

Are Dutch Ears Different from American Ears? A Comparison of Evidence Standards

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Ear print identification sounds like a valid forensic science. Perhaps this is why police occasionally use ear prints as a means of identification. Or maybe it is because persons involved in ear print identification cases take the leading ear print experts at their word. Alfred V. Iannarelli, the author of the only book on ear identification, has stated that "earprint identification is an exact science that can be used to prove beyond any reasonable doubt and to a moral certainty that an unknown earprint found at the scene of a crime is that of the known suspect."² Cornelius Van der Lugt, a Dutch policeman, remarkably claims that ear print identification has achieved general acceptance within the forensic community as a means of making a positive identification,³ a claim that lacks support in scientific circles and the forensic science community in the United States. Neither Iannarelli nor Van Der Lugt have had any formal scientific training, ringing true the adage that those with the least education are those that are the most sure on the witness stand.

While the statements of Iannarelli and Van der Lugt on "general acceptance" lack an adequate factual backing, ear print identification is knocking on the door of the American criminal justice system. What is even more fascinating is that ear identification seems to have already established itself within the courts of the Netherlands. The answer to how the field established itself in the Netherlands lies not within the validity of ear print identification, but rather in the difference between Dutch and American evidentiary expectations.

To make an adequate comparison between Dutch and United States procedures and rules regarding expert testimony, it is first necessary to look at the basic issue of ear uniqueness, an initial prerequisite for the validity of ear print identification. Then the focus will switch to the United States and Netherlands systems for admitting expert testimony. Finally, the two systems will be contrasted and the key distinctions might show the reasons why the Netherlands allows such testimony.

OTHER PLAYERS IN EAR IDENTIFICATION

Current ear print "experts" cite to a long history of positive ear identification research, however the truth is more sobering. French policeman Alphonse Bertillon devised a system of identifying persons by body measurements, Anthropometry, in the late 19th century. One of the measurements involved measuring the human ear. However, Anthropometry was generally proved to be unreliable and was ultimately replaced by fingerprint identification. Furthermore, the Bertillon "class characteristics" of "rogues" that was based on more than a dozen different body part measurements did not pretend to arrive at a formula that showed uniqueness of the combined measurements.

In 1906 a Prague doctor, Imhofer, performed studies on several hundred ears, concluding that no two were alike.⁴ Imhofer's studies lacked the breadth required to establish anything more than the fact that the several hundred ears he observed were all different. There were also a few other occasional attempts at researching the identification value of ears. For example, a study of 200 babies in 1960 found that no two babies had identical ears and suggested that, with further research, this could be the ideal method for baby identification.⁵ There are two

important factors to note about most of the studies done over the years. First, the sample pool on which the person based their research was usually very small. Second, most of the studies done concerned comparisons between actual complete ears, not partial or unclear latent ear prints that were developed at a crime scene. However, two persons assert they have done significant research into ear print identification: Alfred V. Iannarelli and Cornelius Van der Lugt.

ALFRED V. IANNARELLI

Alfred V. Iannarelli dedicated over forty years of his life to the study of ears.⁶ He is author of the "Ear Identification",⁷ the only book that is devoted entirely to the subject of ear identification. While he believes that human ears are unique, his work has not established an adequate scientific foundation for his self-titled "earology".

Iannarelli's book is based on his claimed study of thousands of ears. The book outlines an ear classification system based first on a primary classification according to the race and sex of the individual and then on a secondary classification according to "12 anthropometric measurements of the ear." To take these measurements, it is first necessary to divide the ear into eight parts. This is done by placing a piece of glass with a square, divided into eight equal isosceles-right triangles, drawn on it over the ear. The point at which the triangles intersect is placed over the crus of the helix. From the starting point the eight divisions are made in equal, forty-five degree, triangular sections, with the first line running perpendicular to the top of the picture. The measurements are recorded distances, along the dividing lines, between two different points marked on the image of the ear. This allows then for a classification to be devised. He further found it necessary, in cases of significant similarity, for six additional, "subsecondary" measurements to be taken.

What is significant is that comparisons of ear photographs do not have the great potential usefulness within the criminal justice system that latent ear print comparisons might have. Thus, Iannarelli added a section on latent ear print identification to the 1989 edition of his book. In developing latent ear prints at crime scenes, he uses the same method to make visible and lift latent ear prints as is used to lift latent fingerprints. Iannarelli admits that when the ear print of the suspect is being taken, "the technician must duplicate the amount of pressure used by the suspect at the crime scene." How the amount of pressure used at the crime scene is determined or how that pressure is being duplicated is not explained by Iannarelli. To permit a comparison, Iannarelli suggests taking several prints of known ears for comparison purposes at different pressure levels. Thus, it can be determined by general likeness which of the standards approximates the latent print best.

With the ear prints of the suspect taken and the latent print at the crime scene lifted, the ears are ready for comparison. The methodologies outlined by Iannarelli for ear print comparisons differ from that of the measurements taken in ear photograph identification. Distortion in the blurred image of a crime scene ear print does not, according to Iannarelli, give cause to reject ear print comparisons. He instead outlines three other methods: side-by-side, dissecting ear prints and transparency overlay.

Each method works just the way it sounds. In the side-by-side system, the ear images are carefully placed side-by-side and then compared. In the dissection method, the latent print and the known print are both cut into quarters. Then the upper left and bottom right quarters of one print are matched with the upper right and bottom left of the other print and vice-versa. The two jig-saw prints are then studied to see how the criss-crossed sections fit within each other. The transparency method involves making transparent copies of both prints and laying one over another on an overhead projector, where they are compared.

When Iannarelli's book was first published in 1964 under the name *The Iannarelli System of Ear Identification*, the book contained nothing on latent ear print identification. The 1989 edition was self-published and included information concerning ear prints. Iannarelli, despite a long effort, has failed to establish ear identification as a valid science. Perhaps a 1992 review of Iannarelli's book in a peer-review publication says it best when it states:

Twenty-five years after his first text was published, Iannarelli's revised edition provides nothing new in the field of ear identification or ear classification. Forty years of research should have resulted in a text containing incontrovertible evidence to support his theory that, as with fingerprints, there are no two ears that are exactly alike. This is not the case.

Nevertheless, Iannarelli's failings have not deterred others from adopting his methods and conclusions. Foremost among these is the Dutch police official Cornelius Van der Lugt. Van der Lugt's work has established ear identification as a valid form of evidence in the Netherlands.

CORNELIUS VAN DER LUGT

Cor Van der Lugt, like his fellow ear-expert Iannarelli, is a law enforcement person, not a scientist. Other than police training, high school is the highest level of education Van der Lugt has received. Yet, Van der Lugt's "expertise" on ear print identification has allowed him to testify as an expert in several European trials, as well as once in the United States.

Van der Lugt's methods of ear print identification do not significantly differ from those of Iannarelli, whose book he refers to as a standard work in the domain of ear identification. Van der Lugt utilizes slightly modified versions of the transparency overlay and the dissection methods. When taking the actual print, Van der Lugt attempts to control for pressure distortion by taking the prints of the known subject at three different levels: light, normal and hard. The unidentified latent print is then compared to the known print which it resembles the most closely. Van der Lugt posits that the remaining differences between the chosen latent sample and the known impression are minor, explainable variations caused by a predictable level of distortion, and that this does not prevent a comparison and identification.

Van der Lugt offers nothing new to the field of ear print identification, except success in getting the evidence recognized by Dutch courts.

THE FLAWS OF CURRENT EAR PRINT IDENTIFICATION

Iannarelli and Van der Lugt have not provided an adequate basis or methodology for the admissibility of ear prints identification testimony. Too many issues remain to be proven before such evidence ought to be admitted. First, it must be statistically shown that no two ears are alike. Iannarelli's study of a few thousand ears has not shown this, neither has the occasional bit of anecdotal evidence on ear comparisons which surfaces now and then. Even if each ear is different, it still must be proven that the print of an ear is an accurate enough representation of the actual ear to be useful as a means of identification. The ear is a malleable, three-dimensional object, while the ear print is merely a two-dimensional representation of portions of that anatomical part. Thus, it must also be shown that an ear print is an accurate representation of an individual's ear, and any distortion that may occur due to differences in pressure when an ear touches a crime scene surface can be controlled for. None of this has been accomplished.

Both Iannarelli and Van der Lugt have admitted to the existence of those factors that, at least

in the United States, should prevent ear print identification evidence from being admissible. Iannarelli admits that there exists no statistical data showing that no two ears are alike, and that his work had not been subject to either reliability studies or peer review. Van der Lugt admits that the range of distortion has not been statistically backed up.

Ear print identification to date fails to meet any of the Daubert (or Frye) factors. The premises on which the identifications are made have not been tested (certainly not by disinterested parties as required in some jurisdictions); the forensic science community has not peer reviewed the work done by Iannarelli and Cor Van der Lugt, there is not a known or potential rate of error which has been posited, and ear print identification is not generally accepted in the forensic community as a reliable means of personal identification. Why, then, has ear print identification been regularly admitted in the Netherlands? Before potential reasons for this success can be discussed, it is first necessary to look at the applicable American and Dutch laws.

THE LAW OF THE NETHERLANDS

According to his sworn testimony in the American case in which he testified, Cor Van der Lugt's ear print identifications have been submitted in over 200 cases in the Netherlands. In numerous cases, according to Van der Lugt, when the accused is confronted with the evidence of his investigation, they plead guilty. He stated that even when the accuseds deny guilt, the courts have convicted them on the basis of the ear identification evidence.

The ready admission of Van der Lugt's "expert" testimony on ear identification and the corresponding reluctance of American courts to admit such evidence might be explained by the legal system of the Netherlands. Dutch criminal justice differs from United States criminal justice in key areas that might alter the role and requirements of an expert witness.

The courts of the Netherlands are based on the French hierarchical model. At the trial level there are two separate courts, the *kantongerecht* (local court) and the *arrondissementsrechtbank* (district court). *Overtredigen* (misdemeanors) are tried in the local courts, while *misdrijven* (felonies) are tried within the district courts. Local courts appeal to the district courts and district courts appeal to regional *Gerechtshoven* (court of appeals). The *Hoge Raad der Nederlanden* (Supreme Court) is the highest court in the land.

In the Netherlands, there is no jury system as we know it. Rather, decisions on guilt or innocence are made exclusively by either single judges or three-judge panels. Economic cases at the district level are tried by the Economic Police Magistrate and juvenile offenses are tried by the Juvenile Magistrate. The use of judges, rather than jurors is a key difference that weighs in heavily on the possible prejudicial nature of expert testimony.

The Dutch utilize public prosecutors whose function is much more akin to that of a judicial officer than American prosecutors. Dutch public prosecutors possess a great deal of discretion on whether or not the potential defendant is prosecuted. The *subsidiariteits beginsel* (subsidiary principle) holds that prosecutors must not prosecute "unless it is probable that such a (prosecutorial) disposition is more effective than a noncriminal or a less radical criminal disposition." The decision on whether or not to prosecute lies solely in the hands of the prosecutor. This screening process leads to the elimination of approximately half of the cases before they are brought.

While the prosecutor decides whether or not the case is brought, the judge controls almost all aspects of the actual trial. The prosecution merely orally presents the charges to the court at

the beginning of the trial and sums up their case at the end. The defense is allowed to make a speech at the end of the trial. The judge(s) question the defendant and any other witnesses it calls or that are called by the defense or prosecution. The prosecution and defense are allowed to request that certain questions are asked by the judge(s), but whether or not they are asked is at the discretion of the judge(s). The lack of any real cross-examination is a key factor in comparing the Dutch criminal justice system to that of the common law countries. The judge, or a majority of the judges on the panel, determines whether the defendant is guilty. The judge(s) will then, if appropriate, sentence the accused.

U.S. RULES FOR ADMITTING EXPERT TESTIMONY

Frye's general acceptance rule governed the admissibility of expert testimony in the United States for many years. The rule based on this (in)famous quote:

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, and while courts will go a long way in admitting expert testimony deduced from a well-recognized scientific principle or discovery, the thing from which the deduction is made must be sufficiently established to have gained general acceptance in the particular field in which it belongs.

The United States Supreme Court decided in *Daubert* that Frye was superseded by the enactment of the Federal Rules of Evidence. (While *Daubert* is used exclusively in the federal courts, and also in some states that have decided to adopt the *Daubert* rule also as a matter of state law, many states still use the Frye standard of "general acceptance" to determine the admissibility of expert testimony.

The Supreme Court, having determined that the Federal Rules of Evidence superseded Frye, looked to the Rule 402 and Rule 702 to decide what the new standard of admissibility should be. Rule 402 reads:

All relevant evidence is admissible, except as otherwise provided by the Constitution of the United States, by Act of Congress, by these rules, or by other rules prescribed by the Supreme Court pursuant to statutory authority. Evidence which is not relevant is not admissible. Whether evidence is relevant or not turns on whether the proffered evidence tends to make any fact of consequence more or less probable. Analysis of the relevance of any scientific testimony is not the direct standard the court uses, though, as 402 notes that if the Federal Rules of Evidence provide otherwise, the admissibility of evidence can be determined by other standards besides relevance. Rule 702 states the basic rule for the admission of expert opinion testimony:

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

In dictum, the *Daubert* opinion suggested that four factors are to be considered in determining the admissibility of expert testimony. The trier of fact must first consider "whether it [the theory or technique in question] can be (and has been) tested." The second factor is "whether the theory or technique has been subject to peer review and publication." Third, the court must look at the any known or potential error rate involved in the technique or process. Finally, in deference to Frye, the general acceptance within the scientific community is still a factor to be considered.

The Daubert and Frye tests, as well as Rules 402 and 702, provide a basis for understanding American law concerning the admissibility of expert testimony. However, this basis does little to reveal the rationale behind the rules. This rationale lies within the Constitution and American court system based on the Constitution. Contrasting the American system with the Dutch System is the perfect way to bring this rationale to the forefront.

The right to a fair trial is one of the fundamental principles of the Bill of Rights. Amendment VI reads:

In all criminal prosecutions, the accused shall enjoy the right to a speedy and public trial, by an impartial jury of the State and district wherein the crime shall have been committed, which district shall have been previously ascertained by law, and to be informed of the nature and cause of the accusation; to be confronted with the witnesses against him; to have compulsory process for obtaining witnesses in his favor, and to have the Assistance of Counsel for his defense.

Within this amendment is to be found one of the major differences between the Dutch and American criminal justice systems: the right to trial by jury.

As previously noted, accused criminals in the Netherlands are brought before either one judge or a panel of three judges. These are all professional judges, none are lay judges as they are in Germany. This fact influences the admissibility of expert testimony in several ways.

One of the rationales for controlling the admissibility of expert testimony on unproven areas is to prevent the jury from being too easily influenced by the expert witness. When a witness is held out to the lay jury as an expert, her flashy credentials might make her testimony seem valid to the lay jury, whether the evidence would pass Daubert or not. By providing a standard for the subject matter of the testimony, the Supreme Court in Daubert made the trial judges the gatekeepers to keep out evidence that has not yet proved to be reliable. (Whether the judges are qualified to make judgments concerning scientific validity is a matter that is, of course, up for debate.

Concern about the impact of testimony or perhaps dubious validity on the jury is not of concern in the Netherlands, for the judgments are made by the judge(s). Thus, the same person(s) who allow admissibility are also able to control the amount of weight the testimony is given. This is not the case in the United States. While jury instructions can explain to the jury what weight certain evidence should be assigned, only the jury members truly know how much weight they did assign to it.

This leads to another key difference between the Dutch and American criminal justice systems, the right to cross-examination. The Dutch do not allow defense council to cross-examine the witnesses. Rather, the judge asks all of the questions. At first glance, this might seem to be the reason that Van der Lugt's testimony was admitted, as opposing council did not have the chance to attack the admissibility. While this may very well be true, such a conclusion is pure conjecture. What can be derived from this fact is that the role of the court, in the Netherlands, is not that of an overseer of adversarial parties, but rather as "the" truth-seeker.

It is important at this point in the discussion to remember that the prosecutorial/judicial screening of cases that are brought to trial in the Netherlands is one of the primary tools in the protection of the innocent in that country. While prosecutors in the United States need probable cause to bring an action, our criminal justice systems depends almost entirely on the adversarial model to prevent a conviction from occurring when the prosecution has not

shouldered its burden of proof beyond a reasonable doubt. A Dutch judge can rely on prosecutorial/judicial discretion as a basis for initiating proceedings, and his questioning of the witnesses acts more to reinforce this screening process rather than as the stand-alone screening process of an American trial.

Moreover, an inherent part of each criminal trial in the Netherlands is the testimony of the accused. In the United States, the Fifth Amendment forbids forcing the testimony of an accused against himself in a criminal trial. Often times, a defendant does not take the stand. However, the Dutch defendant has to take the stand. This effects the possible uses of any admitted evidence.

For example, in one of the cases that Van der Lugt made an ear print identification, the defendant, when presented with the fact that "his" ear print had been found at the crime scene, then admitted having put his ear to the door to listen into the house, but still denied breaking in. The judge used the identification not necessarily as evidence in itself, but as a tool to pry the truth from the defendant. In fact, in many cases where the accused is presented with incriminating evidence, he plead guilty to the offense.

The Dutch judge acts as both an overseer and a fact-finder. By being able to directly control the amount of weight attributed to evidence, he can be more relaxed in his standards for admissibility. Additionally, by acting as the examiner of all witnesses, including the defendant, the judge can use evidence as a tool to determine the truth, without necessarily having to accept the scientific reliability or testimony offered by the police.

The American judge acts only as an overseer. She screens what information reaches the fact-finder and attempts to prescribe the amount of weight it is to be given in certain instances. However, the amount of weight actually given by the fact-finding jury, is outside the judge's control. The questions asked and evidence presented by each side are rooted in an advocacy, rather than a truth-seeking model, with right to cross-examine acting as a balancing factor.

CONCLUSION

This paper will not pass judgment on which of these two systems is the better model for criminal justice. Rather, the obvious differences between the two prove the need to understand the criminal justice system of another country when your opposing council presents a witness who has testified as an expert in another country.

Three conclusions can be drawn from the system comparison made. First, as the judge directly controls both the admissibility and the weight, she can be more relaxed concerning admissibility than an American judge who only directly controls admissibility. Second, because the judge can always determine the weight to be accorded to the evidence, it would be flawed to conclude that the Netherlands courts have admitted the ear prints as direct evidence of a positive identification. The evidence could merely be a tool with which to manipulate the defendant or as evidence that merely makes it more likely that the defendant left the print. Third, when dealing with opposing experts who have testified in foreign countries in areas not established as reliable 'sciences' within the United States, the attorney should be sure to understand the court system in which the expert did testify.

¹ This paper is a condensed version of a research project undertaken in a class in Scientific Evidence and Opinion Testimony at the UMKC School of Law. most of the footnotes of the original paper were omitted.

2 ALFRED V. IANNARELLI, EAR IDENTIFICATION 156 (1989) (privately published author.)

3 See Transcript of Test. of Cor Van Der Lugt on Dec. 4, 1996, State of Wash. v. Kunze, No. 96-1-00773 (Clark Cty. Sup. Ct., Wash. 1996)

4 Dr. R. Imhofer, [Translated] The Significance of the External Ear for Determining Identity, ARCHIVES FOR CRIMINOLOGY 26 (1906).

5 Charles Fields, te al, The Ear of the Newborn as an Identification Constant, OBSTETRICS AND GYNECOLOGY 98 (JULY 1960).

6 See Transcript of Test. of Cor Van Der Lugt on Dec. 4, 1996, State of Wash. v. Kunze, No. 96-1-00773 (Clark Cty. Sup. Ct., Wash. 1996)

7 ALFRED V. IANNARELLI, supra note 1. The book was originally published under the title "The Iannarelli system of Ear Identification" back in 1964. Mr. Iannarelli added a chapter concerning ear prints and republished the book himself in 1989, where he was labeled the "Pioneer, Author & Consultant."