*, 23 Barb. 50 (Ark. 1861).

⁶⁰ *Ibid.* at 52.

In another case involving the determination of the race of the person before the court, the United States Supreme Court overruled the exclusion of evidence by the trial court, and in its opinion stated that:⁶¹

“All the testimony of the government identifying Hung Chang as a Chinese person was excluded. * * * To identify such Chinese persons in the first instance, inspectors and interpreters are employed. The witnesses offered were two inspectors and one interpreter. These witnesses had devoted and were devoting their time to the identification and examination of Chinese persons. They had made a practical study of the characteristics of Chinamen. They were prepared to testify that Hung Chang was a Chinese person; but the court would not permit it, because they did not qualify as experts in the sciences of anthropology and ethomology. * * * The court assumed there are certain *racial characteristics* concealed somewhere about Chinamen, which can only be shown by great study in books, and that the identification of a person as a Chinaman upon any other grounds of distinction is worthless evidence.

“* * * Upon the question of race ancestry, the persons involved is after the best evidence to produce. It is a case of ‘*res ipsa loquitur.*’ * * *”

In *Garvin v. The State*, 52 Miss. 207, it was held that, where an indictment described the accused as a “colored person” that fact might be proven by his production before the jury; the Court saying (p. 209):

“It is urged that this was erroneous, because it is said that the jury can know nothing except by the testimony of witnesses. This is not true as to physical facts, which may be brought to their attention by ocular demonstration. It would not be necessary to prove by other testimony than profert of the party that he was a ‘person,’ ‘a man’ if so described in the

⁶¹ United States v. Hung Chang, 134 Fed. 19, 25, 26 (1905).

indictment. See also *Warlick v. White*, 76 N. C. 175, 179 * * *.”

In an Illinois case⁶² in addition to proof of race the prosecutrix introduced:

“* * * the testimony of a physician that the child of the prosecutrix had a rudimentary or supernumerary finger proceeding from the middle or second joint of each little finger, ‘with a beginning nail.’ He further testified that in his opinion supernumerary fingers ‘are usually an hereditary trait.’ He stated, also, that his opinion was based entirely upon books that he had read, and was unable to give the names of any books that he had read on the subject. * * * The only authorities relied on by plaintiff in error to sustain his position that the foregoing evidence is inadmissible are those holding that it is not permissible to introduce evidence of family resemblance between a child and the putative father to prove the paternity of the child. It is perhaps true that the weight of authority in this country is against the admission of *parole* evidence to prove the resemblance of the child to the putative father, and that evidence of family resemblance, by a view by the jury and a comparison of the child with the putative father, is inadmissible for the same purpose if the child has not attained an age when its features have assumed some degree of maturity and permanency. The authorities are in very great conflict as to whether or not such view and comparison may be had of a child for such purpose when its features have assumed, in the judgment of the court, that degree of maturity and permanency that the resemblance or lack of it may be expected to continue. By the weight of authority, the rule is well established that the child at any age, may be exhibited to the jury for the purpose of proving its race, when that question is a material one in the case. * * *

⁶² *The People v. Kingcannon*, 276 Irwin 251, 257, 258, 114 N. E. 508, 511 (Ill. 1916).

“Supernumerary fingers and toes, or polydactylism, are usually considered by law writers under the general head of malformations, and are regarded by well recognized authorities as being hereditary and frequently caused by consanguinous marriages. * * * The testimony of the physician in this case that supernumerary fingers are usually hereditary stands uncontradicted in the record, and we think the evidence was admissible. The child was not exhibited in evidence. The testimony that it had supernumerary fingers was the mere statement of a fact, and it was proper to so prove it without the exhibition of the child * * * where the proof shows, or tends to show, that the putative father had, or had had, supernumerary fingers and that the child also had them, we think such evidence is competent as tending to show the paternity of the child, when accompanied by the further evidence that supernumerary fingers are usually hereditary and by the positive testimony of the prosecutrix that he is the father of the child. Such evidence ought to be regarded as a mere circumstance that might be of value in deciding a doubtful case. In Beck's Medical Jurisprudence, in speaking of this character of evidence, the author makes use of the following words: ‘It has been suggested that the resemblance of a child to the supposed father might aid in deciding doubtful cases. This, however, is a very uncertain source of reliance. We daily observe the most striking differences in physical traits between parent and child, while individuals born in different parts of the globe have been mistaken for each other. And even as to malformations, although some remarkable resemblances in this respect have been noted between father and child; yet we should act unwisely in relying too much on them.’

“It is further suggested by plaintiff in error's counsel that the evidence in this case is overwhelming that plaintiff in error had no such fingers. This is merely a question for the jury when properly presented to them without errors in the record. In this

opinion we are not passing upon the weight of the evidence but merely as to its admissibility."

A lengthy quotation, to be sure, but the clearness of the court's distinction between the types of evidence of this nature which are admissible and not admissible is worthy of repetition. It is particularly noticeable that the court admits the evidence for two reasons, (1) because it is the only available evidence in doubtful cases, and (2) science claims it has proven that a trait such as the one in question is hereditary.⁶³

In *Gilmanton v. Harn*⁶⁴ the court permitted the complexion, appearance and features to be observed by the jury for any assistance the jury could obtain from such observation. Whereas, in *People v. Carney*⁶⁵ the admission in evidence of the color of the child's eyes was held to be reversible error. In *Petrie v. Howe*,⁶⁶ which is cited as authority in

⁶³ See also *Finnegan v. Dugan*, *supra* note 33, where the Court says: "The fact of a resemblance between the child and the putative father was proper for the consideration of the jury. It is a well-known physiological fact that peculiarities of feature and personal traits are often transmitted from parent to child. Taken by itself, proof of such resemblance would be insufficient to establish the paternity; but it would be clearly a circumstance to be considered in connection with other facts tending to prove the issue on which the jury are to pass."

⁶⁴ 38 N. H. 108 (1859).

⁶⁵ 29 Hun (N. Y.) 49 (4th, 1883).

⁶⁶ 4 Thomp. & Cook 85 (N. Y. 1874). The plaintiff husband as a witness for himself had testified that he had had four children by his wife, giving their names and ages, and then that another child was born of his wife.

"He then gave evidence, by other witnesses, tending to establish a criminal intimacy between the defendant and his wife in and through the summer and fall of 1870; and then he was recalled and examined by his counsel further as a witness, when the questions and answers and proceedings following occurred.

"Q. Mr. Petrie, I desire to ask you whether this lady here is your wife."

"A. Yes, sir."

"Q. The child, her child?"

"A. Yes, sir."

"Q. Will you state the color of the hair of your four children?"

"The defendant's counsel of course objected, but the objection was overruled and the evidence was admitted and excepted to. The case was appealed to the Supreme Court and the Court, reversing the trial Court and sending the case back for a new trial, insisted that:

"Proof of the color of the plaintiff's four other children, of itself, was clearly immaterial. * * * The object was quite apparent, to suggest and induce a comparison by the jury between the plaintiff's other children and the one then exhibited, upon view of the child and the plaintiff and his wife and of the defendant. * * *

the *Carney* case, the court held that evidence of the color of the child's hair was error. In the case of *People v. Lyon*⁸⁷ the court permitted as evidence in rebuttal, testimony as to the color of the hair and eyes of the child and its mother, because it was given in answer to testimony on the same subject, which was first given by the defendant and one of his witnesses. And so the courts in the various states disagree as to the value and authenticity of evidence of this nature.

In respect to the use of blood tests as proof of paternity, the writer has been unable to find any reported case in the

"If this species of physiological evidence is admissible in a court of justice it *should not be covertly given*, and in a shape not subject to the usual tests and exceptions applied to other evidence." (Italics ours.—Ed.)

Notice that the Court objects to the introduction of this evidence only because of the *manner* in which it was introduced.

The following year, 1875, the Court of Appeals was confronted with the question of whether or not the color of hair was admissible in evidence. In this case, *Lindsay v. People* (63 N. Y. 143), however, the evidence was held to be admissible because:

"Evidence of the color of hair and whiskers of the deceased, the measure of the body found, and the stature of the deceased, * * * *all tended to identify* the body found as that of Colvin, alleged to have been murdered." (Italics ours.—Ed.)

In this case the state also introduced evidence of blood stains found at the alleged site of the crime, and as to the admissibility of blood stains as evidence the Court of Appeals stated that:

"Proof of finding blood on different timbers and boards of the barn after the discovery of the body in June, six months after the alleged murder, was competent *and it tended* to corroborate Vader as to the manner in which, and the course by which, the body was taken from the place of killing to the hay loft. So far as the lapse of time detracted from the force of the evidence it was for the consideration of the jury."

The blood stains found, must, of course, have been proven to be human blood stains or else their value to the prosecution would have been nil, and evidently that was what actually happened, for the Court in its opinion recites that:

"The questions of fact, viz., the identity of the board that the blood spots were on them from the night of the nineteenth of December, had to be found by the jury before effect could be given to the *evidence of the expert*. It is enough that there was evidence tending to prove these facts. There was no evidence that the boards were in any different condition or differently stained than when they left the possession of the defendant and as they were the day after the murder, except that hogs had been dressed upon them within a day or two after the alleged murder, and there was evidence, upon which the prosecution relied, that the blood of men and of hogs was distinguishable and that both were upon these boards." (Italics ours.—Ed.)

The expert's testimony as to the origin of these blood stains helped to *corroborate* the other evidence of the state, and as such was properly admissible.

⁸⁷ 83 Hun (N. Y.) 305 (5th, 1894).

United States where the results of blood tests were admitted into evidence by the court. There has been much publicity about plaintiffs demanding blood tests,⁶⁸ but nothing has happened as yet.

In Europe and elsewhere in the world, however, the claims of science are more appreciated. In the Latin countries of Europe, France, Italy and Spain, the spirit and the letter of the Code Napoleon are still dominant, and the old maxim still holds: *pater semper incertus*. Except for very extraordinary cases, the law does not recognize the scientific value of biological proof of parenthood; in fact it is seldom resorted to.

Lattes⁶⁹ claims that "a few cases were investigated by Goldstein in Trieste, when the Austro-Hungarian Civil Law was in force, and a few others in the old provinces, which have given rise to interesting judgments by the Higher Courts." The Supreme Italian Court of Cassation (February 13, 1931) had this to say:⁷⁰

"As regards the reliability of the results obtained by this method, the latest studies and investigations show that though the determination of the blood groups affords no positive evidence for a declaration of affiliation in a given case, it does on the other hand furnish incontrovertible evidence for the *exclusion* of this relationship when the child's blood group does not agree, according to a definite scheme, with that of the supposed father."

In Belgium the Correctional Court in December, 1930, declared guilty a defendant who was accused of being the father of a child by a girl less than 16 years old, because the blood tests did not exclude the alleged paternity.⁷¹

The Commissar for Soviet Justice, who in 1926 had prohibited the use of blood tests in paternity suits, as not affording sufficiently positive proof, altered in his views in

⁶⁸ See New York World-Telegram, March 15, 1933, p. 1. See also Editorial in N. Y. L. J., *supra* note 28.

⁶⁹ *Supra* note 22, at 248.

⁷⁰ *Ibid.* at 254.

⁷¹ *Ibid.* at 250.

1927 and allowed these tests, regarding them as furnishing absolutely conclusive evidence.⁷²

In Germany the Code allows the question: "Is it clearly impossible (*offenbar unmöglich*) for the defendant to be held the father of this child?"⁷³ The Landegericht II, Berlin, in April, 1927, was convinced that:⁷⁴

"Paternity cannot be allowed in this case, for expert evidence shows it to be 'clearly impossible' for the plaintiff to have been conceived during the cohabitation of the mother with the defendant. The plaintiff belongs to group B, a property which is found neither in his mother's blood nor in that of the defendant. The evidence of the experts, which is based on numerous investigations carried out in all civilized countries, and is now no longer questioned by competent scientists, and is moreover directed to be used in evidence by the superior judicial authorities (e.g., the Minister of Justice for Württemberg) shows that the real father *must* belong to Group B to have transmitted this property to his son. The defendant cannot, therefore, be the father of the plaintiff."

This decision was *affirmed* on April 4, 1930, by the Prussian Kammergericht, Section 8. On September 22, 1930, the Reichsgericht (German Supreme Court) dismissed an appeal based on the unreliability of blood tests for exclusion of paternity.⁷⁵

Lattes also claims that in 1929 there were five thousand cases in Germany and one thousand five hundred cases in Austria decided on the basis of blood tests as proof of paternity.⁷⁶ At the 1926 meeting of the German Medico-Legal Society, it was reported that such proof has been allowed in the courts of: Russia (35 cases); Norway (11 cases); Sweden (165 cases); Denmark (550 cases); and in Netherlands, Brazil and Japan.⁷⁷

⁷² *Ibid.* at 252.

⁷³ *Ibid.* at 251.

⁷⁴ *Ibid.* at 253.

⁷⁵ *Ibid.* at 254.

⁷⁶ *Ibid.* at 255.

⁷⁷ *Ibid.*

CONCLUSIONS.

It should be noticed that the writer has tried to refrain from commenting upon either the scientific or legal data collated in the preceding pages. The data are there, various conclusions can be obtained from a close analysis. The writer's conclusion is that the New York courts, at least, have refused to fall into the error that the European courts have, and that is, *to anticipate scientific facts*.

In 1927 the Landegericht II was convinced of the infallibility of the blood test to prove the impossibility of paternity,⁷⁸ yet in the following year the two scientists who had performed most of the research work, and one of whom later was awarded the Nobel Prize for this research, frankly admitted that more studies must be made before the test in question could be used as a matter of routine.⁷⁹ We find the English courts and the courts of certain states in this country allowing evidence of resemblance of infants and adults to an alleged father, yet it is common knowledge that the features of infants undergo remarkable changes before maturity is attained, and the common phenomena of "doubles" and resemblances is being constantly discussed in newspapers, novels, and plays. The numerous convictions of persons erroneously identified as someone else because of a fancied or actual resemblance has already perturbed the scholars of the legal profession;⁸⁰ when experience has proved that witnesses even fail to identify and recognize the features of one person, how unreasonable it is to assume that witnesses or jurors can actually recognize a resemblance between two persons, particularly when the features of one are indistinct and unformed. The various courts in this country have held that testimony by a medical expert relative to the following matters were admissible: effect of external pressure on lungs;⁸¹ sensation of pain as though limb remained after amputation;⁸² probable effect of injury;⁸³

⁷⁸ *Supra* note 74.

⁷⁹ *Supra* note 25^a.

⁸⁰ See BORCHARD, CONVICTING THE INNOCENT (Yale Univ. Press, 1932).

⁸¹ *Tompkins v. West*, 56 Conn. 478, 16 Atl. 237 (1888).

⁸² *Hickenbottam v. Delaware, etc. Ry. Co.*, 122 N. Y. 91, 24 N. E. 279 (1890).

⁸³ *Stembridge v. Southern Railway Co.*, 65 S. C. 440, 43 S. E. 968 (1902).

boy capable of begetting child;⁸⁴ probable effect of being unable to breathe through the nose;⁸⁵ blood stains are human blood stains;⁸⁶ supernumerary fingers are "usually an hereditary trait";⁸⁷ whether child was in "full development" at birth;⁸⁸ analysis of pus examined under a microscope;⁸⁹ whether a hair is a human hair;⁹⁰ actual penetration at time of rape;⁹¹ sex of a person from an examination of the skeleton⁹² and so on.

But it has been held that a medical expert cannot testify to the following matters: whether sexual intercourse against a woman's consent was possible;⁹³ as to the reactions obtained by the systolic blood-pressure deception test;⁹⁴ and whether a person could live after being struck by a locomotive.⁹⁵ In other words, the medical expert may testify as to what appears to him to be the cause of certain symptoms under the ascertained facts, and which of these ascertained facts was the probable or proximate cause, but the expert cannot testify as to whether the ascertained fact or facts could or could not cause a given result, or, in a certain case did so. Furthermore, if the expert's testimony is contrary to reason or opposed to natural and physical laws, such testimony will be excluded;⁹⁶ testimony will also be excluded where the court in its discretion is unconvinced by the claim that the testimony is founded upon an infallible scientific fact.⁹⁷

⁸⁴ Johnson v. Castle, 63 Vt. 452, 21 Atl. 534 (1891).

⁸⁵ Morgenstein v. Nejedlo, 79 Wis. 388, 48 N. W. 652 (1891).

⁸⁶ *Supra* note 67. See also Commonwealth v. Sturtivant, 117 Mass. 122 (1875); State v. Knight, 43 Me. 1 (1857); Knoll v. State, 55 Wis. 249, 12 N. W. 369 (1882).

⁸⁷ *Supra* note 62.

⁸⁸ Souchek v. Karr, 78 Neb. 488, 111 N. W. 150 (1907).

⁸⁹ United States Health etc. Co. v. Jolly, — Ky. —, 118 S. W. 281 (1909).

⁹⁰ Commonwealth v. Dorsey, 103 Mass. 412 (1870); see also ROGERS, EXPERT TESTIMONY (2d ed., Central Law Journal Co., 1891) 146.

⁹¹ State v. Smith, Phillips Law, 302, 61 N. C. 302 (N. C. 1867).

⁹² Wilson v. State, 41 Tex. 320 (1874).

⁹³ State v. Peterson, 110 Iowa 647, 82 N. W. 329 (1900); Lawlor v. Wolff, 180 Mass. 448, 62 N. E. 973 (1902).

⁹⁴ Frye v. United States, 293 Fed. 1013 (D. C. 1923).

⁹⁵ Chicago & A. R. Co. v. Lewondowski, 190 Ill. 301, 60 N. E. 497 (1901).

⁹⁶ Higgins v. Mason, 226 App. Div. 426, 235 N. Y. Supp. 441 (1929); Szpyrka v. Inter. Rwy. Co., 213 App. Div. 390, 210 N. Y. Supp. 553 (1925); Baltimore and Ohio Railroad Co. v. O'Neill, 186 Fed. 13 (C. C. A. 6th, 1911).

⁹⁷ *Supra* note 94.

By way of an illustration, let us assume that in a certain large city there is a rule that foundling infants can be adopted only by Christian couples, unless it can be proved that the parents of the foundling were co-religionists of the couple seeking to adopt the foundling, when the couple seeking to adopt the infant are not Christians. Let us further assume that the foundling is about one year of age, that there is a bright cherry-red spot occupying the place of the macula lutea, in a milky blue or white area. Medical science will claim that if there is no evidence of vascular disease, that the overwhelming probability is that the infant is idiopathic for amaurotic family idiocy. In the event that a Jewish couple seek to adopt this infant, is science also prepared to substantiate their claim that amaurotic family idiocy is only hereditary in Jewish people?⁹⁸ The legal profession needs every possible aid that science can furnish, but science must first make certain that its claims are irrefutable.

As previously indicated, the European courts have accepted as infallible the blood test which indicates the impossibility of paternity. Members of the legal profession in this state are attempting to use the decisions of the European courts as a reason why the New York courts should recognize such blood tests.⁹⁹ Surely, when as eminent a scientist as Dr. Alec Hrdlicka, Anthropologist of the United States National Museum, emphatically states that such blood tests cannot as yet be regarded as anything but experimental, and that no definite conclusions can be based on such tests,¹⁰⁰ together with the premature decisions of the European courts, as a matter of law,¹⁰¹ the courts of the State of New York will be justified in refusing to allow testimony relative to such blood tests.

There undoubtedly is much to be said for the scientific claims that certain easily recognized abnormalities are hereditary, as stated in the preceding pages, and undoubtedly the

⁹⁸ Salaman, *Heredity and the Jew* (1911) 1 JOUR. GENETICS 273.

⁹⁹ See New York World-Telegram, March 15, 1933, p. 1, where the plaintiff's attorney is reported to have said: "* * * there was no reason why the courts here should not accept blood tests in paternity cases, as the courts of Europe did."

¹⁰⁰ As stated in a letter dated January 27, 1933, from Mr. Frederick M. Kerby, Director Washington Information Bureau, to the writer.

¹⁰¹ *Supra* note 94.

legal profession would do well to familiarize itself with those same scientific claims. At the present time paternity cases are difficult to prove because of the almost absolute lack of conclusive, or even corroborative evidence, but, at best, science's present claims are merely inferences, and the law does not permit an inference to be drawn from inference.

It is argued, that even if science is not as yet prepared to unqualifiedly claim that certain physical traits are inevitably inherited in an ascertained manner, that nevertheless the opinions of medical experts relative to the possibilities of such physical traits having been inherited should be admitted in evidence in order to corroborate other evidence; that the jury should be allowed to consider such opinion evidence for what the jury may think it to be worth. Justice Holmes emphasized the fact that the life of the law is experience. Experience has proved that even the learned judges of the highest courts in other countries have been mistaken as to the facts of science; it is more than likely then that the ordinary juror, untrained in science and unaccustomed to analyzing the statements of biased experts, would also rely too much on the claims of scientific experimenters.

The law cannot control the thinking processes of jurors, but the law can, and should, prevent the introduction of testimony which would erroneously prejudice jurors.

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