

1937

Blood-Grouping Tests and the Law: The Problem of Cultural Lag

Steuart Henderson Britt

Follow this and additional works at: <https://scholarship.law.umn.edu/mlr>



Part of the [Law Commons](#)

Recommended Citation

Britt, Steuart Henderson, "Blood-Grouping Tests and the Law: The Problem of Cultural Lag" (1937). *Minnesota Law Review*. 2366.
<https://scholarship.law.umn.edu/mlr/2366>

This Article is brought to you for free and open access by the University of Minnesota Law School. It has been accepted for inclusion in Minnesota Law Review collection by an authorized administrator of the Scholarship Repository. For more information, please contact lenzx009@umn.edu.

BLOOD-GROUPING TESTS AND THE LAW: THE
PROBLEM OF "CULTURAL LAG"[†]

By STEUART HENDERSON BRITT*

THE fact that blood-grouping tests can often prove *non*-parentage (either non-paternity or non-maternity) has been slow to filter into the legal consciousness. Facts accepted by scientists as beyond dispute have failed to be received in evidence by the courts until quite recently. It may be of service, therefore, to summarize the history of the blood-grouping tests, first in science, second in the law, and then to offer some explanations of the "cultural lag" of many years between the acceptance of the tests in science and their acceptance in law.

I. THE FOUR ORIGINAL BLOOD-GROUPS

Hereditary characteristics are determined by units called "genes," which are supposed to occur in pairs in the rod-like chromosomes of the nuclei of cells. The human blood-groups, discovered by Landsteiner in 1900,¹ follow the chromosomal theory. The basic groups, of which there are four, are predetermined by the presence or absence in the chromosomes of two "genes," called "A" and "B." Absence of both A and B is indicated by "O." Since each somatic cell possesses two of these genes (one from each parent), there are six possible genetic formulae (genotypes): OO, AA, AO, BB, BO, and AB. However, since the blood of an AO individual is routinely indistinguishable from that of an AA individual, and since similarly BO blood is routinely indistinguishable from BB blood, we have only four types of blood (phenotypes), namely, O, A, B, and AB.

We should recall that human blood consists roughly of two

*Assistant Professor of Psychology, The George Washington University, Washington, D. C.; member of Missouri Bar; member of New York Bar; author of various articles in psychological journals.

[†]I wish to thank Mr. Charles W. Hayden of the Harvard Medical School and Dr. Leland W. Parr of the George Washington University Medical School for a critical evaluation of the first three sections of the manuscript, and to acknowledge the encouragement of Professor Albert C. Jacobs of the Columbia University School of Law, and of Professor Edward L. Thorndike of Columbia University Teachers College. The investigation was made possible by a grant from the Carnegie Foundation.

¹Flacks, *Evidential Value of Blood Tests to Prove Non-Paternity*, (1935) 21 A. B. A. J. 680, 681.

constituents: a thin colorless fluid, and a large number of corpuscles or cells which are suspended in the fluid.² The red blood corpuscles greatly outnumber the white. Landsteiner found that these red cells contain two substances known as "agglutinogens,"³ which he called "A" and "B"; thus, a given blood might contain both A and B, either alone, or neither. Corresponding to these agglutinogens in the cells, he postulated two "agglutinins,"⁴ "a" and "b" in the serum; that is, when an agglutinin is *present* in the red blood cells, the agglutinin of the corresponding letter is *absent* in the serum. Agglutination (or "clumping") is caused by the action of agglutinin upon the agglutininogen with the same letter; for example, if the blood of an A person or of an AB person is injected into the veins of a B person or of another AB person, "clumping" results.⁵

Careful study of Table 1 will make the above explanation clear. The column headed, *Agglutinates* ("clumps"), will be understood in the light of the explanation below as to how the blood-grouping test is made. It may be explained at this point, however, that if we inject the substances called agglutinogens into an animal, we shall recover from this animal's serum an antibody which is specific for the particular agglutininogen which we injected. Now, when we take the recovered serum containing the antibody and place the serum in the presence of the agglutininogen in a test tube, there will result a precipitation or agglutination of these two substances. Chemically these two substances react to

²This is only a rough description. Actually blood consists of a fluid of complicated composition, the plasma, in which are suspended large numbers of microscopic elements, i.e., red corpuscles, white corpuscles, and platelets. The clear, pale, straw-colored fluid which remains after coagulation and retraction of the clot is called serum. In the serum are found the numerous substances which the tissues elaborate for protection against bacterial and other harmful agents.

³Definition of *agglutininogen*: "The agglutinable substance present in bacteria which, when introduced into the animal body, stimulates the latter to form agglutinin." (Dorland, Illus. Am. Med. Dict.) In other words, agglutininogen is simply the precursor, so to speak, of agglutinin.

⁴Definition of *agglutinin*: "An antibody found in an immune serum which when added to a homogeneous suspension of its specific micro-organism causes such a change that the organisms adhere to one another and thus form clumps." (Dorland, Illus. Am. Med. Dict.) Actually the agglutinins have not been chemically isolated (although cf. Science for Oct. 2, 1936), but it has been demonstrated that they resemble proteins in general.

⁵This makes it essential, in a blood transfusion, to know the type of blood of both the donor and the recipient. "When blood transfusions were first attempted by the medical profession, numerous patients died suddenly after the infusion of the new blood into their blood streams. No satisfactory explanation of these frequent sudden deaths was possible until the results of the work of Dr. Karl Landsteiner had been published." Grobert, *Medico-Legal Aspects of Blood Grouping*, (March 26, 1936) 59 N. J. L. J. 105, 105-106.

form one, which precipitates out. This fundamental reaction demonstrates one way that the body protects itself against disease: when bacteria enter the blood stream, they will be treated as agglutinogens (or antigens) because foreign to the body, with the result that antibodies will be formed which will react with the bacteria and cause them to be clumped together, thus facilitating their later destruction by a process called lysis. This is exactly the same thing that we see when we make blood-grouping tests. Each individual has in his body certain substances, called "agglutinins," which protect him against the injection of foreign (i.e., incompatible) blood cells into his blood. These agglutinins are essentially the same as the antibodies mentioned above.

TABLE 1⁶

Designation of Original Four Blood-Groups

(cf. Table 3 for the *twelve* blood-groups)

GROUP			Genetic Constitution (Genotype) (i. e., agglutinogens in red blood cells)	Agglutinins in the serum	Agglutinates ("clumps")	Approximate % in the United States ⁷	Probability of proving non-parentage when blood-group of wrongfully accused person is known (Cf. Table 3)***
International or Landsteiner name (Phenotype) [*]	Moss name **	(Jansky name) **					
O.....	IV	(I)	OO	a and b	Neither	45	1 in 5
A.....	II	(II)	AA or AO	b	B-serum	42	1 in 17
B.....	III	(III)	BB or BO	a	A-serum	10	1 in 7
AB.....	I	(IV)	AB	neither	A-serum and B-serum	3	1 in 2
(If unknown.....)							1 in 7)

*The following statements show the general relationships between the present data and the matter of *blood transfusions*:⁸

Type O: can receive blood from Type O; can give blood to all types.

Type A: can receive blood from Types A and O; can give to Types A and AB.

Type B: can receive blood from Types B and O; can give to Types B and AB.

Type AB: can receive blood from all types; can give only to Type AB.

**The Moss designation is used in most hospitals, the Jansky designation (which simply interchanges Moss's "I" and "IV") more rarely.^{8a}

***"The agglutinogens M and N, discovered by Landsteiner and Levine in 1928, have doubled the number of cases in which an exclusion can be obtained . . ." (Blood Grouping Tests and the Law (1935) 104 J. Am. Med. Assn. 2002.)

II. HOW THE "A-B" BLOOD-GROUPING TEST IS MADE

To *demonstrate* how a blood-grouping test is made, the only materials necessary are two stirring rods, a tube of A-serum and a tube of B-serum, one clean microscope slide, a sterile cutting needle, cotton, and alcohol. A drop or two of A-serum is placed on one end of the microscope slide, and a drop or two of B-serum on the opposite end. A finger (or ear lobe) is pricked with the needle for a drop of blood, and this blood is introduced into the A-serum with one stirring rod. When there is a positive reaction, one can witness with the naked eye (or under a magnifying glass) a clumping together of the blood cells, looking very much as if pepper had been sprinkled in the preparation.⁹ The reaction sometimes appears immediately, but may require five or ten minutes. The column in Table 1, marked *Agglutinates* ("clumps"), shows how to interpret the results. If the unknown blood is Type O, it will agglutinate with neither the A-serum nor the B-serum; if it is Type A, it will agglutinate with the B-serum but not with the A-serum; if it is Type B, it will agglutinate with the A-serum but not with the B-serum; and, if it is Type AB, it will agglutinate with both.

It should be noted that it is the *blood cells* that are being tested, for we wish to find out what agglutinogens are present. Although it is true that we really take whole blood (i.e., cells plus plasma)¹⁰

⁶Table 1 is a composite from many sources. Most of the information will be found in Hooker and Boyd, *Blood-Grouping as a Test of Non-Paternity*, (1934) 25 J. Crim. L. 187. As to the method of computation of the chances of establishing non-parentage (shown in the last column of Table 1), see their article, pp. 200-203.

⁷There is some evidence that the percentage of the blood-groups varies in different races. For a discussion of the validity of this evidence, see Klineberg, *Race Differences* (1935) pp. 42 ff.; also cf. Huxley & Haddon, *We Europeans*, (1936) *passim*, and Landsteiner, Strutton, and Chase, *An Agglutination Reaction Observed with Some Human Bloods, Chiefly Among Negroes*, (1934) 27 J. Immunol. 469.

⁸The statements as to blood transfusions are based upon the possibility of interaction between the serum of the recipient and the red blood cells of the donor. However, these are only general statements of limited applicability, since the serum of the donor sometimes contains a high concentration of agglutinin and may thus, when introduced into the body of the recipient, react with the red blood cells of the recipient.

^{8a}Apparently there are also two sorts of agglutininogen A, designated A₁ and A₂, but certain technical difficulties have prevented their forensic application. Zieve, *The Medicolegal Aspects of Blood Grouping*, (1936) 32 Am. J. Obstet. & Gynecol. 1069, 1069-1070.

⁹In order for the naive experimenter to differentiate between "clumping" and "non-clumping," he may place a few "loopfuls" of blood in a drop of isotonic salt solution for comparison; here the cells, of course, will not clump together.

¹⁰Plasma is blood, minus the formed elements. (Cf. footnote 2 *supra*.) It consists of various salts, plus protein elements, plus fibrinogen.

on the stirring rod when we dip into the drop of blood, yet the small amount of the fluid part of the blood taken is well diluted by the drop of known serum and is of no value in affecting our results. Consequently, when we add blood cells from a Type O (which contains *neither* A agglutinin nor B agglutinin) to A-serum and B-serum respectively, we should expect *no* agglutination simply because we do not have the fundamental relationship of matched agglutinin (or antigen) with corresponding agglutinin (or antibody).

Now, it is possible just to reverse our test and, instead of using known serum, to use known blood cells; that is, we take blood cells from the two groups instead of the sera and use these cells as our known and the sera as our unknown. Although the principle is exactly the same, this method is not as easy, since it requires centrifuging the blood in order to spin down the cells from the serum. In accurate determinations, both tests are desirable, each test acting as a check on the other. The first method is described here only for demonstration purposes.

III. BLOOD-GROUPING IS A TEST FOR NON-PARENTAGE

The various blood-groups are not sex-linked; that is, the frequency distributions are independent of sex.¹¹ The blood-groups also follow the Mendelian laws of inheritance.

"Now, knowing the way in which mature reproductive cells ('gametes') of each sex merge with only one chromosome of a pair, and consequently only one gene of a pair, we can mathematically predict the way in which the blood groups will be inherited. When sperm and ovum merge it is readily understood that the resulting cell contains its set of *pairs* of chromosomes; each parent has contributed one member of each pair.

"A man of group AB produces two types of sperm, one containing the factor A and one containing the factor B. These are produced on the average in equal numbers. A woman of group AB will produce two types of ovum, one containing A and one containing B. If such a man and woman mate, it will be a matter of even chances whether an A sperm fertilizes a B or an A ovum, and whether a B sperm fertilizes a B or an A ovum. So that three types of offspring could be produced, AB, AA, BB, BA. (The AB and BA offspring will be just alike, since each will have both substances in his blood.) So the percentage of offspring, if we observe a statistically large enough number of such matings (or of children of one such mating), will be, and is, 25 per cent A, 25 per cent B, and 50 per cent AB. It is conventional

¹¹Hooker and Boyd, *Blood-Grouping as a Test of Non-Paternity*, (1934) 25 J. Crim. L. 200.

in genetic literature to illustrate such a process of reasoning about the results of a mating by the checkerboard diagrams shown in fig. [1] . . ."¹²

I	II	III	IV
Mating: AA x AA	AA x AO	AO x BO	OO x AB
<div style="text-align: center;"> <u>A A</u> A AA AA A AA AA </div>	<div style="text-align: center;"> <u>A O</u> A AA AO A AA AO </div>	<div style="text-align: center;"> <u>B O</u> A AB AO O BO OO </div>	<div style="text-align: center;"> <u>A B</u> O AO BO O AO BO </div>
Progeny: 100% group A	100% A	25% O 25% A 25% B 25% AB	50% A 50% B

FIGURE 1

"Diagrammatic examples of the hereditary transmission of the factors that determine certain blood groups. On the top of each diagram are designated the factors possessed (and transmissible) by one parent; on the left, those of the other . . . The letters within the horizontal lines show the possible results in progeny.

"The fundamental law is that any factor can not be present in the blood of a child unless it was present in the blood of at least one of its parents.

"Diagrams of all the 21 possible types of mating are tabulated by Wigmore in § 165 *b* of the 1923-1933 Supplement to his classical 'Treatise on Evidence.'"

"In the determinative application of blood grouping in bastardy proceedings, we have to consider the genetic compositions of the putative father and the known mother. It is also necessary to remember that at birth this grouping is complete, and final, in only about one-half of the infants. Actually, however, in this connection the incomplete groupings seldom create uncertainty even in tests done soon after birth. The complete and permanent blood group characteristics, involving A, B, and O factors are attained before the age of two years, and, in a limited way, constitute an unchangeable means of identification . . ."¹³

Table 2 is complete to show the possible or impossible offspring from any mating combination:

¹²Hooker and Boyd, Blood-Grouping as a Test of Non-Paternity, (1934) 25 J. Crim. L. 190. The Figure is from p. 191.

¹³Hooker and Boyd, Blood-Grouping as a Test of Non-Paternity, (1934) 25 J. Crim. L. 192. In conversation as to this point, Dr. Leland W. Parr said: "The general understanding is that the agglutinin factors are complete at birth although it must be admitted that the serum factors may not be completely formed for some months. Since blood-grouping is usually done with red blood cells, it can be seen that this limitation has little practical effect." Also, it should be noted that the "M" and "N" agglutinogens (*infra*) are established during foetal life.

TABLE 2¹⁴

Blood-Groups of Offspring Possible or Impossible from Any Mating Combination

Alleged Parent	Known Parent	Possible Children	Children Not Possible from Their Mating. Decisive for Non-Parentage of Alleged Parent. (Those in parentheses could not be children of the corresponding <i>known</i> parents in <i>any</i> matings.)
1. O	O	O	A, B, (AB)
2. O	A	O, A	B, AB
3. O	B	O, B	A, AB
4. O	AB	A, B	(O), AB
5. A	O	O, A	B, (AB)
6. A	A	O, A	B, AB
7. A	B	O, A, B, AB
8. A	AB	A, B, AB	(O)
9. B	O	O, B	A, (AB)
10. B	A	O, A, B, AB
11. B	B	O, B	A, AB
12. B	AB	B, A, AB	(O)
13. AB	O	A, B	O, (AB)
14. AB	A	A, B, AB	O
15. AB	B	A, B, AB	O
16. AB	AB	A, B, AB	(O)

The determination of non-paternity is so reliable that in 1929 Schiff succeeded in collecting 5,584 cases from various European countries which fully corroborate the tests.¹⁵ In addition, Landsteiner and Levine in 1928 reported the proof of some additional substances in human blood cells which have practically doubled the chances of proving non-parentage.¹⁶ About 20,000 bloods have since been tested for these new factors, called "M" and "N," which are not linked with "A" and "B." It is now known with certainty that "M" and "N" "are inherited exactly like A and B, except that *an individual always has one or the other or both, never neither.*"¹⁷ Also, *these* groups are established during foetal

¹⁴Hooker and Boyd, *Blood-Grouping as a Test of Non-Paternity*, (1934) 25 J. Crim. L. 187, revised from Table 2, p. 192.

¹⁵Flacks, *Evidential Value of Blood Tests to Prove Non-Paternity*, (1935) 21 A. B. A. J. 680, 681; Hooker and Boyd, *Blood-Grouping as a Test of Non-Paternity*, (1934) 25 J. Crim. L. 187. Also, cf. Levine, *The Use of Blood Tests in Paternity Disputes—Part I*, (Jan. 14, 1937) 40 N. J. L. J. 9, 11, Table 3.

¹⁶Cf. Hooker and Boyd, *Blood-Grouping as a Test of Non-Paternity*, (1934) 25 J. Crim. L. 194-196.

¹⁷Hooker and Boyd, *Blood-Grouping as a Test of Non-Paternity*, (1934) 25 J. Crim. L. 195.

life.¹⁸ The "M" and "N" agglutinogens make possible the classification of human bloods into twelve different groups.^{18a} See Table 3 for the chances of proving non-parentage when the blood-group of a wrongfully accused person is known:

TABLE 3¹⁹

**Chances of Establishing Non-Parentage by use of
A, B, M, and N Factors**

(Based on Blood-Group Frequency Distribution in New York City [Wiener])

Putative Parent of Type	Probabilities	
	Per Cent	About
1. O M+N-	50.71	1/2
2. O M-N+	56.00	3/5
3. O M+N+	25.18	1/4
4. A M+N-	40.37	2/5
5. A M-N+	46.67	1/2
6. A M+N+	9.05	1/11 [or]
7. B M+N-	43.59	2/5
8. B M-N+	49.56	1/2
9. B M+N+	14.38	1/7
10. AB M+N-	58.36	3/5
11. AB M-N+	62.77	3/5
12. AB M+N+	36.81	2/5
(13) Unknown	33.07	1/3

It is highly important to note that parentage (either paternity or maternity) is never proved by blood-grouping, even when supplemented with the "M-and-N" test, but that *non-parentage* (either *non-paternity* or *non-maternity*) may quite often be proved. That is to say, *blood-grouping tests can never affirmatively fix*

¹⁸Hooker and Boyd, Blood-Grouping as a Test of Non-Paternity, (1934) 25 J. Crim. L. 195.

^{18a}There is also some evidence for a rare type of N agglutinin, designated N₂. Zieve, The Medicolegal Aspects of Blood Grouping, (1936) 32 Am. J. Obstet. & Gynecol. 1069, 1073.

¹⁹Hooker and Boyd, Blood-Grouping as a Test of Non-Paternity, (1934) 25 J. Crim. L. 196 (partially modified). The probabilities in Table 3 apply in those instances in which the putative parent is innocent.

The following table shows the "M-and-N" blood-groups of children which are *impossible* in the various matings [from Wiener, Blood Grouping Tests in the New York Courts, (1936) 70 U. S. L. Rev. 683]:

Types of Parents

M x M
M x N
N x N
MN x M
MN x N
MN x MN

Types of Children Not Possible

MN, N
M, N
M, MN
N
M

parentage on a person, but they may exonerate that person. For example, suppose that Richard Roe is charged with being the father of a certain child. Blood-grouping tests show that Roe is Type B, the mother Type A, and the child Type AB. From Table 2, mating 10, it is evident that such a combination is possible; but this is *not* proof that Roe is the father, for about 10 per cent of all men in the United States fall into Group B (Table 1).²⁰ Here Roe is no more proved to be the father of the child than any other man of Type B. To permit this evidence before a jury would undoubtedly be prejudicial to Roe.²⁰

On the other hand, for *exclusion* purposes, the blood-test is indispensable. Suppose, for example, that Roe is Type A, the mother Type A, and the child Type B. From Table 2, mating 6, such a combination is impossible. The man's innocence is conclusively established.

From Table 2, we can make three predictions with certainty: 1. A parent of Type O can *never* have a child of Type AB. 2. A parent of Type AB can *never* have a child of Type O. (In these two instances, then, if the alleged father's type were known, and the child's type were known, it would not even be necessary to determine the mother's type in order to establish the man's innocence.) 3. A child of Type AB must have agglutinogens A or B or both present in the blood of *both* parents; that is, a child of Type AB must have parents each of whom has either agglutinin A or B or both in the blood.

It is of interest to know "that semen is also a group specific, so that in rape cases if the blood group (which can be derived from the semen deposited on the person of the raped) does not coincide with the blood group of the accused, there may be an elimination of the accused as the guilty party. Sweat, mucus, saliva—all can be used to derive the blood group of the person from whom these secretions have come."²²

IV. RECEPTION BY THE COURTS OF THE BLOOD-GROUPING TESTS AS EVIDENCE

The tests described have been recognized as completely reliable and valid by experts in the field of medicine for many years. There is no living authority of repute who may be cited adversely.

²⁰Also, the M and N agglutinogens would have to be taken into account.

²¹Cf. *infra* (pp. 186 ff.) as to New York statutes.

²²Evidence—Admissibility of Blood-Group Test, (1934) 32 Mich. L. Rev. 987, 989, giving as authority Lattes, *Individuality of the Blood*, (1932) p. 277.

It is of interest, then, to see how the tests have been received as evidence by the courts. The question of blood-groups may be involved in civil actions for nonsupport or for carnal assault, in fornication and bastardy proceedings, in probate proceedings, and in criminal prosecutions for rape and for seduction.

The scientific value of the blood-grouping tests has been well received in continental Europe.²³ In the German, Austrian, and Scandinavian courts, it has not been uncommon for blood-tests to be made and the results to be offered and accepted in evidence. Although the English courts have been slower to adopt them, there has been at least one successful appeal in Ireland where the blood-test proved the impossibility of paternity.²⁴ We may well ask, then, how have our own courts and legislatures reacted as to the acceptance into the law of these well established discoveries? The question of blood-tests, as to their value or as to the power of a court to order that such tests be made, has been considered in at least ten jurisdictions in this country: Pennsylvania, Ohio, Connecticut, South Dakota, New York, Wisconsin, Maryland, New Jersey, Montana, and California.

(1) *Pennsylvania*. Apparently the first report of blood-tests in a legal proceeding in the United States was in Pennsylvania in 1931, in the case of *Commonwealth v. Zammarelli*.²⁵ The prosecutrix was an unmarried girl of 17, and fornication and bastardy were the offenses charged in the indictment. In defense of the bastardy charge, a pathologist at the Uniontown Hospital made blood-tests and offered testimony to show that the defendant could not possibly have been the father of the prosecutrix's child: the defendant was Type O, the mother Type A, and the child Type B (cf. Table 2, mating 2, supra). Apparently disregarding this evidence, however, the jury found the defendant guilty, and their verdict was upheld by the trial court. Fortunately on appeal the county court reversed the decision and granted a new trial,

²³For example, the Supreme Italian Court of Cassation said in one of its opinions: "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 filiation 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." (Quoted in (Jan. 16, 1934) 1 U. S. L. Week, No. 20, p. 8, also quoted in *Beuschel v. Manowitz*, (1934) 151 Misc. Rep. 899, 902, 271 N. Y. S. 277, 281.)

²⁴*Bernstein Blood Test as Evidence*, (1932) 66 Irish L. Times 111; 66 Irish L. Times 64.

²⁵*Commonwealth v. Zammarelli*, (1931) 17 Pa. D. & C. 229.

because of the contrary uncontroverted expert testimony based on scientific knowledge.

Yet this final result has not been of sufficient weight in *Commonwealth v. Morris* (another Pennsylvania case involving fornication and bastardy charges) for the court to compel the prosecutrix to give a drop of her blood and a drop of blood of her child.²⁶ The court said:

"As there is in this state no statute regulating physical examination of litigants, we are at a loss to understand how any such order could be enforced. . . . To refuse to allow the case to be tried unless and until the mother consented to the blood test requested would probably result in transferring liability for the child's support to the poor district or some charitable agency. Obviously, such result would be highly improper and unjust. If the court is to exercise the extraordinary power to make an order such as the one sought in the present case and compel obedience thereto, authority for such an act must come from the legislature."²⁷

Since the court gave the shop-worn argument that proper authority must come from the legislature, it apparently preferred to let the defendant bear the burden of supporting the child, regardless of the fact that he might be innocent, rather than to transfer "liability for the child's support to the poor district or some charitable agency."

The case of *Commonwealth v. Visocki*,²⁸ however, was in keeping with the final result in the previous *Zammarelli Case*. The *Visocki Case* was an action for desertion and nonsupport of a wife and minor child. The wife was 20 years old, and the husband 42, and the child was born in wedlock, apparently 7 months after the marriage. The husband claimed that he had never had intercourse with his wife, because he had heard on the evening of their wedding day that she was pregnant. Two physicians called by the defendant testified that they had made blood-tests of him, of the mother, and of the child, and that it was impossible for the defendant to be the father of the child. On the other hand, a physician called by the prosecutrix testified:

"It is very controversial, the whole proposition, and that is admitted by one of the outstanding men of the country, Dr. Sanford B. Hooker, who in one of his works states in italics, 'Blood grouping tests can never affirmatively fix paternity on a man. They may exonerate him.'"²⁹

²⁶*Commonwealth v. Morris*, (1934) 22 Pa. D. & C. 111.

²⁷*Commonwealth v. Morris*, (1934) 22 Pa. D. & C. 111, 113.

²⁸*Commonwealth v. Visocki*, (1935) 23 Pa. D. & C. 103.

²⁹*Commonwealth v. Visocki*, (1935) 23 Pa. D. & C. 103, 107.

The court was sagacious enough to see the fallacy of this argument and to realize that this was exactly what the blood-tests had done here, namely, exonerated the defendant. Accordingly, the case was dismissed.

The recent case of *Commonwealth v. English*,³⁰ however, is in line with the *Morris Case*. English was prosecuted in municipal court for fornication and bastardy; after the jury was sworn, his attorney moved to order the prosecutrix to submit herself and her child for blood-grouping tests of their blood and of English's blood (by or under the supervision of a qualified physician approved by the court), the results to be admitted in evidence on the question of English's paternity or non-paternity, and for the court to continue the trial of the case pending the taking of such tests. This motion was refused, and on appeal the superior court held that this was not an abuse of the trial court's discretion:

"While . . . such an operation is not regarded as entailing any serious danger to the health of the patient [sic.], it cannot be said that there is no danger for there is always some risk of infection. Until the Legislature finds that blood grouping tests have attained such scientific standing as to possess probative value as to paternity [sic.] . . ., the courts have not the power in a criminal case such as this to compel a prosecutrix or other witness to submit her body [sic.] for blood tests."³¹

The superior court may be partially forgiven for this ruling, however, in view of this later statement:

". . . The record is entirely void of proof as to the scientific accuracy of such test. We have only the assertions of counsel in the argument and reference to certain scientific discussions."³²

(2) *Ohio*. Several Ohio courts have decided in favor of granting an order that blood-tests be made. The first order was apparently in *State, ex rel. Jones v. Dern* (No. 17106, Court of Common Pleas, Pickaway County), but the case was settled out of court after the test was made.³³ In *State, ex rel. Mitchell v. Baker* (No. 27554, Court of Common Pleas, Licking County), and in a criminal case in Vinton County, the tests in each proceeding "revealed that the defendant might have been the father of the child and evidence of the result was not offered by either

³⁰*Commonwealth v. English*, (1936) 123 Pa. Super. 161, 186 Atl. 298.

³¹*Commonwealth v. English*, (1936) 123 Pa. Super. 161, 169, 186 Atl. 298, 301.

³²*Commonwealth v. English*, (1936) 123 Pa. Super. 161, 170, 186 Atl. 298, 301.

³³Smith, Legal Applicability of Blood Group Tests, (1935) 1 L. J. Stu. B. A. Ohio S. U., 47, 48.

side at the trial."³⁴ This was thoroughly sound, because the introduction of evidence that it was possible for the defendant to be the father would probably have been highly prejudicial to him.

Two geneticists have reported that they have been able to make two exclusions in ten affiliation suits in Ohio, both of these being in Franklin County.³⁵ In Wood County Common Pleas Court, Judge Conn recently granted the defendant's motion in *State, ex rel. Verda Van Camp v. Welling*,³⁶ a bastardy proceeding, for an order requiring the complainant and her child to submit to blood-tests.

(3) *Connecticut*. There have been two cases in the New Haven Court of Common Pleas in which blood-grouping evidence has been introduced,³⁷ but in only one case was the evidence determinative.³⁸

(4) *South Dakota*. In *State v. Damm*³⁹ the defendant's step-daughter alleged that he had raped her and that he was the father of her illegitimate child. In October, 1931, the trial court refused the defendant's motion to have blood-tests taken and the resulting

³⁴Smith, Legal Applicability of Blood Group Tests, (1935) 1 L. J. Stu. B. A. Ohio S. U., 47, 48.

³⁵Hyman and Snyder, The Use of Blood Tests for Disputed Paternity in the Courts of Ohio, (1936) 2 Ohio S. U. L. J. 203.

³⁶State, ex rel. Verda Van Camp v. Welling, (1936) 6 Ohio Opin. 371.

³⁷Wiener, Determination of Non-Paternity by Means of Blood Groups, (1935) 186 Am. J. Med. Sci. (N.S.) 257, 264-265.

³⁸The following account of this case is from Time magazine in language curt, clear, concise:

"Father's Blood

"Before a Connecticut justice of the peace one Edna Newton, 21, sulkily accused a Louis Rebuzzini, 28, of fathering her child. The justice believed her. Louis Rebuzzini hired a resourceful lawyer, who in turn hired Dr. Alexander S. Wiener, Brooklyn blood specialist. Dr. Wiener took samples of blood from mother, child and alleged father, examined the bloods this way & that according to the dicta of Nobel Laureate Karl Landsteiner. Last week litigants, lawyers and blood man appeared before a county court in New Haven.

"While Edna Newton listened sulkily and Louis Rebuzzini sullenly, Dr. Wiener discoursed about blood types, O, A, B & AB and certain substances called agglutinogens M & N, reasoned that if this-blood man fertilized that-blood woman, their offspring must have this-or-that blood and could not have such-or-such blood. All this meant that the Landsteiner blood groups can show only that a man is *not* a child's father. But not in every case can blood matching prove innocence. For example, two putative fathers may belong to the same blood group. Nonetheless, the blood groups suffice to clear one out of six falsely accused men.*

"In the New Haven case Louis Rebuzzini happened to be that one. Miss Newton withdrew her charges, convinced that Dr. Wiener's thesis was as valid as her own maternity." (Time magazine, Jan. 30, 1933, p. 43.)

*"If the agglutinogens M & N are also considered, the chances of proving non-paternity (or non-maternity) are one out of three."

³⁹State v. Damm, (1933) 62 S. D. 123, 252 N. W. 7. Also, see Admissibility in Evidence of Results of Landsteiner Blood Grouping Tests, (1934) 43 Yale L. J. 651.

evidence introduced; and he was convicted of second-degree rape. In 1933 the Supreme Court of South Dakota affirmed the conviction, Judge Campbell stating in his opinion:

"... *It does not sufficiently appear from the record in this case* that modern medical science is agreed upon the transmissibility of blood characteristics to such an extent that it can be accepted as an unquestioned scientific fact that, if the blood groupings of the parents are known, the blood group of the offspring can be necessarily determined, or that, if the blood groupings of the mother and child are known, it can be accepted as a positively established scientific fact that the blood group of the father could not have been a certain specific characteristic group."⁴⁰ [Italics ours.]

On a rehearing of the case in 1936, Judge Campbell held that, although subsequent developments have made evidence as to blood-grouping admissible in civil cases "whenever paternity is in issue,"⁴¹ the blood-grouping evidence was properly excluded at the time the trial occurred (October, 1931):

"... We think (1) the reliability of the blood test is universally conceded by competent scientific authorities; (2) a trial court of record in this state has inherent power and authority, in its reviewable discretion, to order the taking of blood for such purposes in cases where paternity is an issue and where, in the opinion of the court, the making and reporting of such test will be, or is likely to be, helpful in ascertaining the truth."⁴²

But he then adds:

"Notwithstanding these views, however, we continue to believe that we were right in our former ruling to the effect that the trial court did not err in refusing to make the order requested. We are not at liberty to reverse this case upon the sole consideration of the opinion which we happen in fact to entertain upon the abstract questions hereinbefore discussed and stated. It is our proper function and duty, as an appellate court, to affirm the judgment appealed from, unless we are satisfied that *the record as presented* in the particular case exhibits reversible error in the court below."⁴³ [Italics ours.]

In other words, the defendant's attorney did not get sufficient facts into the record to show the validity of blood-grouping as a test for non-paternity.⁴⁴

⁴⁰State v. Damm, (1933) 62 S. D. 123, 136, 252 N.W. 7, 12.

⁴¹State v. Damm, (S.D. 1936) 266 N.W. 667, 668.

⁴²State v. Damm, (S.D. 1936) 266 N.W. 667, 671.

⁴³State v. Damm, (S.D. 1936) 266 N.W. 667, 671.

⁴⁴In his second opinion, Judge Campbell also said:

"If such reliability was not, at the time of the trial of this case, a matter which the trial court was obligated judicially to notice, then it was necessary for the applicant for the order to prove such reliability by proper and satisfactory expert testimony. Only one witness was called to the point, and his testimony in regard thereto was vague, indefinite, and unconvincing. . . .

(5) *New York*. A number of New York cases have involved the matter of blood-grouping tests. The first reported case is *Beuschel v. Manowitz*,⁴⁵ an action for damages for carnal assault. The plaintiff claimed that as a result of this assault she gave birth to a child, who was about two years old at the time litigation was instituted. The putative father denied that he had had intercourse with the plaintiff, and denied that he was the father of her child; and he moved for an order requiring the plaintiff and her child to submit to have samples of their blood taken, in order that expert witnesses might compare their blood-groups with his own blood-group and draw conclusions therefrom as to the question of paternity. Justice Steinbrink of the supreme court of Kings County granted the motion, under sec. 306 of the New York Civil Practice Act.⁴⁶ On appeal, however, the defendant's motion was denied; the appellate division of the supreme court (second department) unanimously reversed the decision of the lower court, both on the law and on the facts.⁴⁷ The court said:

"Plaintiff may submit or not to the taking of her own blood, but it plainly determines nothing. She asserts, and no one would gainsay it, that she is the mother of this child."⁴⁸

The reliability of the test (conceding our own present conviction that such reliability does exist as a matter of scientific fact) 'does not sufficiently appear from the record in this case,' which is the precise point upon which we sought to base our previous opinion . . . " (S.D. 1936) 266 N. W. 667, 671.)

Judge Campbell further stated that the application was not "timely made," since it was not submitted until the afternoon of the day before the taking of the testimony closed.

⁴⁵*Beuschel v. Manowitz*, (1934) 151 Misc. Rep. 899, 902, 271 N. Y. S. 277, 281. This case has created a great deal of interest and discussion; for instance, see: (Jan. 16, 1934) 1 U.S.L. Week, No. 20, p. 8; Koch, Non-Paternity Tests in Civil and Criminal Actions, (1934) 9 St. Johns L. Rev. 102; Friedman, Evidence: Admissibility of Blood Group Tests to Determine Parentage: Power of Court to Order the Tests, (1935) 20 Cornell L. Q. 232.

⁴⁶Sec. 306 N. Y. C. P. A. reads: "In an action to recover damages for personal injuries, if the defendant shall present to the court satisfactory evidence that he is ignorant of the nature and extent of the injuries complained of, the court, by order, shall direct that the plaintiff submit to a physical examination by one or more physicians or surgeons to be designated by the court or judge, and such examination shall be had and made under such restrictions and directions as to the court or judge shall seem proper. If the party to be examined shall be a female, she shall be entitled to have such examination before a physician or surgeon of her own sex. The order for such physical examination, upon the application of the defendant, may also direct that the testimony of such party be taken by deposition pursuant to this article."

⁴⁷(1934) 241 App. Div. 888, 272 N. Y. S. 165.

⁴⁸(1934) 241 App. Div. 888, 272 N. Y. S. 165, 166. The complete written opinion of the court is as follows:

"Order directing plaintiff and her child to permit the taking of blood for the purpose of determining defendant's paternity of the child reversed on the law and the facts, without costs, and motion denied. *Plaintiff may*

The court missed the point completely! Shortly afterward both a motion for reargument and a motion for leave to appeal to the court of appeals were denied;⁴⁹ also, a motion for leave to appeal from the order of the appellate division was denied.⁵⁰

The effect of the final result in *Beuschel v. Manowitz* is apparent in two other 1934 cases. The same (second) department of the appellate division of the supreme court unanimously affirmed an order of filiation and an order denying a motion that blood-tests be taken, which had been made by the Brooklyn court of special sessions.⁵¹ Also, in a filiation proceeding in the children's court of Westchester County, an order, directing the mother and child (when born) to submit to blood-tests, was not allowed, the court relying on the *Manowitz* decision.⁵²

The picture was changed considerably by three New York statutes enacted in 1935.⁵³ These three blood-grouping statutes

submit or not to the taking of her own blood, but it plainly determines nothing. She asserts, and no one would gainsay it, that she is the mother of this child. A blood test of the defendant and the child may possibly determine his nonpaternity, but it is not claimed, as we understand the record, that such a blood test would determine the defendant's paternity. This child is not a party to this action; and while a court of chancery has an inherent jurisdiction over the welfare of an infant, a ward of the court, nothing in this case indicates in the slightest that the welfare of this infant is in any wise involved or that the blood test could possibly be beneficial to the infant. Section 306 of the Civil Practice Act has no application to the facts of this case." [Italics ours.]

The court offered no reason why sec. 306 "has no application." Yet, that sec. 306 should be *liberally* construed, was indicated some years ago by Judge Hibbs:

"The Legislature, in enacting said statute and thereby changing the common-law rule, must have intended that it should accomplish some useful purpose, promote the ends of justice and be of some practical assistance in the discovery of the truth. . . . There is no doubt about the reason for such enactment. Its purpose was to afford protection to defendants, to enable them to discover the truth in regard to injuries complained to have been received by plaintiffs, and thereby to promote justice." *Hayt v. Brewster, Gordon & Co.*, (1921) 199 App. Div. 68, 71, 191 N. Y. S. 176, 178.

⁴⁹(1934) 242 App. Div. 649, 271 N. Y. S. 1091.

⁵⁰(1934) 265 N. Y. 509, 193 N. E. 295.

⁵¹*Taylor v. Diamond*, (1934) 241 App. Div. 702, 269 N. Y. S. 799.

⁵²*Thomson v. Elliott*, (1934) 152 Misc. Rep. 188, 272 N. Y. S. 898.

⁵³These 1935 statutes were as follows:

Ch. 196 (to be Sec. 306-A of the Civil Practice Act.) "Blood grouping tests. Wherever it shall be relevant to the prosecution or defense of an action, the court, by order, shall direct any party to the action and the child of any such party to submit to one or more blood grouping tests, the specimens for the purpose to be collected by duly qualified physicians and under such restrictions and directions, as to the court or judge shall seem proper. The order for such blood grouping tests may also direct that the testimony of the persons so examined may be taken by deposition pursuant to this article."

Ch. 197 (to be Sec. 67, Subdiv. 1-A of Ch. 659, of the Inferior Criminal Courts Act). "The court, on motion of the defendant, shall order the making

were enacted largely because sec. 306 of the Civil Practice Act had not been found sufficient to compel a party to an action to submit to a blood-grouping test.⁵⁴ However, these statutes were justly criticized on the ground that the court and jury might be tempted to decide against the accused where the alleged (say) father was *not* excluded (the court and jury not recognizing the lack of real probative value in these cases), and accordingly one writer suggested that in *these* instances the law should be held non-applicable notwithstanding the fact that the defendant had originally requested the test.⁵⁵ That this criticism was sound is demonstrated by two decisions which construed one of the new statutes (namely, sec. 306-A C.P.A.). *Flippen v. Meinhold* was an action for damages for breach of contract for the support of the plaintiff's child, of whom the defendant was allegedly the father.⁵⁶ The situation here was unique in that it was the plaintiff (mother) who applied for an order directing the defendant and the plaintiff's child to submit to blood-grouping tests, pursuant to sec. 306-A. The court held that the plaintiff was not entitled to the order, because the tests can be used to exclude but not to prove paternity.⁵⁷

In the case of *In re Swahn's Will*⁵⁸ the son of the testator contested his last will and testament on the ground that the testator's daughter had procured its execution through false representations that she was the mother of certain children. Under sec. 306-A, the court held that the contestant son was entitled to an order requiring the testator's daughter and her children to submit to blood-grouping tests as an indication of their maternity. But the

of one or more blood-grouping tests by a duly qualified physician and the results thereof may be received in evidence."

Ch. 198 (to be Sec. 126-A of the Domestic Relations Law). "Blood grouping tests. The court, on motion of the defendant, shall order the making of one or more blood-grouping tests by a duly licensed physician and the results thereof may be received in evidence."

⁵⁴Cf. *Beuschel v. Manowitz*, (1934) 151 Misc. Rep. 899, 271 N. Y. S. 277; (1934) 241 App. Div. 888, 272 N. Y. S. 165; (1934) 242 App. Div. 649, 271 N. Y. S. 1091; (1934) 265 N. Y. 509, 193 N. E. 295; *Taylor v. Diamond*, (1934) 241 App. Div. 702, 269 N. Y. S. 799; *Thomson v. Elliott*, (1934) 152 Misc. Rep. 188, 272 N. Y. S. 898.

⁵⁵*Flacks, Evidential Value of Blood Tests to Prove Non-Paternity*, (1935) 21 A. B. A. J. 680, 681.

⁵⁶*Flippen v. Meinhold*, (City Court of New York City, 1935) 156 Misc. Rep. 451, 282 N. Y. S. 444.

⁵⁷*Flippen v. Meinhold*, (City Court of New York City, 1935) 156 Misc. Rep. 451, 452, 282 N. Y. S. 444, 445, quoting (1935) 104 J. Am. Med. Assn. No. 22, p. 2002.

⁵⁸*In re Swahn's Will*, (Surrogate Court, Kings County 1936) 158 Misc. Rep. 17, 285 N. Y. S. 234; also reported in full in (Jan. 28, 1936) 95 N. Y. L. J. 507 under heading, "Matter of Peterson."

court held that the contestant was not entitled to an order directing the putative father to submit to blood-grouping tests, because he was neither a legatee nor a statutory distributee of the decedent nor a party at all to the probate proceedings.⁵⁹

As a result of these two decisions it was clear that the three 1935 statutes needed to be amended so that the three persons concerned (the child, the actual or alleged mother, and the actual or alleged father) should be required to submit to blood-grouping tests, but that the results of the tests should be receivable in evidence *only* in those instances in which definite exclusion is established.^{59a} Otherwise, as has already been pointed out, if evidence should be admitted in a case in which the alleged father's blood happens to be of the same type as that demanded by the tests of the mother and child, this evidence could easily influence the judge or jury to decide unjustly against the alleged father. Accordingly, the three 1935 statutes were amended in 1936⁶⁰ so

⁵⁹The court relied on the wording of sec. 306-A N. Y. C. P. A.: "... any party to the action and the child of any such party."

^{59a}As a result of the 1935 legislation, Supreme Court Justice John L. Walsh ordered blood-grouping tests in *Schirp v. Hatch*, a breach-of-promise case. (N.Y. Times, June 26, 1935, p. 23.) In affirming an order for the support of the defendant's wife and minor child, the appellate division (second department) of the supreme court held that the defendant was "... entitled to the blood grouping test under the provisions of section 306-a of the Civil Practice Act, if he makes application to the children's court seasonably." [In re *Lentz*, (1935) 247 App. Div. 31, 34, 283 N. Y. S. 749, 753.] "But cf. *McDonald v. McDonald*, N. Y. L. J., Sept. 29, 1936, p. 907, col. 6, *aff'd* by appellate division, N. Y. L. J., Nov. 7, 1936, p. 1572, col. 2 (denial of blood test in divorce case where a *specific* act of adultery was alleged by the husband; but *quære* whether a finding of non-paternity would not be relevant to the allegation, although such a finding alone could not show adultery by the wife with any particular individual). Blood tests in divorce suits or other husband-wife litigation may be limited by the distaste for '... a result which would stigmatize the child in a divorce proceeding which may be unsuccessfully prosecuted.' *McDonald v. McDonald*, *supra*." [Domestic Relations—Blood-Grouping Tests to Determine Non-Paternity—The New York Legislation of 1935 and 1936, (1937) 37 Col. L. Rev. 156, 158 footnote 13.]

⁶⁰The 1936 amendments, sponsored by Assemblyman Charles H. Breitbart, are set forth below. Matter in parentheses is old law, i.e., the 1935 wording, (Chs. 196, 197, 198) to be omitted; italicized portions are new law:

Sec. 306-A of the Civil Practice Act. "Blood grouping tests. Wherever it shall be relevant to the prosecution or defense of an action, the court, by order, shall direct any party to the action and the child of any such party and the person involved in the controversy to submit to one or more blood grouping tests, the specimens for the purpose to be collected and the tests to be made by duly qualified physicians and under such restrictions and directions, as to the court or judge shall seem proper. *Whenever such test is ordered and made, the results thereof shall be receivable in evidence only where definite exclusion is established.* The order for such blood grouping tests may also direct that the testimony of *such experts and of the persons so examined* may be taken by deposition pursuant to this article."

Sec. 67 of Art. 5 of Ch. 659 of the Inferior Criminal Courts Act. "The court, on motion of the defendant, shall order the (making of) *mother, her*

as to define clearly the persons who shall be submitted to the tests, and so as to restrict their admissibility in evidence to those instances where *an exclusion is obtained*.⁶¹ It should be noted that New York does not recognize the common-law rule permitting the exhibition of infants and children to the jury in order to establish a resemblance.⁶²

It has been suggested that an appropriate section should be added to the Code of Criminal Procedure in order to extend the availability of the tests to criminal cases (such as rape and seduction). "Certainly if a defendant is denied blood tests where such are relevant, and is convicted, his guilt has not been proved beyond a scientific doubt."^{62a} Such an addition to the Code of Criminal Procedure has recently been proposed by Assemblyman Charles H. Breitbart.^{62b} Mr. Breitbart has also introduced a bill to amend sec. 940 of the Code of Criminal Procedure, so as to authorize blood-grouping tests on defendants in criminal cases at the time of arrest and fingerprinting.^{62c}

Dr. A. S. Wiener, Brooklyn blood specialist, has recently reported fifteen cases "in the New York courts in which it was proved by blood tests that a particular person was not the parent of a particular child. These cases were a part of a larger number in which tests were conducted by the writer. In the cases other

child and the defendant, to submit to one or more blood-grouping tests by a duly qualified physician to determine whether or not the defendant can be excluded as being the father of the child, and the results (thereof) of such test may be received in evidence but only in cases where definite exclusion is established."

Sec. 126-A of the Domestic Relations Law. "Blood grouping tests. The court, on motion of the defendant, shall order the (making of) mother, her child and the defendant to submit to one or more blood grouping tests by a duly (licensed) qualified physician to determine whether or not the defendant can be excluded as being the father of the child, and the results (thereof) of such tests may be received in evidence but only in cases where definite exclusion is established."

⁶¹Before being submitted to the Legislature, these 1936 amendments had been approved by the Association of the Bar of the City of New York [according to (April 20, 1936) 95 N. Y. L. J. 1996]. As an indication of increasing interest in blood-grouping tests among lawyers in New York City, see the issues of the N. Y. L. J. (either editorials or correspondence) as follows: Feb. 13, 1932; June 20, 1933; Dec. 28, 1934; Jan. 9, 1935; Jan. 12, 1935; Feb. 4, 1935; Sept. 26, 1935; Oct. 29, 1935.

⁶²In *re* Turnbull, (1889) 51 Hun 642, 4 N. Y. S. 607; *Bilkovic v. Loeb*, (1913) 156 App. Div. 719, 141 N. Y. S. 279; In *re* Wendel, (1933) 146 Misc. Rep. 260, 262 N. Y. S. 41, all cited by Koch, *Non-Paternity Tests in Civil and Criminal Actions*, (1934) 9 St. Johns L. Rev. 102, 112.

^{62a}*Domestic Relations—Blood-Grouping Tests to Determine Non-Paternity—The New York Legislation of 1935 and 1936*, (1937) 37 Col. L. Rev. 156, 161 footnote 36.

^{62b}Bill No. 2601, Int. 2248, March 24, 1937.

^{62c}Bill No. 2602, Int. 2249, March 24, 1937; also, cf. N. Y. Times, March 25, 1937, p. 2.

than these fifteen the test did not give an answer to the question, the reason for this being that the only kind of conclusive answer that the test affords is a negative answer."⁶³

(6) *Wisconsin*. Exceptionally good blood-test laws were enacted in Wisconsin in 1935.⁶⁴ These statutes were "framed by a recognized medical authority, with the aid of members of the faculty of the University of Wisconsin Law School."⁶⁵

(7) *Maryland*. In Baltimore, Maryland, at least twenty-four determinations of blood-groups have been made at the request of members of the Supreme Bench.⁶⁶

(8) *New Jersey*. A bill has recently been introduced in the New Jersey Legislature almost identical with the Wisconsin statutes.^{66a}

⁶³Wiener, *Blood Grouping Tests in the New York Courts*, (1936) 70 U. S. L. Rev. 683. For additional data as to the fifteen cases, see Wiener's Table 3, at p. 687.

⁶⁴Wisconsin, Laws 1935, ch. 351, No. 758A—to create sections 166.105 and 325.23 of the statutes:

"(166.105) EVIDENCE: BLOOD TESTS. Whenever it shall be relevant to the prosecution or the defense in an illegitimacy action, the trial court, by order, may direct that the complainant, her child and the defendant submit to one or more blood tests to determine whether or not the defendant can be excluded as being the father of the child. The result of the test shall be receivable in evidence but *only in cases where definite exclusion is established*. The tests shall be made by duly qualified physicians, or other duly qualified persons, not to exceed three, to be appointed by the court and to be paid by the county. Such experts shall be subject to cross-examination by both parties after the court has caused them to disclose their findings to the court or to the court and jury. *Whenever the court orders such blood tests to be taken and one of the parties shall refuse to submit to such test, such fact shall be disclosed upon the trial unless good cause is shown to the contrary.*" [Italics ours.]

"(352.23) BLOOD TESTS IN CIVIL ACTIONS. Whenever it shall be relevant in a civil action to determine the parentage or identity of any child, person or corpse the court, by order, may direct the party to the action and the person involved in the controversy to submit to one or more blood tests, to be made by duly qualified physicians or other duly qualified persons, under such restrictions and directions as the court or judge shall deem proper. Whenever such test is ordered and made the results thereof shall be receivable in evidence, but *only in cases where definite exclusion is established*. The order for such blood tests also may direct that the testimony of such experts and of the persons so examined may be taken by deposition. The court shall determine how and by whom the costs of such examination shall be paid." [Italics ours.]

⁶⁵(Oct. 29, 1935) 94 N. Y. L. J. 1542.

⁶⁶Vogelhut, *The Forensic Applications and Evidential Value of the Blood Group Tests*, (1936) 6 Detroit L. Rev. 101; previously appeared in *Baltimore Daily Record*, Nov. 18, 1935.

^{66a}One phrase has purposely been omitted: "and to be paid by the county," in the third sentence of the first section of the Wisconsin law. Cf. footnote 64 supra. [Levine, *The Use of Blood Tests in Paternity Disputes—Part I* (Jan. 14, 1937) 40 N. J. L. J. 9; Part II, (Jan. 21, 1937) 40 N. J. L. J. 17, 21.] The assembly bill no. is 359. [Wiener, *Voice of the Bar*, (March 11, 1937) 40 N. J. L. J. 76.]

(9) *Montana*. A similar bill is being sponsored in Montana.^{66b}

(10) *California*. There is also a bill pending in the California Legislature to add to the California Code of Civil Procedure a sec. 1872, practically identical with the present sec. 306-A of the New York Civil Practice Act.^{66c} "It is interesting to observe that the Superior Court of Los Angeles, California, in the case of *Arais v. Kalesnikoff* (not reported) . . ., directed the defendant, a married man 70 years old whose impotency was testified to by himself and his wife, to contribute to the support of a child of a married woman who charged him with the parentage of the child four years after its birth, although the blood test performed upon the defendant, the woman and her child exonerated him and by the difference in the blood properties proved beyond a scientific doubt that the defendant could not possibly be the father of the child in question. An appeal from the judgment is now pending in the district court of appeals, second appellate court of California. . ."^{66d}

V. ALLEGED OBJECTIONS TO THE BLOOD-GROUPING TESTS

At least six objections have arisen with regard to the blood-grouping tests as evidence in the courts.⁶⁷ Each objection is unsound.

(1) The accused may claim that the test is scientifically inaccurate and is not accepted by the scientific world. Yet, "It is erroneous to assume that the non-paternity test is the subject of fundamental scientific controversy. National and international authorities in science are in agreement as to the technic, interpretation and application of the procedure."⁶⁸ In fact, the tests

^{66b}Levine, *The Use of Blood Tests in Paternity Disputes—Part I*, (Jan. 14, 1937) 40 N. J. L. J. 9.

^{66c}Wiener, *Voice of the Bar*, (March 11, 1937) 40 N. J. L. J. 76.

^{66d}Wiener, *Voice of the Bar*, (March 11, 1937) 40 N. J. L. J. 76.

⁶⁷The Committee on Medico-Legal Problems of the Section of Criminal Law, of the American Bar Association, reports: "A few courts in the United States seem during recent years timorously to have admitted evidence of blood grouping in bastardy cases, but two objections have generally stood in the way of the admission of such evidence:

"1. The difficulty of proving to the satisfaction of the court that the principles and practice of blood grouping are accepted as trustworthy within the limits assigned to them, by qualified students and practitioners of the science and art of blood grouping.

"2. The difficulty of compelling the parties to a proceeding to permit the taking of the specimens of the blood necessary for the determination of blood grouping." (Section of Criminal Law—Program and Committee Reports to be presented at the Annual Meeting, August 25, 26, 1936, Boston, Mass., p. 29.)

⁶⁸Koch, *Non-Paternity Tests in Civil and Criminal Actions*, (1934) 9 St. Johns L. Rev. 102, 103.

had been well validated for many years before 1931, the date of the first reported case above.⁶⁹

(2) The objection has also been raised that there is an insufficient number of cases of proof of non-paternity by blood-tests. In answer, it may simply be said once more that the tests are so valid that by 1929 Schiff had collected 5,584 cases from Teutonic and Scandinavian jurisdictions alone which fully corroborated the "A" and "B" tests,⁷⁰ and that there have been many thousands of cases since;⁷¹ and that at least 20,000 bloods have also been tested for the "M" and "N" factors.⁷²

(3) "The objection has been raised that the test is of negative force and application. There is universal accord among scientists that such is indeed the case: the test operates in the negative. This should be no bar to the acceptance of the procedure in law; the admission of alibi evidence is of similar negative character and not susceptible of the same probative evaluation as the non-paternity test."⁷³

(4) "Objection has been offered that the non-paternity test and its interpretation is not sufficiently *obvious* for judicial consideration. The legal fraternity, without special and authoritative knowledge, seems to insist upon evaluating the intrinsic phenomena of non-paternity tests. . . . But it is no more unreasonable to assume that the intelligent lawyer has a nascent appreciation of the phenomena of science than it is to make it conclusive on the scientist that he knows the law. The heredity of blood groups and the application thereof is as *obvious* to the scientist as is the rule against perpetuities and the application thereof to the lawyer; that some of each class do not apprehend the respective subjects with the desired clarity of vision, and, that such esoteric wisdom is not *obvious* to members of the opposite profession is merely evidence

⁶⁹"The skeptic may point to a number of reports, published in medical journals, of supposed changes in blood groups in consequence of disease. The explanation of these observations is that they resulted from technical errors occurring when the tests were performed. Not one of these reports was written by an experienced investigator or by a recognized authority in the field." (Wiener, Blood Grouping Tests in the New York Courts, (1936) 70 U. S. L. Rev. 683, 690.)

⁷⁰Flacks, Evidential Value of Blood Tests to Prove Non-Paternity, (1935) 21 A. B. A. J. 680, 681; Hooker and Boyd, Blood-Grouping as a Test of Non-Paternity, (1934) 25 J. Crim. L. 187.

⁷¹Koch, Non-Paternity Tests in Civil and Criminal Actions, (1934) 9 St. Johns L. Rev. 102, 105.

⁷²Hooker and Boyd, Blood-Grouping as a Test of Non-Paternity, (1934) 25 J. Crim. L. 187, 194.

⁷³Koch, Non-Paternity Tests in Civil and Criminal Actions, (1934) 9 St. Johns L. Rev. 102, 104. With regard to an innocent man: "Should it be found that his blood group is that of the father of the child, his case should not be considered unduly prejudiced unless all other possible fathers are also tested and eliminated save he." [Parr, The Solution of Medicolegal Problems by Blood Grouping Tests, (1932) 1 J. Med. Assn. Alabama 429, 433; quoted by Koch, Non-Paternity Tests in Civil and Criminal Actions, (1934) 9 St. Johns L. Rev. 102, 104.]

of the woeful ignorance under which humanity labors. . . . The physical manifestation of a non-paternity test as a corporeal characteristic is as obvious to a scientist as an external body wound; and as between the two, an expert opinion, expressed with mathematical accuracy, is by far the more obvious on the side of the non-paternity test."⁷⁴

As a matter of fact, no two blood experts could possibly disagree as to the results of a blood-test, for there are only two possibilities: agglutination ("clumping") either occurs, or it does not occur; there is no "half-way" response.

(5) Any party to the proceeding, or witness, may object to being compelled to furnish the sample of his blood necessary for the determination of blood-grouping.⁷⁵ In New York and in Wisconsin this problem is now met by statutes;⁷⁶ but, in the absence of statutes, it may be a real task to convince a court that an order should be made compelling blood-grouping tests.⁷⁷ The court may simply claim that it cannot act without definite authority from the legislature.⁷⁸

The objection of being compelled to submit to the tests should not be a valid one, either in criminal or in civil cases.⁷⁹ In *criminal* cases, the claim is made of constitutional privilege of immunity from self-incrimination. The privilege against self-incrimination, however, refers only to testimonial evidence, whereas

⁷⁴Koch, *Non-Paternity Tests in Civil and Criminal Actions*, (1934) 9 St. Johns L. Rev. 102, 106.

⁷⁵Cf. note 67 *supra*.

⁷⁶See notes 60 and 64 *supra*. Hyman and Snyder, *The Use of Blood Tests for Disputed Paternity in the Courts of Ohio*, (1936) 2 Ohio S. U. L. J. 203, set forth the "model laws" drafted by Dr. Alexander S. Wiener. The New York and Wisconsin legislation seems superior, however, especially because evidence can be admitted "only in cases where definite exclusion is established."

⁷⁷For example, *Commonwealth v. Morris*, (1934) 22 Pa. D. & C. 111, 113; *Commonwealth v. English*, (1936) 123 Pa. Super. 161, 169, 186 Atl. 298, 301.

⁷⁸The problem of compelling a party or a witness to submit to the tests exists even in the German courts, which have been liberal in allowing the results of the tests, when submitted to voluntarily, to be offered in evidence. [Schumacher, Bonn, Germany, *The Iso-Agglutination Test as Evidence in Judicial Proceedings in German Courts to Determine Parenthood*, (1934) 8 St. Johns L. Rev. 276, esp. 280.]

⁷⁹The following four questions are discussed in a recent article: "(1) Do the courts have the power in a civil suit involving a paternity determination to compel a plaintiff and her child to submit to a blood grouping test? (2) Does the same power exist in a criminal case to compel a prosecutrix and her child to submit to such a test? (3) Should a plaintiff in a civil action involving a paternity question be given the right to have a blood grouping test made on the defendant? (4) Can an accused in a criminal case be compelled to submit to a blood grouping test, and under what circumstances, if any, should the results be admitted in evidence?" Muehlberger and Inbau, *The Scientific and Legal Application of Blood Grouping Tests*, (1936) 27 J. Crim. L. 578, 586.

the results of blood-grouping tests certainly fall into the class of evidence known as "real" evidence. Mr. Justice Hughes has said:

"... The prohibition of compelling a man in a criminal court to be witness against himself is a prohibition of the use of physical or moral compulsion to extort communications from him, *not an exclusion of his body as evidence when it may be material.*"⁸⁰

[Italics ours.]

And as to *civil* cases: "Requiring a witness to give a drop of blood for use as the basis of evidence in a judicial investigation is a mere bagatelle compared to what the courts constantly require. A witness whose flight is feared will be put in prison, and even in some cases denied bail. A plaintiff in a personal injury suit will be compelled to submit to physical examination. If paralysis is claimed, tests will be applied of the plaintiff's sensitiveness to pain. If for the purposes of a judicial inquiry a witness may be put in prison or subjected to physical pain, or required, within reasonable limits, to exhibit a wound or disfigurement of the body to the jury, surely a specimen drop of blood may also be required. The greater must include the less."⁸¹

(6) Objection has also been offered as to the expense of the tests:

"The immense majority of applications for orders of affiliation are made by poor persons against poor persons, and the money for elaborate laboratory work and expert evidence upon its results is not there."⁸²

There are at least two reasons why this objection is without merit. In the first place, investigation by the present writer has revealed that the cost of the "A-B" test in the United States (at least) is usually about \$3.00 to \$5.00, which would mean a total cost for three persons of about \$9.00 to \$15.00; and the laboratory of almost any large hospital is equipped to make the "A-B" test and to give the results in very short order. Fees for the "M-N" test, and for expert testimony, would of course be additional. Yet an innocent man, no matter how poor, would surely prefer to pay out a small sum for the two types of test and for expert testimony rather than to have to support some other man's child indefinitely. In the second place, even if the sum should be considered high, the state could furnish experts to make the tests.⁸³

⁸⁰Holt v. United States, (1910) 218 U. S. 245, 252, 31 Sup. Ct. 2, 6, 54 L. Ed. 1021, 1030.

⁸¹Lee, Blood Tests for Paternity, (1926) 12 A. B. A. J. 441, 442.

⁸²Blood Groups in Affiliation Cases, (1934) 48 Just. Peace & Loc. Govt. Rev. 353.

⁸³For additional references on the problem of blood-grouping as a

VI. THE PROBLEM OF "CULTURAL LAG"

Many of the courts are to be commended for their acceptance of the principles of blood-grouping—viz., the Pennsylvania courts in *Commonwealth v. Zammarelli*⁸⁴ and in *Commonwealth v. Vissocki*;⁸⁵ and certain courts in Ohio, Connecticut, New York, and Maryland. Other courts, however, have not only rendered possible injustice but have retarded the acceptance and use of scientific findings for many years—viz., the Pennsylvania courts in *Commonwealth v. Morris*,⁸⁶ and in *Commonwealth v. English*,⁸⁷ the South Dakota court in *State v. Damm*,⁸⁸ the New York courts in *Beuschel v. Manowitz*,⁸⁹ *Taylor v. Diamond*,⁹⁰ and *Thomson v. Elliott*⁹¹ (also cf. *In re Swahn's Will*).⁹² "A wrong decision does not end with itself: it is a precedent, and, with the swing of sentiment, its bad influence may run from one extremity of the arc to the other."⁹³

test for non-parentage, see: Findlay, Blood Groups and Filiation, (Aug. 20, 1932) 74 L. J. 118. The Four Blood Groups in Evidence, (Feb. 27, 1932) 76 Sol. J. 138. Blood Tests in Paternity Cases, (1932) 6 Australian L. J. 113. Wiener, On the Usefulness of Blood-Grouping in Medicolegal Cases Involving Blood Relationship, (1933) 24 J. Immunol. 443, 450. Flacks, The Evidential Value of Blood Tests, (1934) 1 U. of Chi. L. Rev. 798. Hippenmeyer, Criminal Law—Evidence—Blood Tests, (1934) 9 Wisc. L. Rev. 314. Evidence—Admissibility of Blood Tests, (1934) 22 Georgetown L. J. 583. Evidence—Admissibility of Blood Group Test to Establish Non-Parentage, (1934) 82 U. of Pa. L. Rev. 654. Friedman, Evidence: Admissibility of Blood Group Tests to Determine Parentage: Power of Court to Order the Tests, (1935) 20 Cornell L. Q. 232. Stonham, The Value of Blood Tests in Affiliation and Other Cases, (June 15, 1935) 9 Australian L. J. 53. Power of Court to Order Blood Tests to Determine Non-Paternity, (1935) 44 Yale L. J. 508. Wiener, Determining Parentage, (1935) 40 Sci. Mo. 323. Elsdon-Dew, Medicolegal Application of Blood-Grouping with Reference to Paternity, (1936) 10 So. Afr. Med. J. 715. Blood Grouping Tests, (1936) 70 U. S. L. Rev. 667. Blood Group Tests as Probative Evidence in Determining Parentage, (1936) 11 Temple L. Q. 79. Judicial Recognition of Blood Tests for Determination of Parentage, (1937) 23 Virginia L. Rev. 450.

Also, for a more complete discussion of the mechanism of heredity, the chances of determining non-paternity, the technic of blood-grouping, and other scientific references, see the bibliography at the end of the article by Hooker and Boyd, Blood-Grouping as a Test of Non-Paternity, (1934) 25 J. Crim. L. 187.

⁸⁴(1931) 17 Pa. D. & C. 229.

⁸⁵(1935) 23 Pa. D. & C. 103.

⁸⁶(1934) 22 Pa. D. & C. 111.

⁸⁷(1936) 123 Pa. Super. 161, 186 Atl. 298.

⁸⁸(1933) 62 S. D. 123, 252 N. W. 7.

⁸⁹(1934) 241 App. Div. 888, 272 N. Y. S. 165; (1934) 242 App. Div. 649, 271 N. Y. S. 1091; (1934) 265 N. Y. 509, 193 N. E. 295.

⁹⁰(1934) 241 App. Div. 702, 269 N. Y. S. 799.

⁹¹(1934) 152 Misc. Rep. 188, 272 N. Y. S. 898.

⁹²(1936) 158 Misc. Rep. 17, 285 N. Y. S. 234.

⁹³Mr. Justice Sutherland in *Adkins v. Children's Hospital*, (1923) 261 U. S. 525, 561, 43 Sup. Ct. 394, 402, 67 L. Ed. 785, 798.

It is this second group of cases which presents a real problem. These cases demonstrate only too well that there may be a "cultural lag" of many years between the empirical demonstration that a certain proposition is true, and its acceptance by the courts.⁹⁴ "Where one part of culture changes first, through some discovery or invention, and occasions changes in some part of culture dependent upon it, there frequently is a delay in the changes occasioned in the dependent part of culture."⁹⁵ This delay is the cultural lag. Culture has been divided (only for purposes of analysis) into material culture, non-material culture, and adaptive culture.⁹⁶ Although it is true that the blood-grouping test is part of the material culture in that it is a thing, it is also non-material in that it involves a way or technique of doing something. There has been a serious lag in the adaptive culture in the second group of cases mentioned.⁹⁷ In each instance the court balked at the notion of compelling a person to furnish a drop or two of blood. In the *Morris* and the *English Cases*, the Pennsylvania courts were afraid to act without definite authority from the legislature. The 1933 decision in the South Dakota *Damm Case* was equally unfortunate; for it was not until 1936 that this same court intimated that South Dakota judges may hereafter take judicial notice of blood-grouping as a sufficiently valid scientific procedure to entitle competent testimony based thereon to be admitted in evidence,⁹⁸ and even then would not allow Mr. Damm to avail him-

⁹⁴The expression "cultural lag" was coined by Professor W. F. Ogburn some years ago to denote the slowness of change which at times characterizes certain parts of human culture. [Ogburn, *Social Change* (1922).]

⁹⁵Ogburn, *Social Change*, p. 201.

⁹⁶Examples of material culture are houses, machines, raw materials, manufactured products, and other material objects. Examples of non-material culture are customs, beliefs, techniques in work—in other words, ways of using the material objects of culture. Adaptive culture is simply that portion of the non-material culture which is adjusted to the material conditions. Different parts of culture change at different rates; for instance, material culture may change before the non-material culture, and this may mean a serious time "lag" in the adaptive culture. [Cf. Cairns, *Law and the Social Sciences*, (1935) 163 ff.]

⁹⁷As other legal examples of cultural lag: "In 1923 an Illinois Court [People v. Berkman, (1923) 307 Ill. 492, 500, 139 N. E. 91, 94] held that it was preposterous to believe that anyone could tell that a given bullet had been fired from a specific gun, and thus delayed use in that jurisdiction of the valuable evidence afforded by forensic ballistics. [(1934) 43 Yale L. J. 651.] Similarly, a California court [Lawrence v. Pickwick Stages, (1924) 49 Cal. App. 80, 229 Pac. 885] in 1924 refused to take judicial notice of the safety and advanced state of the science of X-ray examinations, and as a result the adoption of the X-ray in judicial proceedings was retarded in that jurisdiction." [The quotation is from Vogelhut, *The Forensic Applications and Evidential Value of the Blood Group Tests*, (1936) 6 Detroit L. Rev. 101, 127.]

⁹⁸State v. Damm, (S. D. 1936) 266 N. W. 667, 671.

self of the tests.⁹⁹ The disastrous effects are shown even more clearly in the New York case of *Thomson v. Elliott*, where the court relied on the *Beuschel v. Manowitz* decision in refusing an order as to blood-tests.¹⁰⁰ It was only through remedial legislation that the situation was corrected in New York.¹⁰¹

A United States court has said:

"Just when a scientific principle or discovery crosses the line between the experimental and demonstrable stages is difficult to define. Somewhere in this twilight zone the evidential force of the principle must be recognized. . ."¹⁰²

Yet there was no "twilight zone" as to blood-grouping. By the time of the first reported legal proceedings the principles of blood-grouping had been completely validated. Blood-grouping was no idle theory, but a very practical matter, being used in hospitals as a basis for blood transfusions, the determination of accidentally interchanged babies, and other matters.¹⁰³

Why, then, was there this "cultural lag"—a lag of many years from the time of validation of scientific findings to acceptance in certain courts of law? The answer is at least three-fold: inertia of the public—inertia of scientists—inertia of "lawmen":

(1) First of all, the "lag" is due to public inertia. The public is indifferent, and the public is conservative:

(a) Public indifference is apparent. What percentage of the population is affected by the use or non-use of blood-grouping tests? It may be answered that justice is not susceptible of quantitative measurement, that the unjust indictment of one man is as dangerous as if a thousand were involved. To such an argument it can only be said that in the present state of society the similarity exists only in eristic debate. A thousand men convicted unjustly creates a social problem, and a solution is attempted. One, two, three men, victims of injustice, are soon forgotten. If the legal system stands firm, the sacrifice of a mere man here and there is negligible. Do people care—when unemployment glares strong, when war booms close by, when personal affairs are more intriguing?

(b) Equally significant is conservatism, and resistance to changes in the non-material culture. Old methods of behavior

⁹⁹*State v. Damm*, (S. D. 1936) 266 N. W. 667, footnote No. 44 *supra*.

¹⁰⁰(1934) 152 Misc. Rep. 188, 272 N. Y. S. 898.

¹⁰¹*Cf. supra* (pp. 186 ff.) as to New York statutes.

¹⁰²*Frye v. United States*, (1923) 54 App. D. C. 46, 47, 293 Fed. 1013, 1014.

¹⁰³Wiener, On the Usefulness of Blood-Grouping in Medicolegal Cases Involving Blood Relationship, (1933) *J. Immunol.* 443, 450.

exist because of veneration for the past, but they also continue to be used because they represent a minimum of effort, and the line of least resistance. From Pittsburgh to Pierre men hate, disapprove of, and thwart change of tradition.

When it was decided to pasteurize milk, when it was decided to clean farmers' barns and inoculate their cows, the farmers were in arms. The public, which was to benefit, sympathized with the farmers. All this "new-fangled" scientific stuff was nonsense: Didn't our fathers, their fathers, and their fathers before them drink raw milk? Weren't they healthy? So, why all this fuss and rigmarole? The public resented change. Today it would be just as difficult to go back to the old way. Mothers would be scandalized, and all sorts of societies would protest—not because of any full comprehension of what pasteurizing means, but because of wariness of change.

With regard to blood-grouping: What! Adopt these new ideas, when anyone can "see" that the accused is probably guilty? Never! People dislike change.

(2) In the second place, the "lag" is due to inertia of scientists. Scientists are partially at fault in that their material inventions do not always carry with them any plans for reorganizing the existing "set-up" of society. The scientist whose work finally results in an important discovery is often not a crusader or a person who is especially concerned with where and how his findings are applied.¹⁰⁴ His work frequently ends in his laboratory; he leaves the application to others. This means that many findings have to percolate to the surface of attention rather slowly.

Then, too, the courts have so often been filled with the testimony of "experts" who have given highly conflicting statements that judges are necessarily cautious. They have heard the cry of "wolf" so often, in all sorts of cases involving everything from handwriting to homicide, from intoxication to insanity. The lag that exists between scientific discoveries and their legal acceptance is the law's digesting period. Because of unpleasant memories of eating green or unripe discoveries, or at least of eating too quickly, the law has learned to masticate slowly and to allow a considerable period of relaxation before exercising.

The conclusion is that science needs to be even better organized than at present, so that one body of scientists can speak with authority. This also implies that the basic structure of our courts needs to be modified so as to employ permanent juries

¹⁰⁴Dr. Alexander S. Wiener and Dr. Philip Levine are exceptions.

composed of authorities in many fields, physics, chemistry, biology, psychology, and the like.

(3) In the third place, the "lag" is due to inertia of lawyers and judges. This inertia may be due to several factors—the emotional elements in blood-grouping (sex) cases; certain inherent characteristics of "law"; our system of legal education; and the mental laziness of certain lawyers and judges:

(a) One block to scientific social engineering is the arousal of emotional attitudes and behavior—in juries, judges, or legislators. When scientific thinking does not stir up adverse emotions or go contrary to well ingrained emotional habits and ways of thinking, there is little hindrance to its progress. But when intellectual progress strikes emotional barriers, it will probably be blocked. Social scientists agree that war is contrary to true social development, but the thrill when the band plays martial music, the lump in the throat when the colors are displayed, and the emotional responses when men in uniform march past are difficult barriers to sane and scientific plans for peace.

What are the emotional problems in blood-grouping cases? A decision can easily rest on sympathy for a particular woman, or it can rest on addiction to the vague symbols of "Womanhood" and "Mother." The judge and jury may hear how a poor, innocent girl was taken advantage of by a hard, cruel man. He is a rascal, they may say, even to be accused in this affair—make him pay! A good deal of emotional satisfaction may result from punishing him for his alleged violation of the mores.

Similarly, it is difficult for some men to treat any problem which involves sex on any other than an emotional and impulsive basis. For example, there was the president of a large coeducational university who had spent all of his life working with college men and women. At a dinner the question of mother complex came up in a discussion. At once the face of the president grew red and he became blustery. When it was explained that the early attachment of a boy for his mother might have some sexual connotations, he could hardly finish his meal. In the same way, a fornication or bastardy case may touch on the inhibitions of some jurymen or judge and result in little more than emotional gesticulations.¹⁰⁵

¹⁰⁵As a concrete example, a student of mine asked people in various occupations their opinions on the blood-grouping problem: "One was a hard-headed successful lawyer who prides himself on his ability to 'face cold facts.' This is a man to whom I go for advice on questions affecting the law as to property. He gives authentic information which can be relied

(b) The "lag" is also due to inherent characteristics of "law." Even when a social problem is recognized, law-making of any sort is necessarily slow. "Law" stands for a consensus of judgment by a group of plain-clothed men called a "jury," or a group of black-robed men called a "court," or another but larger group of plain-clothed men called a "legislature." It takes time for any of these groups to learn the facts as to a particular situation so that they can "make" new law. Necessarily law works belatedly as a means of social control. Facts must be secured, comparisons must be made, discussions held, arguments advanced, decisions reached, before "law" can be formulated.

(c) "Lag" in the acceptance of scientific findings by "lawmen" is also the fault of our system of legal education. Because of their legalistic training and legalistic lives, lawyers and judges may not realize the necessity of modifications in *non*-material culture; it may be difficult for them to see that a particular idea is out of date and needs to be modified. It may be particularly hard for "lawmen" without special scientific training to appreciate changes and developments in scientific ways or techniques. What percentage of lawyers and judges have ever had adequate training in the natural sciences, so as to be able to appreciate the true significance of the scientific attitude, and the importance of new methods and developments?

Perhaps more crucial is the fact that few lawyers have had sufficient training in the social sciences. In the professional school of law, men are not trained primarily to see social problems, but only to study situations which are in the past and the "rules" of law which apply to those situations. This does not imply that lawyers should become "experts" in either the natural or the social sciences. It does imply that a different type of law school training might give them a way of thinking, an attitude of inquiry, which would be valuable when new social problems arise.¹⁰⁶

upon. When this question came, however, he became excited and emotional. He said that the courts must be shown; that the fact that non-paternity could not be shown in all cases was sufficient reason why the courts would hesitate to take evidence even in cases where it could be shown, and would believe that such evidence was open to doubt. (He had never heard of blood tests used for this purpose although he is a wide reader of current literature.) He talked about it in an excited voice, whereas before, during the same conversation, while giving me some advice as to how to handle a question on the mortgage of our house, he was calm, authoritative and convincing."

¹⁰⁶Another student reports: "There seems to be some confusion in the minds of those who are interested in or affected by the law as to the purpose of the institution. Several acquaintances of mine who practice law have admitted that law and the courts to them means merely a profession

The legal education of lawyers and judges tends to give them an attitude of caution and conservatism. Their other-than professional education has sometimes ceased completely. Hence, their thinking tends to run upon precedent, upon the forms and practices of the past, rather than upon future improvement in the present growth of the law.¹⁰⁷ With this allegiance to the past, legal changes often come about with provoking slowness.

Conservatism and precedent are important in explaining the hesitancy of some courts to accept the validity of blood-grouping tests, and their reticence to compel a party or a witness to furnish a sample of his blood. As well expect clergymen to welcome innovations in their creeds as to expect some courts eagerly to accept new procedures. Nearly always the background of the learned judge, with the owl of wisdom sitting on his shoulder, is that of moral consciousness. He naturally regards himself as a guardian of the group, a carrier of authority, a savior of mores. A particular judge may thus force the law to bow to precedent and to pass by current need with only a nod.

(d) Finally, some lawyers and judges may be mentally lazy, or at least unresourceful. It is quite apparent in some of the blood-grouping cases (e.g., the *English Case* in Pennsylvania, and the first *Damm Case* in South Dakota) that the defendant's counsel simply failed to get the essential facts and expert testimony before the trial court, or into the record for the appellate court. Some of the judges, too, were not resourceful enough to investigate the true value of the blood-grouping tests. They were content to pass responsibility on to the legislature (e.g., *Morris* and *English Cases* in Pennsylvania), or else refused to consider the problem at all (e.g., *Manowitz*, *Diamond*, and *Elliott Cases* in New York). The thinking of these lawyers was lazy, and the minds of the judges were "closed." These "lawmen" refused to concentrate upon an intricate matter, and they distrusted what they did not understand. Because the problematical situation arose in a field of knowledge which was foreign to their own training, they apparently shrank from the task of re-thinking the problem from a different point of view.

In answer to those who might argue that the lawyers who

and a means of earning a living. Either they were entirely skeptical as to its purpose or had seldom, if ever, thought of it in ethical terms. They freely admitted that they used only such evidence and phrases as they thought would effectively sway the judge and the jury in pleading cases."

¹⁰⁷"Their eyes, looking backward for precedent and authority, are blind to the social needs of today and do not see the promise of tomorrow." Ulman, *A Judge Takes the Stand* 155.

failed to get the necessary facts into the record were too busy with other "legal" points in the case and with other office problems, the famous "Brandeis brief" in *Muller v. Oregon*¹⁰⁸ may be pointed to with pride. Mr. Lawyer Brandeis was not too busy with legalistic matters to neglect a factual and realistic preparation of his case for the court. In answer to those who might argue that the judges who failed to recognize the value of the blood-grouping tests were too busy with other "legal" points in the case and with other court problems, the dissenting opinion of Mr. Justice Brandeis in *New State Ice Co. v. Liebmann*¹⁰⁹ may be pointed to with pride. Mr. Justice Brandeis was not too busy with legalistic matters to neglect a factual and realistic discussion of relevant factors which did not appear in the record.

Satius est petere fontes quam sectari rivulos. (It is better to seek the source than to follow the streamlets.)

¹⁰⁸*Muller v. Oregon*, (1908) 208 U. S. 412, 419-420, 28 Sup. Ct. 324, 325-326, 52 L. Ed. 551, 555.

¹⁰⁹*New State Ice Co. v. Liebmann*, (1932) 285 U. S. 262, 280, 52 Sup. Ct. 371, 375, 76 L. Ed. 747, 755.