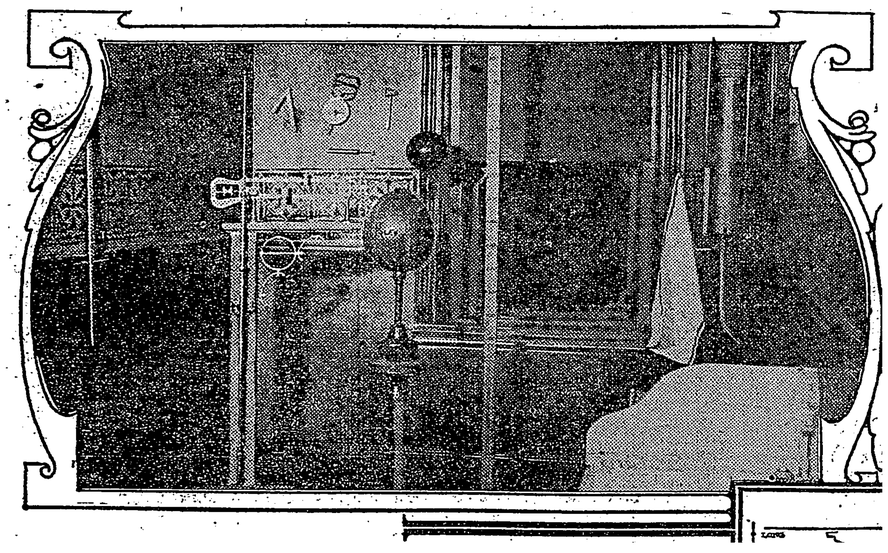
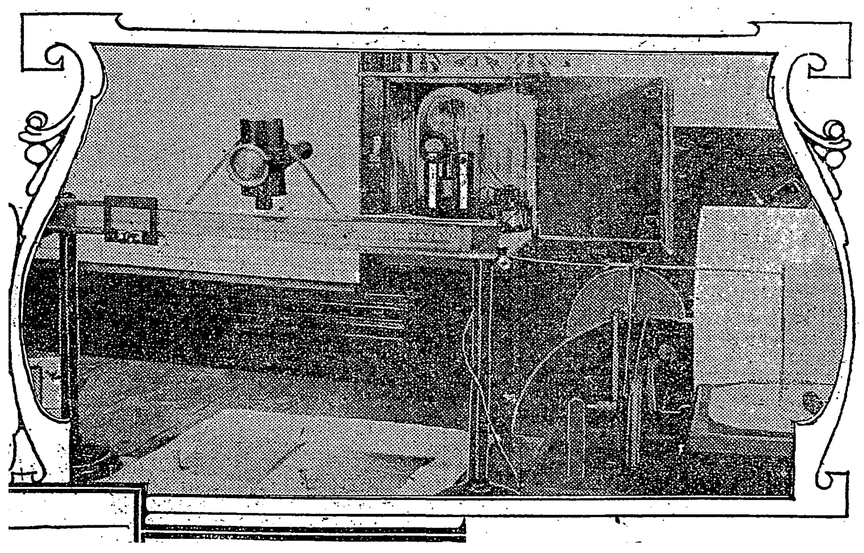
ELECTRIC MACHINE TO TELL GUILT OF CRIMINALS

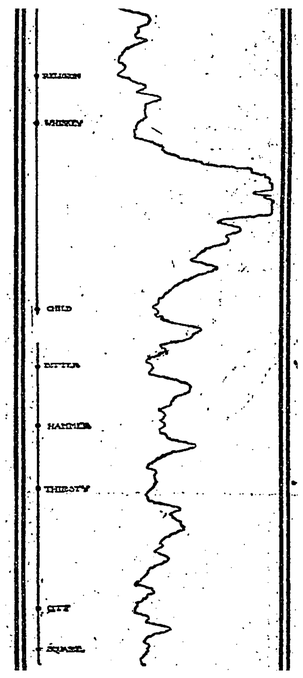
If It Is Perfected So As to Be Infallible It Will Make Expert Testimony Unnecessary and May Eliminate Juries in Trials.



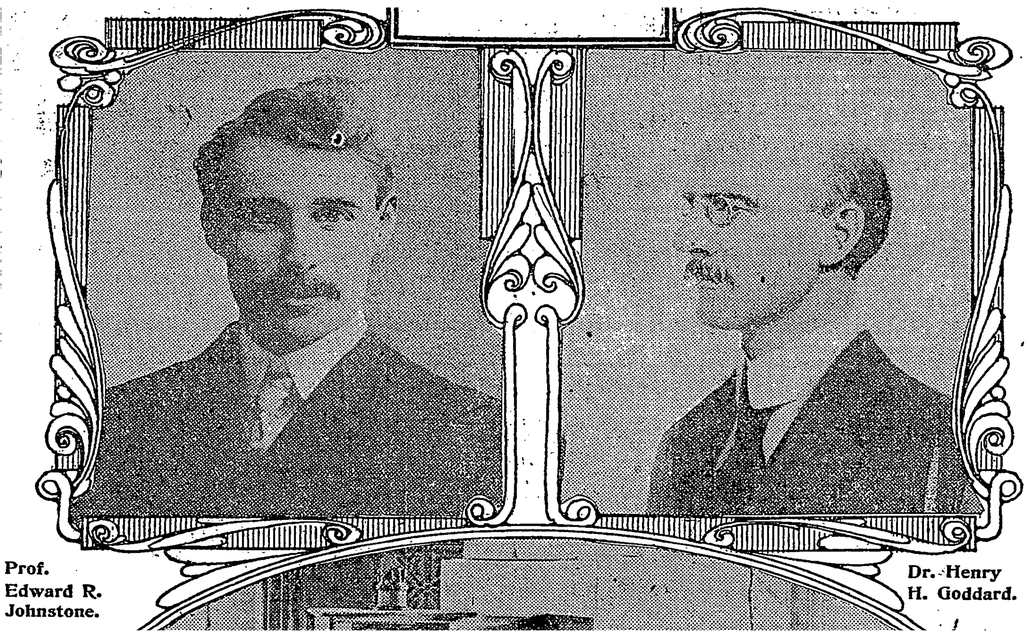
Where the Subject Is Examined. The Investigator Sits at the White Table on the Right.



The Psychometer, Showing the Ground Glass Scale.

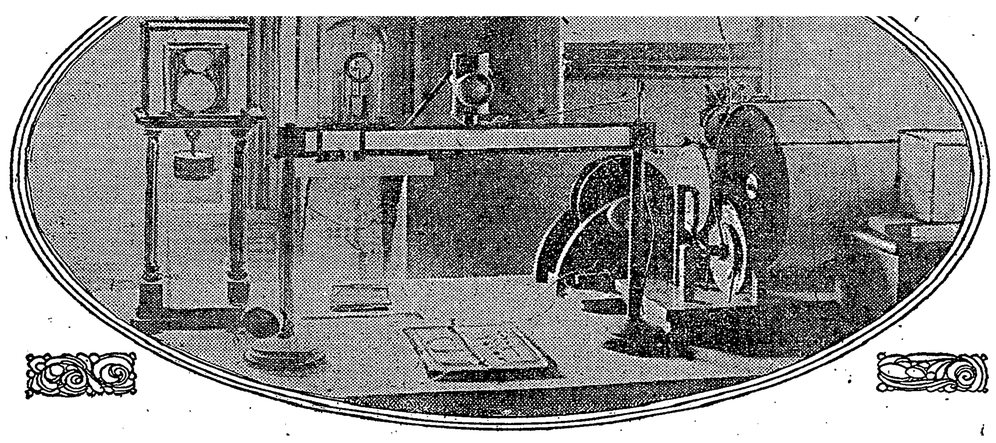


A Record of the Psychometer. Note the Disturbance in the Patient When the Word Whisky Was Spoken.



Prof. Edward R. Johnstone.

Dr. Henry H. Goddard.



Another View of the Psychometer.

MAY it please your Honor, the State accuses this man of the murder of his wife. I offer for your Honor's inspection these documents which prove beyond a doubt that the prisoner is guilty. The documents are the records made by various instruments to which the prisoner was subjected in the State's psychical laboratory, and your Honor will find recorded there the incontrovertible evidence that this man committed the crime, the exact details showing every step taken prior to, during, and after the murder, the motives, and the attempts to throw suspicion upon others.

"We have as yet obtained no confession from the prisoner, but if your Honor will consult the record of the psychometer, upon Page 21 you will see that his determination is weakening in spite of his outward bravado, and that there is reason to believe that a full confession will be forthcoming in a short time. In view of this conclusive proof the State asks for the maximum penalty of the law."

None but an insane prosecuting attorney would make such a speech as this in a court of to-day, yet there is every reason to believe that it will be a common thing for our grandchildren or our great-grandchildren to listen to just such arguments in criminal cases. There will be no jury, no horde of detectives and witnesses, no charges and countercharges, and no attorney for the defense. These impedimenta of our courts will be unnecessary. The State will merely submit all suspects in a case to the tests of scientific instruments, and as these instruments cannot be made to make mistakes nor tell lies, their evidence will be conclusive of guilt or innocence, and the court will deliver sentence accordingly.

It sounds like a Jules Verne tale of wildly improbable imagination, yet serious scientists who are devoting their time to the study of the latest marvels of psychic investigation see no reason why man should not expect such a development.

Already the psychometer is an actual, working fact. Even in its present crude state no living man can conceal his emotions from the uncanny instrument; he may bring the most gigantic of will powers into play to conceal his inner feelings, and the psychometer will record the very work which he makes this will power do.

Down in the fertile farming country of Southern New Jersey, about a mile out of the flourishing little city of Vineland, there are two men whose names and whose work are bound to go down into scientific history. They are delving deeply into the most intangible of all things—human thoughts and emotions—and they are proving daily that, instead of being intangible, as heretofore supposed, these things are perfectly tangible and real, that they can be harnessed and held for study, that they can be made to record their evolutions so that all men may see them and investigate them.

Edward R. Johnstone is the Superintendent of the New Jersey Training School for Feeble-Minded Boys and Girls; Henry H. Goddard is the Director of Research. These are the two men whose investigations are bringing to light such marvelous evidence of the immense possibilities that the future holds.

They are working, not with a view to aiding criminal jurisprudence but with the hope of making such discoveries that the mental health of the entire race will be benefited and feeble-mindedness made impossible.

Big-hearted as they both are in their sympathies, they are devoting their lives to the care and study of those unfortunates whose powers of thought and reason have been suddenly arrested in development and who are doomed to go through life men and women in years but helpless little children in minds.

And, in this self-sacrificing work, these men are furnishing the knowledge upon which future criminologists will build to make the detection of crime an absolute certainty, and, perhaps, to render innocuous men and women whose natural instincts might make them dangerous to society.

All this will take years in development, but the first great step has been taken in the instrument known as the psychometer upon which, for the past two years, these two men have been making records of all the minds with which they come in contact, both imbecile and normal.

The data which they have thus collected is immense in volume and in value, and is full of human stories that are so plain when spread upon the record sheets that the work of the silent little instrument seems positively weird and uncanny.

The psychometer is based upon a sentence found in a work published almost twenty-five years ago by Tarschanoff, a Russian psychologist. This sentence states that his experiments proved that the human body's resistance to an electrical current increased with the increase of the emotions.

Other psychologists who read this carried experiments on independently, and found that Tarschanoff's theory was undoubtedly correct. None, however, seemed to see any special value in the phenomenon until Dr. Jung of Zurich carried the reasoning a little further and said:

"If the human body's resistance to an electrical current increases with the increase of emotion, then it should be a very simple matter to record the emotions by the variation of an electrical current passed through the body."

Accordingly, he set about the construction of an instrument based upon this idea. This is the psychometer as it is seen in Vineland and several other places in this country to-day. So far it is but a simple and crude affair, compared to what these scientists declare it will be in the future. But it shows that the mind can be compelled to make a record of its every thought, and it now remains for future investigators to evolve the scheme by which different phases of emotion will make different records, and then no criminal can escape the consequences of his guilt.

The basis of the psychometer is the galvanometer, known to everybody as an instrument which merely registers the intensity of an electrical current. In this case the galvanometer is so arranged that its action swings to one side or the other a little concave mirror. The mirror is hung in a framework on a large table. Directly in front of it is an electric light, and the reflection of this light is caught in the mirror and focused by its concavity upon a point to one side of the light.

As the variations in the electrical current in the galvanometer swing the mirror, the reflection of the light naturally swings to left or right with it, and this is made clear to the eye by placing a long, thin strip of ground glass in a framework so that the rays of reflection are focused upon it and are seen to move with the movement of the mirror. The ground glass is marked off into centimeters so that the exact extent of the travels of the reflection can be seen.

In order to record this travel a sliding arrow point is attached to the ground glass and by a string moves a pen point that is set to one side. Under the pen point is a metal drum carrying a long roll of paper, the drum being revolved by machinery a certain distance every second.

The attendant who has charge of the recording simply sits in front of the ground glass and with the arrow point follows the reflection of the light as it moves along the scale. In this way it is recorded upon the paper on the drum.

In a small adjoining room sit the subject and the examiner facing each other across a small table. In the centre of the table is a transverse board partition high enough so that neither can see the hands of the other, but not so high as to prevent conversation and a free exchange of glances.

The patient has his hands upon two metal domes fixed in the table. Through these he receives the electric current, but it is so weak that it cannot be felt even by the most sensitive nerves. He talks to the investigator. He answers questions and relates experiences, and, with every increase in his emotion, whether he shows it outwardly or not, he increases his body's resistance to the electric current that is being passed through his hands, the increase is felt by the galvanometer, the mirror is swung ever so slightly, the reflection of the light on the ground glass scale travels to the right or left, the arrow point in the hands of the assistant follows it, and by the string moves the fountain pen over the drum, and there the variation in emotion is recorded indelibly upon the revolving sheet of paper—recorded in a way that shows its intensity, the time it took for the emotion to be aroused, the length of time it lasted, and when the sheet is finally filled out by the notes made by the investigator behind the board partition on the little table, the record is completed by the words or phrases which produced the emotion.

All very simple and very unimportant you may say. So, perhaps, it is in its present state of development, yet, handled by a man of keen intelligence, it can be made to produce marvelous results.

The method used now is much simpler than it will be after the instrument is better understood. To-day Dr. Goddard explains to the subject that he will simply read, one by one, a list of 100 words totally disconnected and with no relevancy whatever. After each word is pronounced by the doctor the patient is to say the first thing that comes into his mind suggested by the word. It does not matter how silly or how absolutely without meaning the answer may appear to be. The patient is to utter the first thought that the word suggests.

Unknown to the subject, the investigator presses a button the instant the word from the list is pronounced, and at the same time presses a stop watch. The first button makes a mark upon the paper on the revolving drum in the other room, and also gives Dr. Goddard's assistant warning to watch the light on the ground glass. Then, as soon as the answer is made, the doctor snaps his stop watch, writes down the answer, and the number of seconds and fifths of seconds it has taken the subject to give it, and any other data he may desire. This data is all written in later on the paper record being made on the drum.

Dr. Goddard went to Zurich some time ago especially to see Dr. Jung and the wonderful new instrument he had devised. Dr. Goddard has spent his life in such work that his deeper emotions are not easily aroused, and when he became a subject for Dr. Jung the instrument showed practically no variations as the list of words was read to him, because he was acting his part purely from the standpoint of the scientist, and his answers were made almost automatically, while his mind was fixed upon the work of the psychometer.

"You are answering with your mind and not with your emotions," said Dr. Jung. "Let us try omething else. What is it that you dislike most in all the world?"

Dr. Goddard thought over a number of things without replying, when Dr. Jung suddenly exclaimed:

"That's it—what you are thinking of now."

Dr. Goddard had thought of the extreme nervousness which he always felt when called upon to make a speech in public. The thought made the reflection of light on the ground glass scale move to the right a distance of twelve centimeters.

While Dr. Goddard was in Zurich Dr. Jung showed by practical application how valuable the future development of this or a similar instrument will be to criminologists.

A pocketbook had been stolen in the institution. It was later found concealed between some blankets in a clothes closet in a room occupied by three nurses.

By Dr. Jung's orders, nothing was said about the recovery of the stolen article, and the three nurses were asked, one at a time, to help Dr. Jung with his laboratory work, so that they did not know that it had anything to do with the theft.

The first nurse was given the list of words in the ordinary way, only a dozen or more of the regular words were eliminated and in their places were put such words as "pocketbook," "theft," "clothes closet," or similar words that would recall the theft to any one having a knowledge of it.

The first nurse showed no reaction whatever at these critical words. The second nurse showed quite a strong reaction on some of them but not on all, and the third nurse reacted violently on every one of them. The first was, accordingly, of no further interest, but the other two were put through the process again with a number of new words designed to suggest even more strongly the theft.

Again the second nurse reacted on all the words connected with the theft, but showed no emotion after the words which would have suggested the hiding place or the recovery of the pocketbook. The third reacted more violently than ever, and was especially strong in her emotion after the words that would tend to show that she knew where the pocketbook had been found.

Dr. Jung was so well satisfied that he accused the third nurse, and she made a full confession that she was the thief, that the second one knew of the theft, but did not know where the pocketbook had been hidden, and that the first nurse knew nothing whatever about the matter.

On Dr. Goddard's return to Vineland, he was given two opportunities to test the instrument in this way:

A lady visited the institution, and, after her return to her home, wrote that a ten-dollar bill had been taken from her pocketbook while she was inspecting the school. There were three boys who might have had a chance to take the money, so Dr. Goddard put each one in turn under the scrutiny of the psychometer, inserting in the word list a number of critical words designed to suggest the theft.

Not one of the boys showed the slightest excess of emotion at these words, and Dr. Goddard was about to lose faith in the instrument when he received a letter of apology from the lady, saying that she had not had the ten-dollar bill with her after all, and that she had later remembered where she had left it at home.

Again five boys were suspected of making petty thefts of money to buy tobacco, an article of which the weak-minded are particularly fond, but which is forbidden them. Each of the boys in turn was put to the psychometer test, and one of them reacted slightly on the critical [illegible]

He was a boy of a very low grade of intelligence, so that Dr. Goddard could not determine whether the slight reaction was the result of innocence or of lack of any emotional capacity. The reactions were, however, sufficient to lead Dr. Goddard to believe that the boy knew something of the thefts, so a stricter supervision was exercised over him and the peculations ceased.

"The great difficulty with the use of this instrument in criminal cases," said Dr. Goddard to a reporter of THE NEW YORK TIMES, "is that in its present stage of development we are unable to tell from the record whether the emotion aroused is pleasure or pain, shame or triumph, guilt or mere nervousness. If I were to examine a stock gambler with the psychometer and mention stocks he would record a strong emotion, but I should be unable to determine whether he had won or lost.

"Take the Beattie murder case, for instance. I might or I might not learn a great deal about the accused by examining him in this way. Every critical word would undoubtedly register a strong emotion, but that might be caused by nervousness, by the knowledge that he was suspected of the crime, by knowledge that the crime had been committed by another and that he was wrongly accused of it, or it might be an indication of guilt. The record would be the same from any of these causes. A shrewd examiner might so arrange his words and his data as to point very strongly one way or the other, and so be of great assistance in the case, even with the instrument as it is now, but here the personal equation would enter so strongly that there would have to be other proof."

"Do you think that the instrument, or one along the same lines, will ever be so developed as to make a definite record of each phase of emotion and record differently for each one?"

"I see no reason why that should not be done. Indeed, I personally believe that it is only a matter of time when the records of the instruments to be used by psychologists will be unmistakable and will eliminate the doubtful personal equation entirely."

"In other words, you believe that the time will come when the prisoner in such a case as this Beattie murder will be conclusively proved guilty or innocent merely by subjecting him to the tests of scientific instruments?"

"I do.

"You must understand, however," continued Dr. Goddard, "that Prof. Johnstone and I are not at present using the psychometer with a view to its application in criminal cases. Our business is with the feeble-minded. Already we are detecting, by the use of this instrument, phases of emotional activity in the minds of our inmates that we had no way of discovering before.

"Here, for instance, is Simon, a 'Mongolian,' as we call his type, with the mind of a five year old child. It is a very low grade of intelligence, and, so far as his outward expression would show, it would be impossible to discover whether he had any emotion or not. But put him at the psychometer and let this lady, who is my assistant, come into the room, and the instrument will at once record an increase in the boy's emotions. Let her show him a piece of candy and the light will advance many centimeters.

"I am preparing now to use this to discover whether the unfortunates under our care have any real affection for their parents. We cannot tell from the actions of some of them whether they even recognize their mothers and fathers. If the instrument shows a recognition, however slight, we will have proved that their minds have a capacity that has heretofore been doubted.

"So we plan to take up the emotions one by one until we know just what departments of the feeble minds are dead and what are still alive. In that way we will have some basis for future psychologists to work upon in the hope of improving minds which to-day are hopeless even under the best treatment."

"And what part has Prof. Johnstone in all this work of yours?"

Dr. Goddard stopped short in his pacing up and down the room.

"There isn't a thing I do," he said impressively, "that is not inspired and guided by Johnstone. You must not give me credit for anything without explaining that most of the credit belongs to him. There is not a record in this laboratory that he has not examined minutely, and there is not a line of investigation undertaken without his approval, co-operation, and advice. I regard him as the biggest man in this work in the United States, and when I say that I do not except some men who are better known."

Johnstone and Goddard were brought together in this work in a way that is a little romance in itself.

Goddard is a Haverford man of the class of '87. After graduation he taught in the University of California and came back to Haverford for a degree. Then came more teaching and finally some post-graduate work at Clark University in 1899.

Five years ago Goddard was in West Chester, Penn., teaching and investigating subjects in psychology, and in the course of his work he attended a child-study convention at Newark, N. J. He was late in arriving and as he entered the room he was struck by the sincerity and earnestness of a man who was speaking.

"There," thought Goddard, "is a man I want to know."

So he was introduced to Johnstone.

There followed many invitations to the school at Vineland, and in course of time a number of kindred spirits joined these excursions in what they jocularly called the Feeble Minded Club. The club got into the habit of having dinners at stated intervals, and at almost every meeting the conversation turned upon the immense work that might be done for mental incompetents if only there were sufficient scientific data to work upon. And the institution at Vineland was just the place for the gathering of such data.

Goddard and Johnstone became intimate friends in their mutual interest in such work. Frequently Johnstone said:

"Goddard, I wish you would come down to Vineland and establish a laboratory for the study of my poor children."

But Goddard was busy earning a living and the funds of the Vineland institution were not sufficient. Johnstone, in his dilemma, wrote to Clark University, asking them to recommend some psychologist for the position. Without any knowledge on the part of the university officials of the friendship, the answer came back, "Get Goddard."

That decided Johnstone, and at the next dinner of the Feeble Minded Club he said, "Goddard, I've got a fine home and a thousand dollars a year for a man to start that laboratory."

Goddard could not afford to give up his position at such a figure, so the matter was dropped. Soon, however, Johnstone wrote:

"Come down here and start that laboratory at once, and I will see that you get what you want."

And so the work was begun. To-day the laboratory is costing over $8,000 a year, a sum furnished entirely by voluntary contributions, so that there is no certainty that the work can be made permanent.

The psychometer is only one of scores of remarkable instruments that these men are applying in searching the inner minds of their unfortunate charges. Most of a large building is being taken up with the invaluable data they are gathering, and if, a hundred years from now, there is an insane or a weak-minded person in all the world, it will not be the fault of Goddard or Johnstone.

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