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Alfred Binet, founder of the science of testimony and psycho-legal science

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ABSTRACT
In his book “on suggestibility” (1900), Alfred Binet (1857-1911) established formally a scientific foundation for a “Science of testimony”. In this context, he conducted some interesting experiments on eyewitness behavior. But Binet’s book on suggestibility was largely ignored in France despite the important implications it held for the study of eyewitness testimony. Four years later, Binet (1905) wrote a paper where he regretted that no research was undertaken in this direction in France. However, his work was developed by the German Wilhelm Stern (1871-1938) who was able to generate interests in the academic and legal communities by adapting some of Binet’s research methods. Binet (1905) read Stern’s works with the greatest interest, and also with a little melancholy, but found that the expression “Science of testimony” a little narrow. Testimony is the psychology of the witness, but there is also the psychology of the judge. Finally, Binet proposed to create an applied science of great utility, named Psycho-legal science. We provide in an appendix an English translation of this paper that today exists only in his native French.

Alfred Binet, fondateur de la science du témoignage et de la science psycho-judiciaire

RÉSUMÉ
Dans son livre sur la « suggestibilité » (1900), Alfred Binet (1857-1911) a formellement établi un fondement scientifique pour une « Science du témoignage ». Dans ce contexte, il a réalisé quelques expériences intéressantes sur le témoignage oculaire. Mais l’ouvrage de Binet sur la suggestibilité fut largement ignoré en France en dépit des implications

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importantes qu’il contenait en lien avec l’étude du témoignage. Quatre ans plus tard, Binet (1905) a écrit un article où il regrettait qu’aucune recherche n’ait été entreprise dans cette direction en France. Cependant, ses travaux furent développés par l’Allemand Wilhelm Stern (1871-1938) qui a réussi à susciter un intérêt chez les universitaires et les juristes en s’appropriant les méthodes de recherche de Binet. En 1905 Binet a lu les travaux de Stern avec le plus grand intérêt, et avec un peu de mélancolie, mais il a trouvé que l’expression « Science du témoignage » était trop restrictive. Le témoignage renvoie à la psychologie du témoin, mais il y a aussi la psychologie du juge. Au final, Binet a proposé de créer une science appliquée d’une grande utilité, qu’il a appelée la science psycho-judiciaire. Nous donnons ici en appendice une traduction anglaise de cet article qui existe seulement aujourd’hui en langue française.

We believe that Alfred Binet’s (1857-1911) (see Wolf, 1973, for a biography of Binet) work is remarkable in many domains (see Siegler, 1992), particularly applied psychology (see Hoffman & Deffenbacher, 1992). Indeed, he conducted research on many different aspects of remembering and was among the first investigators to study the influence of suggestions on memory and the entire issue of what today would be called false memory or memory illusions (Roediger, 1996). In this article we focus on Binet’s pioneering contributions to memory research in the science of testimony (Loftus, 1979).

Because so little of Binet’s work on memory has been translated into English, it is perhaps for this reason that many English speaking psychologists do not recognize his importance to the field despite some recent attention devoted to Binet’s work on psychology of memory (see Ceci & Bruck, 1995, pp. 52-55; Nicolas, 1994; Nicolas & Ferrand, 2011; Wolf, 1976). Indeed, Binet is little known for his experimental work on children’s memory (Binet & Henri, 1894a, 1894b, 1895a, 1895b). Beginning with basic laboratory tasks, Binet (Binet & Henri, 1894b; for an English translation see Nicolas, Collins, Gounden, & Roediger, 2011a) had children participants engage in a series of experiments on suggestibility in visual memory. His procedure and materials were later adapted by Solomon Asch (1907-1996) who not only used Binet and Henri’s techniques but also his actual experimental tasks. However Asch (1951, 1952, 1956) never cited Binet and Henri’s work (see Nicolas, Collins, Gounden, & Roediger, 2011b).

Binet (1900) later conducted a number of new experiments on eyewitness behavior in the context of his program of individual psychology that started in 1896 (Binet, 1897; Binet and Henri, 1896; see Nicolas, Coubart & Lubart, 2014). Binet argued that normal individuals are characterized, and differ from one another, by their higher mental processes (in particular by their way of remembering) rather than by their sensory capacities. Binet sought to study suggestibility as a normal social and
cognitive process. Within this framework, he conducted new experiments published in the never translated into English book “On suggestibility” (Binet, 1900), that established the role of comments or orders (suggestions) of the experimenter on the acts of remembering in subjects studied both individually and in groups. Binet’s (1900) new experiments on memory confirmed and extended those published in Binet’s earlier article from 1894. Binet explicitly took the role of an investigating judge and estimated the truthfulness of the memories of his witnesses: he was, arguably, the first to establish a scientific foundation for the psychology of testimony (Binet, 1900, p. 285). His interest in this domain is linked to his academic formation. Binet obtained on November, 27, 1878 a law degree from Sorbonne University in Paris. He began practicing law in Paris after having passed the bar (December, 30, 1878). However, he did not enjoy exercising this profession and left the practice in December of 1884. But Binet had always been interested in the domain of justice and law.

Indeed, in chapter VI of his book entitled “On questioning” (l’interrogatoire), Binet (1900, pp. 330-359; for an English translation of some significant excerpts of this chapter see Nicolas, Gounden, & Sanitioso, 2011) dealt with the psychology of testimony. According to Binet, a judge can influence witnesses by his/her questions as follows: 1° He/she may allow the witness to exercise complete free rein and spontaneity (in recalling information); 2° He/she may ask questions to force, without biasing, the recall; 3° He/she may make leading suggestions to the witness by the questions; 4° And finally he/she may force extreme suggestions by his/her questions. Binet reduced these cases to experimental conditions for groups of male elementary schoolchildren aged 7 through 14 years. To study the effect of suggestion on memory, he used six objects pasted on a large poster. The poster on which the objects were set was dark yellow and square in shape, 22 centimeters long and 15.5 centimeters tall. We present, in figure 1 the picture of the whole board on which six items were fixed (these items include: a coin, a button, a stamp, a store label, a photograph, and a small magazine picture of a crowd).

We also present individual photographs and the size of each of the 6 objects accompanied with a description of the essential information (for further details, please refer to the figures).

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1 Binet (1900, p. 285, note) wrote: “The issues we deal with right now are so new that they give rise to new unnoticed facts. They point out the utility of creating a practical science of testimony by studying memory errors, the means to recognize them, and recognize the signs of truth. This science is too important to not be developed one day.”
The penny. It is glued on to the board; we can see a face, more precisely the portrait of Napoleon III, without a crown. The penny is old and dirty. It shows deterioration at the bottom and slightly to the right in its outline, there is an area of several millimeters which is smooth, free of drawings, as if it had been struck with a hammer.

The store price tag. It is a label of the stores called Bon Marché. The label is glued to the board and is traversed by a pin in a bottom to top direction. It is green in color.

The button. Glued to the board, it is circular with a raised edge and is pierced with four holes through which no thread is seen. It is made of corozo and the color is dark brown, mottled with lighter brown.

The portrait. This picture is taken from a chronophotographic series of Georges Demeny.

The photograph. This picture, which was cut from an illustrated newspaper, depicts a scene of the postmen’s strike that had taken place two weeks before the experiment.

The stamp. It is a 2 cents French stamp, colored red-brown and is glued to the board.

All children knew these objects, they knew that the penny was French, they knew and distinguished the effigy of Napoleon III on the penny.
and they knew of the Bon Marché stores, which were located less than 1 kilometer away from the school; the button was of common shape and color that could not surprise the children; the stamp was known by all children, except for a few. The portrait bore nothing special except the grimace of a man. Finally, the picture that represents postal workers on a strike, illustrates an event that several children had heard, because the event dominated all of Paris a few days before. In summary, the 6 items were not difficult to interpret by the children, and some items were even familiar.

The experimenter showed the poster for ten or twelve seconds and then asked the children to report as many details as possible of what they had seen. Binet thus created a somewhat confused perception, as the time given to look at the cardboard was insufficient to allow children to perceive it in detail. The artifice of this arrangement thus put the children into more or less the mental state of a witness. The first case of an investigating judge was imitated here by asking children to write their answers as fully as they could without asking them any specific question. Results showed that their reports were incomplete with numerous errors added; but this was in fact the best condition for testimony (or to obtain testimonials from young witnesses). Binet underlined that if we desire faithful testimony from children we must not ask them any questions, nor allow them to make oral report, but require them to write down spontaneously what they know. This is especially true...
Figure 3. The store price tag

about children because they are less capable than adults in distinguishing between facts and fiction.

The second manner of the judge (that is, the case of forced memory) was tested on other children. The experimenter first showed the poster and then, as the child reported what he had seen, asked forty-one questions about actual details of the fixed objects. The results show that more, but less accurate, details were given, e.g., when a child identified the canceling letters R I S on a stamp that has not been cancelled at all. Thus subjective certainty and completeness of details are not correlated with the ability to
recall. The errors are of two types: logical errors, e.g., having stated that the button is sewed on (it is pasted on), the logical error of assigning a color to the thread followed; and, errors of invention, e.g., when some fancied or imaginary object is described instead of the real one.

Three other tests were conducted using written questionnaires. The same objects were shown as before. The children were divided into three groups and each group received a different set of questions. The first was intended to force memory, e.g., “How is the button fastened?” The second gave moderate suggestion about each object, e.g., “Is the button fastened with a thread?” The third gave a very strong suggestion (see Table 1), e.g., “What color is the string that passes through these holes and fixes the button to the board?” This question could only be understood if the string exists, therefore, there was no question of the existence of the string nor were the participants incited to ponder on this detail or put it in doubt. Thus, each of the last three cases of the judge mentioned above was experimentally reproduced. Each set of questions brought out characteristic results. The majority accepted the suggestions and responded/wrote as if the memory images had been true and spontaneous. This feeling of spontaneity is an exceedingly important factor which was well brought out in introspective reports. The tests were repeated on older students. These young adults made
Table 1. The questionnaire (strong suggestion with 13 questions) used by Binet in his new experiments and adapted from the third questionnaire (strong suggestion) used in chapter VI (pp. 299-300)

| Button | 1° There are four holes. What color is the string that passes through these holes and fixes the button to the board? |
| Portrait | 2° Draw the part where the button is a little damaged. |
| Portrait | 3° Is it dark brown or dark blue? |
| Portrait | 4° The man has his left leg crossed over the right leg or the right leg on the left one? |
| Portrait | 5° Draw the shape of the hat on his head. |
| Portrait | 6° What is the object in his right hand? |
| Coin | 7° It has a small hole. Where is this little hole? Draw. |
| Stamp | 8° The postmark is in the right corner. What city name can be distinguished on the stamp? Draw. |
| Label | 9° Draw the string with which it is attached to the board. |
| Crowd | 10° At what spot is the little dog? |
| Crowd | 11° How is the man being arrested by police agents dressed? |
| Crowd | 12° What is the seventh item? |
| Crowd | 13° What is the eighth item? |

the same kind of errors as the children, though not to the same extent. These students were undoubtedly more reliable observers than people on whom judges ordinarily depend in courts. The influential line of work begun by Elizabeth Loftus and her colleagues (e.g., Loftus, 1979, 2003, 2005; Loftus & Palmer, 1974; Loftus, Miller & Burns, 1978) on the effects of suggestions on visual memory is similar in spirit to Binet’s. The strong effect of question forms (cf. Loftus, 1975) was thus primarily studied by Binet in his original investigations.

By studying the suggestibility of normal subjects, Binet established a scientific foundation for a psychology of testimony. As Ceci and Bruck (1995, p. 52) who present a discussion of Binet and his contributions at the time have also noted, Binet’s “data continue to stand up well in the modern forum.” But, as noted by Cunningham (1988), Binet’s book on suggestibility was largely ignored in France despite its important implications for the study of eyewitness testimony. Four years later, Binet (1905, p. 130) wrote: “One is never a prophet in one’s own country, of course. This part of my book on suggestibility was not taken up anywhere in France. I believe that no analysis took it into account. In any case, during the five years after it appeared, no research was undertaken in this direction. It is in Germany that the seed germinated. Professor W. Stern, who is already known to us through his excellent monograph on individual psychology, himself undertook studies in the psychology of testimony. He
had the good fortune of creating a movement in favor of these problems; his work invoked interest not only among psychologists of his country, which is most natural, but also its jurists, whose contributions came to be entirely serious.” Indeed, his work was later developed by a former student of Hermann Ebbinghaus (1850-1909), the German Wilhelm Stern (1871-1938) who was able to generate interests in the academic and legal communities (Stern, 1903-1904, 1939) by adapting some of his research methods. Binet read Stern’s works with the greatest interest, and also with a little melancholy. Binet (1905, p. 131) wrote: “It was to us that this initiative should have fallen. This line of research had been inaugurated in France. Why did it not develop here?”
At that time Binet was particularly interested in applied psychology, his objective was to show that psychologists are experts to be considered in the domains of education and law. Indeed, Binet was creating (e.g. Fancher, 1985) his mental test in 1905 in the objective of legitimizing the role of psychologists in schools, in particular in the detection of mentally retarded children. Binet wanted to solidify the professional identity of psychologists (Nicolas, Andrieu, Croizet, Sanitioso, & Burman, 2013). It was also the case with his idea of the creation of the science of testimony, where the role of psychologists is central. But Binet (1905) found that the term “testimony” was a little narrow (but hesitated to criticize the term given that he was the one that initiated it). Testimony is the psychology of the witness. But there is also the psychology of the judge, by which he means the psychology of judgements. Binet (1905, p. 136) wrote: “Judgement, understood and defined in the practical sense, is in no way a simple matter, as for example a comparison might be; it is a decision of the mind that comes only after a synthesis, taking in many facts, arguments, emotions, and memories of all
Finally, Binet (1905) proposed to create an applied science of great utility, named *Psycho-legal science* (Brewer & Williams, 2005).
THE PAPER

What follows (after the References) is a translation of Binet’s (1905) important contribution to help bring it to the attention of the English-speaking world.

REFERENCES


THE SCIENCE OF TESTIMONY²

by Alfred Binet

[128] In the last several years, important studies on the science of testimony have been ongoing in Germany. It is useful, and even necessary, for readers of our *Année psychologique* to be kept abreast of this research. Our intention is to devote a general review—one that is both analytical and critical—of this topic. Unfortunately, due to circumstances independent of our will, this general review cannot be published this year. We intend to publish it next year. I do not wish, however, to delay any longer before speaking of this issue, and although the article that I present here, which is truly too brief, is fundamentally no more than a simple analysis of one of the most recent studies on the psychology of testimony, I am placing it among the original articles to draw it to the attention of all.

Allow me first to recall that I had foreseen these new researches, in the most explicit fashion, and that I have laid the first stone of this edifice. About five years ago, I was seeking to establish a measure of suggestibility in normal people, and in particular in schoolchildren. The work was, of course, on suggestibility in the absence of hypnotism: I put no one to sleep, and even the school principals who witnessed the experiments that I performed in their offices on their students did not for a single instant realize that I was using suggestion. It is no use frightening people with words when there is nothing fearful about the thing in itself. The mode of suggestion that I most often employed has the advantage of most closely resembling the type of influence that a judge exercises involuntarily when pressing a witness with questions, and seeking to extract a truth of which the witness, even if sincere, is not certain. I had deliberately organized the experiment so as to exclude any dramatic elements. I simply showed the children a piece of cardboard to which I had attached many familiar objects before the beginning of the experiment, such as a stamp, a button, a label, a portrait, a drawing, etc. Before showing them this piece of cardboard, I said to them: “Look carefully at it, because I will only let you see it for 10 seconds, and when it has disappeared you will have to describe to me in detail everything you have seen, and I will ask you a whole lot of questions.” I thus created a somewhat confused perception in these little brains, as the time given to look at the cardboard was insufficient to

allow them to perceive it in detail. The artifice of this arrangement thus put the children into more or less the mental state of a witness, so often questioned in the courts on long-past events, which they are incapable of describing in painstaking detail, for the good reason that they did not think to perceive the event attentively when it took place. Thus the question arises: how, or by what procedures, are such incomplete memories best brought back?

I realized that two principal procedures can be put to use, and that these two procedures are of unequal value: the first is questioning; the second is the spontaneous recounting of events. The second is excellent, whereas questioning is dangerous, like a double-edged sword. By questioning someone while conveying a sense of urgency, it is no doubt possible to break through silences, loosen tongues, and draw the witness’s attention to points that he might not have had thought to speak of. If you want abundant testimony, interrogate! But if you want faithful testimony, beware of interrogation! It is all the more important to be wary given that the questions posed are not written but invented on the spot, and supported by gestures and stresses, the traces of which are not conserved. And there are questions that are formidable machines for suggestion by virtue of their form alone. They dictate the answer without seeming to do so. Suppose that in questioning children about a portrait that they have just seen among the objects presented on the cardboard, they are asked: did the portrait contain a round hat or a top hat?— Suppose that of the stamp, which was beside the portrait, they are asked: was it red or green? These questions implicitly contain the affirmation that there was a hat in the portrait and that the stamp must certainly have been of one of the two suggested colors. And precisely, in these experiments, the stamp was blue, and the portrait was bare-headed. Thanks to the suggestion of the dilemma, many children committed the error into which we had led them. They committed it in good faith, without realizing the constraint that was placed on their memory. In practice, this could become very serious, most of all if judges fail to realize themselves that they have performed any suggestion, and if they do not conserve the exact words of the questions that they posed. A formidable number of errors is to be feared. They are errors of psychology, and they go unnoticed. In their chambers, judges draw on psychology without realizing it—and it is often bad psychology. This is absurd. It is about as absurd as bacteriologists using a dirty medium for their preparations.

Acutely impressed by the events to which I was witness, I wrote a note to say that here was a science to be founded, the science of testimony, and I
added that I was quite certain that the founding of this science would come soon, because of its immense utility.  

One is never a prophet in one’s own country, of course. This part of my book on suggestibility was not taken up anywhere in France. I believe that no analysis took it into account. In any case, during the five years after it appeared, no research was undertaken in this direction. It is in Germany that the seed germinated. Professor W. Stern, who is already known to us through an excellent monograph on individual psychology, himself undertook studies in the psychology of testimony. He had the good fortune of creating a movement in favor of these problems that not only evoked interests among the psychologists of his country, which is most natural, but also its jurists, whose contributions came to be entirely serious. Professors of law and criminalists read Stern’s work and understood how important it is for them to gain some knowledge the psychology of testimony through the study of nature, in order to learn how in fact it is possible to sort out truths from errors in testimony. The proof of the interest that one takes in a question is given by one’s active collaboration. These jurists began to work on questions of psychology, making observations and performing experiments; they have given us some excellent work. The research was not produced by chance; it was mostly organized by W. Stern, who seems to be an intelligent and methodical man. The affluence of works was such that a special collection was created for this new science; this periodical collection is entitled *Beiträge zur Psychologie der Aussage* (Leipzig, Barth). It is now in its second year. It contains a great number of articles, most of which emerged from the pen of Stern. It is not simply a collection intended to assemble materials, it is a lively organ whose goal is to organize, direct, and criticize research. I read it with the greatest interest, and also, I must confess, with a little melancholy. It was to us that this initiative should have fallen. This line of research had been inaugurated in France. Why did it not develop here?  

3 La suggestibilité [Suggestibility], Paris, Schleicher, p. 283.
4 I can certainly give one of the reasons for our failure: the inertia that the administrations of the justice system opposed to me. Even recently, for my research on graphology, I asked the court to transmit to me the writing of a murderer. There are murderers, Tropmann for example, dead and executed more than 30 years since, whose handwriting it would be interesting to study. The answer I received from a high-placed official was precisely as follows: “Murderers have paid their debt to society, and we can take no measure that may damage their memory.” — Fifteen years ago, I wanted, using certain precise documents, to trace the psychology of criminals, and I addressed myself to the Lord Chancellor; I explained to him the value of establishing the mental types of criminals. I received a courteous hearing; but when I asked that a few old dossiers, dating from 30 or 40 years previous, be opened to me, the response was the same argument once again: Respect for the criminal!—Better still: when I undertook my studies in cephalometry (on the shape and volume of the head), I was allowed to enter almost everywhere with my compass: in all the primary schools, the Ecole normale supérieure, the Ecole polytechnique, the military school at Joinville-le-Pont, the Conservatory of Music, the hospices ... Members of
Among the facts that have been best illuminated by German research in this area, I would point out one which is quite provoking and is not unimportant from a practical point of view: in all testimonies, without exception, even when given while under oath, there are mistakes. Mistakes are thus a constant, normal element of testimony. The public is far from clear on this point. And lawyers even suppose the opposite. Is this not a common way to produce an effect—after emphasizing a mistake in someone’s testimony, concluding from it that all the rest must be rejected as well? I even remember that one day a lawyer took to task an expert whose testimony displeased him, and asked him mockingly: have you never been wrong? The expert, candid in the way that some scholars are, naïvely admitted that he had sometimes made mistakes. This was enough to disqualify him. The experiments of Stern and his collaborators give the foundation to these sophisms, and it would be good for their conclusions to be brought to the awareness of all concerned.

Now I shall come to the particular study of Miss Borst. This is a contribution to these researches on testimony. The study was performed in the laboratory of Flournoy and Claparède, in Geneva, surely under their direction. Here is how Miss Borst proceeded. She showed a certain number of pictures individually to 24 people, which they had to study for one minute; and then after a variable interval, these people spontaneously recounted everything they remembered about the pictures, and afterward they were submitted to questioning, in order to extract memories from them that they had been unable to evoke spontaneously. This study design is not a bad one, although it lacks a little in novelty, as not only have I performed analogous research, either alone or with V. Henri, but Stern and several others followed us in doing so. The original point of view from which Miss Borst oriented her study was in researching the educability of testimony. Perhaps she did not begin with a very clear vision of her goal, as she could have analyzed this educability in a form more interesting than the one that she chose to use here. She contented herself to repeat the experiment with the same subjects but different pictures, in order to determine whether this repetition alone would render their memories more plentiful and exact. What a shame that she did not take the trouble to train these people, to give them a lesson in observation and critical sense! What an excellent pedagogical lesson that would have been!

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1. the Institute offered me their best welcome. The only place that was rigorously closed to me was the prisons: Respect for the murderers!

2. Marie Borst, Recherches expérimentales sur l’éducabilité et la fidélité du témoignage (avec 6 fig. et 1 pl.) (Experimental studies on the educability and fidelity of testimony (with 6 fig and 1 pl.)), Archives de psychologie (Kundig, Genève), III, no. 11, May 1904, p. 233-314.
I hope that, because she herself caught a glimpse of this lovely question, she will not simply leave others to draw its benefits.

Her study is very well executed, containing many examples and a judicious discussion on the manner of calculating and estimating errors. The details given are numerous enough to leave the reader with an understanding of the author’s procedures.

All that is left here is to indicate the partial conclusions that the author reached.

The influence of practice—It is favorable; it increases the fidelity of testimony, and self-confidence. The subject has a relatively greater tendency to swear to the exactness of his testimony.

Influence of time—The size of the time interval [133] impairs the fidelity of the deposition, and not the feeling of certainty; the subjects maintains their assurance. The latter seems to depend on a personal coefficient.

Influence of the nature of the memories—The most faithful parts of a deposition are those relating to spatial relations and to objects and people. Colors constitute the least faithful responses. There is always a tendency to say more than one knows, but this tendency is the strongest for numbers and colors.

Stern had already observed in his research that position and spatial relations are very well retained, and color, very poorly. This is very interesting. I believe that if one were to conduct a specific study on orientation, one would find that it is a very solid notion, which can be found in a host of states of consciousness. We have just seen how exactly we retain it, in tests of memory. A study on our perceptions would show that the notion of our orientation is always present and subjacent. We look at nothing without having a vague notion of our own position with regard to the familiar surroundings, and when this notion is disturbed, when orientation is upset, we experience great discomfort. Similarly, in our acts of imagination, for example when we read a book of history or a novel, we imagine the scene, orient ourselves, determine spatial relations, with a precision and an abundance of detail that we ourselves do not realize. There would, I believe, be quite an intriguing monograph to be written on orientation, but here I end this digression.

Errors in the direction of gaze in the presented pictures—These are very frequent. 13 out of 20 people made such mistakes.

Form of the deposition—The extent of the testimony always increases under questioning. In other words, what a person spontaneously recalls is constantly poorer in details than his or her answers to questions. On the other hand, responses to questioning contain more mistakes than the contents of spontaneous recall. Questioning: 17 mistakes p. 100. Recall: 11 mistakes p. 100.
Extent and quality of testimony—In keeping with Stern’s suggestion, a perfectly correct deposition is not the rule but the exception. Out of 240 depositions, only 5 were absolutely free of mistakes; and this absolute fidelity cannot be attributed to memory, because these five were quite short, and would seem instead to reflect weak memory. The author [134] concludes that good testimony can be presented in cases of insufficient memory, provided that the witness is aware of this insufficiency. I find this conclusion to be paradoxical. We must content ourselves to observe, along with the author, that there is no constant parallel between the extent and the fidelity of testimony; and, sometimes, these two factors even stand in an inverse relation. It seems to me, further, that mistakes in testimony are not entirely imputable to memory; lacunae in memory are indeed an entirely negative condition for them, but if the subjects caught these lacunae, realized that they were there, then they would not make mistakes. Mistakes are committed because subjects imagine and reason without realizing. There are reasons to think that these supposed difficulties with memory depend on faculties quite other than memory, most of all judgement.

I have performed memory experiments on retarded children and idiots; and what struck me most of all is the immense number of extraordinary mistakes that they commit; for example, in repeating numbers from memory, they add an arbitrary number of their own invention, imagining that they remember it. Certainly, it is not their memory that is most affected in these cases.

Certainty—There are three possible degrees of certainty about a deposition: it can be hesitant, certain, or asserted under oath. Stern was the first to have the ingenious idea of having subjects swear an oath regarding certain details of their testimony. There are some who say they are certain but who do not dare to swear. Swearing thus constitutes a greater certainty, and people sometimes say they are certain in cases where, deep down, some doubt remains.

There is a certain parallel between the objective value of a deposition and its degree of subjective certainty. Thus the number of mistakes quadruples from certain responses to uncertain ones; and the part of the deposition that is not asserted under oath contains twice as many mistakes as the sworn part.

This does not prevent a certain independence between felt certainty and correctness, as, quite interestingly, around a twelfth of sworn responses are wrong.

It must be hoped that the author, as well as others, will continue these beautiful investigations. It is essential that we do not lock ourselves up inside of our laboratories, but instead that we take inspiration from
observations of [135] daily life, and most of all of the events that present themselves so often before the courts. The annals of the law, court proceedings, pose interesting psychological problems each day. It is these problems most of all that must be considered, as these are current and living problems, and they do not lead us into the risk of getting lost in useless analyses. Furthermore, we are assured of doing useful service, as by spreading correct and truly scientific ideas, we can prevent a few of the legal errors that are committed in such great numbers every day.

In concluding, I cannot help but make a few suggestions with regard to the delimitation of the new domain that we have just begun to seize upon with such great vigor. It is very good and useful to have devoted a special review to these questions; and I believe that I can affirm that such a review is made to last, because it responds to obvious practical needs. I find, however, that the term "testimony" is a little narrow; and I hesitate all the more to criticize it given that I was the one to have suggested it; I spoke of the "utility that there would be in creating a practical science of testimony" (Suggestibilité [Suggestibility], p. 283, in a footnote, and p. 285). It seems to me, however, that this expression does not cover the entire domain into which psychology must penetrate to shed new lights. We must rise to a more synthetic view. The goal that we must attain is to regenerate legal research through the application of psychological laws. The ignorance, in these matters, of our jurists and all those who have some connection with the law, is so deep as to be deserving of tribune. However, testimony is but one of the various means used to dispense justice; there are many others. There is the conduct of debate, the questioning of the accused, and there is most of all the court’s decision, which is rendered sometimes by one person, sometimes through the cooperation of several; those who render it are sometimes professionals, sometimes mere citizens who overnight have become jury members. Does this enumeration not suffice to understand right away the complexity of the questions that the psychologists can expect to be faced with, if they wish to visit the courtroom, not out of curiosity, but in a professional capacity? If I wished to analyze all of the questions that should be examined in psychology, to the great benefit of the truth, I would certainly require several pages of this Journal. I shall restrict myself to citing only a few examples. One of the clearest [136] is that of judgements, rulings, verdicts—in a word, formulated convictions. I will surprise no one when I say that convictions relative to affairs before the courts today are established based on an empiricism, or natural instinct, that stands in great need of becoming scientific. Testimony is the psychology of the witness. The psychology of the judge, by which I mean the psychology of judgements, must also be examined. Judgement, understood and defined in the practical
sense, is in no way a simple matter, as for example a comparison might be; it is a decision of the mind that comes only after a synthesis, taking in many facts, arguments, emotions, and memories of all kinds. With regard to the gravest questions, we judge like surveyors who, in measuring a plot of land, sets aside their measuring chain and contents themselves with a glance; on the contrary, to measure out a field, we must lay the measures down precisely on the ground, and then triangulate using figures drawn on paper and numbers. This is only an image; but it allows us to understand clearly, I believe, that in the overview that is the judgement, the empirical glance must be replaced with the analysis and measurement of each element, attributing to each its proper value, quantitatively and qualitatively. Either I am sorely mistaken, or studies of this nature on judgement, performed using the experimental method, do not yet exist today. They should be pursued concurrently with those on testimony, and some others as well that I will indicate later, the whole forming an applied science of great utility, *Psycho-legal science.*