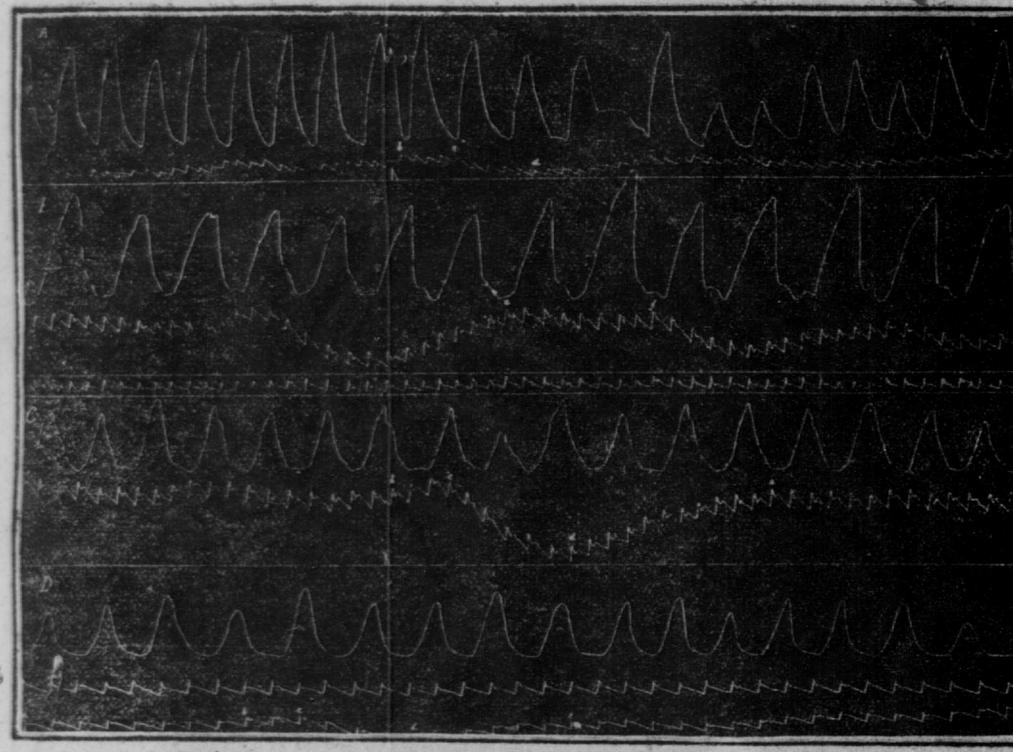


MACHINES THAT TELL WHEN WITNESSES LIE

DID ORCHARD TELL THE TRUTH?
PROF. MUNSTERBERG WILL GIVE HIS OPINION LATER BUT HERE'S THE WAY PSYCHOLOGISTS FIND OUT SUCH THINGS



A record of the pulse (smaller curve) and breathing (larger curve) of a person under examination. At certain points a sudden change in the curves indicates a sudden emotion.

WHEN Professor Hugo Munsterberg of Harvard university went to Boise, Idaho, to make certain observations of Harry Orchard, chief witness in the Haywood murder trial, the public

ly arising therefrom caused the learned professor to make certain explanations to the public in an open letter. It was to the effect that he had not given to any newspaper details of the psychological experiments he made on Orchard, he would not until a much later period, and then only in scientific journals. What little he had said had been made the basis of sensational stories, false generally in their intent and content.

Professor Munsterberg did not pretend to exclusive knowledge of secret processes. Later he will give the results of his experiments. The public, however, is anxious to know sooner how certain psychological examinations are made, and The Call gives below an article by a leading university man thoroughly conversant with the subject, though personally engaged in other branches of learning.

He explains recent processes of psychological investigation and shows how it is that soon we may have in our courts another kind of expert—the one who can tell whether witnesses are telling the truth.

THE entire reading world had its attention attracted by the visit of Professor Hugo Munsterberg of Harvard university to Boise, Idaho, during the Haywood trial and the public awaits with interest his promised statement of the results of the scientific examination he gave Harry Orchard to determine whether or not he was telling the truth.

Concerning such examinations Professor Munsterberg has already said: "To deny that the experimental psychologist has possibilities of determining the 'truth telling powers' is as absurd as to deny that the chemical expert can find out whether there is arsenic in a stomach." If the results of his examination demonstrate a practical method of telling the truthfulness of a witness a new kind of expert may find a place in our courts.

Meanwhile inquiry among psychologists shows that the subject is not as new to them as it is to the public, experiments of the sort having been carried on for a number of years. The department of psychology at Columbia university, for example, has a whole series of sensitive electrical instruments for noting and recording the involuntary physical accompaniments of mental conditions or actions. If these were attached to a suspected person while he was undergoing a specially arranged examination they would indicate not only whether he was telling the truth but also something concerning the crime he was trying to conceal.

The simplest of these instruments, the automograph, holds the forearm and hand suspended in an easy position by means of a sling, which bears also a



pencil or pen point, which records each involuntary movement of the hand, arm or body. This recording part of the apparatus can be hidden from the subject, and the sheet of paper upon which the record is made can be caused to move at a regular and fixed rate, so that the relation in time between any question or suggestion of the examiner and the

stimulates emotion on the part of a guilty person will have no effect upon one who is innocent.

Perhaps the most delicate of all these instruments is the spymograph, which on being attached to the wrist notes and records the heart beat in the same way that the others do involuntary muscular movement or breathing. Of the three kinds of

movement that of the heart is not only the most sensitive to emotion but is also least subject to control by the will. The record of its halts, jumps or rapid beating is perhaps the most significant of all.

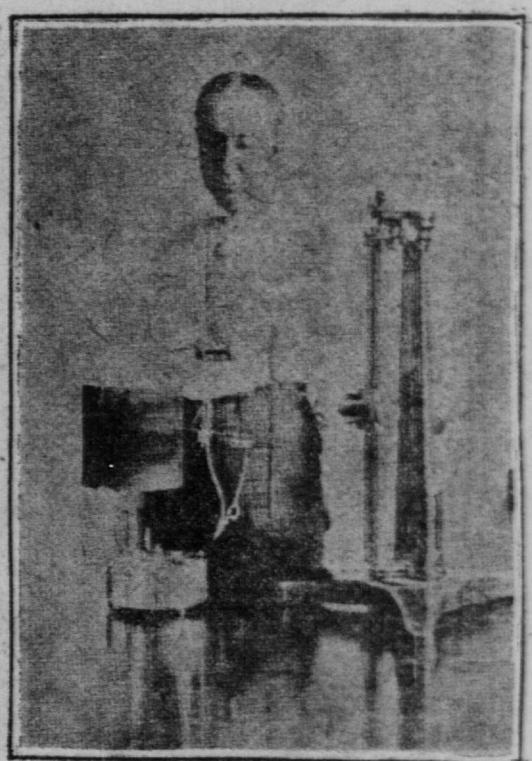
Since all of these instruments may be attached to the same person at once, their accumulated testi-

sible after each the first thing it makes him think of, thus: Chair, table; boy, girl; coat, hat; door, window; transfer, streetcar, etc. Enough harmless words are given to accustom the subject to giving the first a result of many experiments and proper provision can be made in certain circumstances for this margin of honest error.

But the details of this line of research, however, are, as Mr. Kipling says, another story.



The Automograph. A refined form of the familiar "planchette". The arm is suspended from the ceiling in a sling and a pencil or pen attached to the sling writes the involuntary movements of the arm on smooth paper on the table below.



The Pneumograph. A little air cylinder with ends of rubber is bound around the chest of the person examined. A rubber tube leading thence to a pen writing on a moving surface causes the pen to write the breathing movements on the paper.

is employed in addition at the same time a purely response, a suspect who is guilty will almost immediately utter the names of other things or actions connected with the crime, but which have not been mentioned by the examiner. In other words, he betrays the guilty knowledge of the scene of the crime or of the action which must have been gone through by the criminal.

Any suspicion on the part of the subject of the examination assists rather than interferes with its success. If he becomes aware that his answers are betraying him any refusal to proceed would be a practical admission of guilt and any hesitation in trying to avoid incriminating answers would make an equally significant sign on the time record.

Rapid answering to an associated word will not ordinarily occur more than a second, but the realization of the danger of any association and the effort to find something else to say may require several seconds. The search for substitute words also is often unsuccessful. Sometimes, in spite of an effort to find another the incriminating word persists and the subject cannot avoid uttering it. At other times the rapid search leads only to nonsense, and this, if often repeated, is suspicious.

In any case, such an examination—especially if sufficiently extended to eliminate the results of association or if combined with the three other forms of examination mentioned—furnishes almost unquestionable evidence of the action or the knowledge which the examiner seeks. And in every case there is an unmistakable difference between the response of a guilty or knowing person and one innocent or ignorant of the crime.

All of these methods may be used not only with suspects who wish to conceal their guilt, but equally well with witnesses who wish to convey an impression which did not accord with the facts, as may have been the case with Orchard. In the latter instance the lack of emotion or of unexpected association with the crime would be as significant as their presence in the examination of guilty persons.

The purely mental test described above, which was developed at the University of Wurzburg in 1905, is evidently that used by Professor Munsterberg with Orchard, although his experience and originality probably devised certain modifications or elaborations. He says: "The chief proof (i.e., of Orchard's reliability) lies for me in certain results of the time measurement of associations, a complex method which has been developed for legal purposes in the last two or three years."

Now are the experiments described the only contributions that experimental psychology is likely to make to the solution of legal problems in the near future. Extensive studies of the credibility of the observation of even an intentionally truthful witness have been made at the universities of Berlin and Geneva and at Columbia, and they indicate that our ordinary observation is so far from accurate that no man can truly carry out the witness' promise "to tell the truth, the whole truth and nothing but the truth."

Suppose a large number of persons observe a