THE THIRD DEGREE

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AS OLD as the history of crime is the history of cruelties exercised, in the service of justice, for the discovery of criminal facts. Man has the power to hide his knowledge and his memories by silence and by lies, and the infliction of physical and mental pain has always seemed the quickest way to untie the tongue and to force the confession of truth. Through thousands of years, in every land on the globe, accomplices have been named, crimes have been acknowledged, secrets have been given up, under threats and tortures which overwhelmed the will to resist. The imagination of the Orient invented more dastardly tortures than that of the Occident; the medieval Inquisition brought the system to perhaps fuller perfection than later centuries; and to-day the fortresses of Russia are said to witness tortures which would be impossible in non-Slavic lands. And, although the forms have changed, can there be any doubt that even in the United States brutality is still a favorite method of undermining the mental resistance of the accused? There are no longer any thumbscrews, but the lower orders of the police have still uncounted means to make the prisoner's life uncomfortable and perhaps intolerable, and to break down his energy. A rat put secretly into a woman's cell may exhaust her nervous system and her inner strength till she is unable to stick to her story. The dazzling light and the cold-water hose and the secret blow seem still to serve, even if nine tenths of the newspaper stories of the "third degree" are exaggerated. Worst of all are the brutal shocks given with fiendish cruelty to the terrified imagination of the suspect.

Confessions Invented under Torture

Decent public opinion stands firmly against such barbarism; and this opposition springs not only from sentimental horror and from esthetic disgust: stronger, perhaps, than either of these is the instinctive conviction that the method is ineffective in bringing out the real truth. At all times, innocent men have been accused by the tortured ones, crimes which were never committed have been confessed, infamous lies have been invented, to satisfy the demands of the torturers. Under pain and fear a man may make any admission which will relieve his suffering, and, still more misleading, his mind may lose the power to discriminate between illusion and real memory. Enlightened juries have begun to understand how the ends of justice are frustrated by such methods. Only recently an American jury, according to the newspapers, acquitted a suspect who, after a previous denial, confessed with full detail to having murdered a girl whose slain body had been found. The detectives had taken the shabby young man to the undertaking-rooms, led him to the side of the coffin, suddenly whipped back the sheet, exposing the white bruised face, and abruptly demanded, "When did you see her?" He sank on his knees and put his hands over his face; but they dragged him to his feet and ordered him to place his right hand on the forehead of the body. Shuddering, he obeyed, and the next moment again collapsed. The detectives pulled him again to his feet, and fired at him question after question, forcing him to stroke the girl's hair and cheeks; and, evidently without control of his mind, he affirmed all that his torturers asked, and, in his half-demented state, even added details to his untrue story.

A Microscope for Crime

The clean conscience of a modern nation rejects every such brutal scheme in the search of truth, and yet is painfully aware that the accredited means for unveiling the facts are too often insufficient. The more complex the machinery of our social life, the easier it seems to cover the traces of crime and to hide the

outrage by lies and deception. Under these circumstances, it is surprising and seems unjustifiable that lawyers and laymen alike should not have given any attention, so far, to the methods of measurement of association which experimental psychology has developed in recent years. Of course, the same holds true of many other methods of the psychological laboratory — methods in the study of memory and attention, feeling and will, perception and judgment, suggestion and emotion. In every one of these fields the psychological experiment could be made helpful to the purposes of court and law. But it is the study and measurement of associations which have particular value in those realms where the barbarisms of the third degree were formerly in use. The chronoscope of the modern psychologist has become, and will become more and more, for the student of crime what the microscope is for the student of disease. It makes visible that which remains otherwise invisible, and shows minute facts which allow a clear diagnosis. The physician needs his magnifier to find out whether there are tubercles in the sputum: the legal psychologist may in the future use his mental microscope to make sure whether there are lies in the mind of the suspect.

The Science of the Association of Ideas

The study of the association of ideas has attracted the students of the human mind since the day of Aristotle; but only in the last century have we come to inquire systematically into the laws and causes of these mental connections. Of course, every one knows that our memory-ideas link themselves with our impressions — that a face reminds us of a name, or a name of a face; that one word calls another to mind; that even smell or taste may wake in us manifold associations. But out of such commonplaces grew a whole systematic science, and the school of associationists began to explain our entire mental life as essentially the interplay of such associations. There are the outer associations of time and place, where one thing reminds us of another together with which we experienced it. There are inner associations, where one thing awakens in our minds something else which has similarity to it, or to which it is related as a part to the whole or the whole to a part, and so on. The word "dog" may call up in my mind, perhaps, the memory-picture of a particular dog, or the name of that dog, or the idea of a house in which I saw it; or it may bring up the superordinated idea, "animal," or the subordinated, "terrier," or the coördinated, "cat," or the part, "tail"; or perhaps it may suggest to me the German translation for dog, or a painting with dogs in it: there are no end of possibilities. But the psychologists were not satisfied with grouping the various cases; their chief aim was to determine the conditions under which they arise, the influence which the frequency or the recency or the vividness or the combination of special experiences has on the choice of the resulting idea.

In the last few decades, then, has arisen the new science, experimental psychology, which, like physics and chemistry, has its own workshops, wherein mental facts are brought under experimental test in the same way as in the natural sciences. With the application of experimental methods, the study of associations took at once a new turn. In the laboratory we are not confined to the chance material which daily life offers; we can prepare and control the situation. For instance, I may use a list of one hundred substantives, and read one after the other to my subject, and ask him to give me the first word which enters his mind. I receive thus one hundred associations which are independent of any intentional selection, showing just the paths of least resistance in the mind of my man. I may use them, for instance, to make statistics as to their character: if the outer associations prevail, I have a type of mind before me other than in the case of a preponderance of inner associations; if the superordinations prevail, I have an intellect other than if the subordinations were in the majority. Or I may study the influences of preceding impressions. Perhaps I read to my man a story or showed him some pictures before I gave him the one hundred words for association; the effect of that recent experience will show itself at once. In this way the variations are endless.

Measuring Thought by Electricity

ut one aspect dominates in importance: I can measure the time of this linkage of ideas. Suppose that both my subject and I have little electrical instruments between the lips, which, by the least movement of speaking, make or break an electric current passing through an electric clockwork whose index moves around a dial ten times in every second. One revolution of the index thus means the tenth part of a second, and, as the whole dial is divided into one hundred parts, every division indicates the thousandth part of a second. My index stands quietly till I move my lips to make, for instance, the word "dog." In that moment the electric current causes the pointer to revolve. My subject, as soon as he hears the word, is to speak out as quickly as possible

the first association which comes to his mind. He perhaps shouts "cat," and the movement of his lips breaks the current, stops the pointer, and thus allows me to read from the clockwork in thousandth parts of a second the time which passed between my speaking the word and his naming the association. Of course, this time includes not only the time for the process of association, but also the time for the hearing of the word, for the understanding, for the impulse of speaking, and so on. But all these smaller periods I can easily determine. I may find out how long it takes if my subject does not associate anything, but simply repeats the word I give him. If the mere repetition of the word "dog" takes him 325 thousandths of a second, while the bringing up of the word "cat" took 975 thousandths, I conclude that the difference of 650 thousandths was necessary for the process of associating "cat" and "dog."

In this way, during the last twenty years, there has developed an exact and subtle study of mental associations, and through such very careful observation of the time-differences between associations a deep insight has been won into the whole mental mechanism. The slightest changes of our psychical connections can be discovered and traced by these slight variations of time, which are, of course, entirely unnoticeable so long as no exact measurements are introduced. The last three years have finally brought the latest step: the theoretical studies have been made useful to practical life. Like many other branches of experimental psychology, the doctrine of association has become adjusted to the practical problems of education, of medicine, of art, of commerce, and of law. It is the last which chiefly concerns, us here.

How the Mind Betrays its Own Secrets

For instance, our purpose may be to find out whether a suspected person has really participated in a certain crime. He declares that he is innocent, that he was not present when the outrage occurred, and that he is not even familiar with the locality. An innocent man will not object to our proposing a series of one hundred associations to demonstrate his innocence. A guilty man, of course, will not object, either, as a declination would indicate a fear of betraying himself; he cannot refuse, and yet affirm his innocence. Moreover, he will feel sure that no questions can bring out any facts which he wants to keep hidden in his soul; he will be on the lookout. As long as nothing more is demanded than that he speak the first word which comes to his mind, when another word is spoken to him, there is indeed no legal and no practical reason for declining, as long as innocence is professed. Such an experiment will at once become interesting in three different directions as soon as we mix into our list of one hundred words a number, perhaps thirty, which stand in more or less close connection to the crime in question — words which refer to the details of the locality, or to the persons present at the crime, or to the probable motive, or to the professed alibi, and so on. The first direction of our interest is toward the choice of the associations. Of course, every one believes that he would be sure to admit only harmless words to his lips; but the conditions of the experiment quickly destroy that feeling of safety. As soon as a dangerous association rushes to the consciousness, it tries to push its way out. It may, indeed, need some skill to discover the psychical influence, as the suspected person may have self-control enough not to give away the dangerous idea directly; but the suppressed idea remains in consciousness, and taints the next association, or perhaps the next but one, without his knowledge.

He has, perhaps, slain a woman in her room, and yet protests that he has never been in her house. By the side of her body was a cage with a canary-bird. I therefore mix into my list of words also "bird." His mind is full of the gruesome memory of his heinous deed. The word "bird," therefore, at once awakens the association "canary-bird" in his consciousness; yet he is immediately aware that this would be suspicious, and he succeeds, before the dangerous word comes to his lips, in substituting the harmless word "sparrow." Yet my next word, or perhaps my second or third next, is "color," and his prompt association is "yellow": the canary-bird is still in his mind, and shows its betraying influence. The preparation of the list of words to be called thus needs psychological judgment and insight if a man with quick self-control is to be trapped. In most cases, however, there is hardly any need of relying on the next and following words, as the primary associations for the critical words unveil themselves for important evidence directly enough.

Yet not alone are the first associations interesting. There is interest in another direction in the associations which result from a second and a third repetition of the series. Perhaps after half an hour, I go once more through the whole list. The subject gives once more his hundred replies. An analysis of the results will show that most of the words which he now gives are the same which he gave the first time · pronouncing the words has merely accentuated

his tendency to associate them in the same connection as before. If it was "house"—"window" first, then it will probably be "house" — "window" again. But a number of associations have been changed, and a careful analysis will show that these are first of all the suspicious ones. Those words which by their connection with the crime stir up deep emotional complexes of ideas will throw ever new associations into consciousness, while the indifferent ones will link themselves in a superficial way without change. To a certain degree, this variation of the dangerous associations is reinforced by the intentional effort of the suspected. He does not feel satisfied with his first words, and hopes that other words may better hide his real thoughts, not knowing that just this change is to betray him.

The Involuntary Influence of Emotion

But most important is the third direction of inquiry: more characteristic than the choice and the constancy of the associations is their involuntary retardation by emotional influence. A word which stirs emotional memories will show an association-time twice or three times as long as a commonplace idea. It may be said at once that it is not ordinarily necessary, even for legal purposes, that the described measurement be in thousandths of a second; the differences of time which betray a bad conscience or a guilty knowledge of certain facts are large enough to be easily measured in hundredths or even in tenths of a second; though measurements for the theoretical purposes of psychology require, indeed, a division of the second into a thousand parts. In the following legal division I shall, therefore, refer to differences in tenths of a second only.

The absolute time of associations is, of course, quite different for different persons; to link familiar ideas like "chair" — "table" or "black" — "white" may take for the slow type more than a full second, while the alert mind may not need more than half a second. Thus we begin by finding the average for each individual, and all our interest goes into the deviations from this average. That a certain association should take one and a half seconds would be a very suspicious retardation for the quick mind which normally associates in three quarters, while it would be quite normal for the slow thinker. And here, again, it may be mentioned that the retardation is not always confined to the dangerous association alone, but often comes in a still more pregnant way in the following or the next following association, which on the surface looks entirely harmless. The emotional shock has perturbed the working of the mechanism, and the path for all associations is blocked. The analysis of these secondary time-retardations is the factor which demands the greatest psychological skill. A few illustrations from practical life may make the whole method clearer

A Case of Psychological Detective Work

An educated young man of eighteen lived in the house of an uncle. The old gentleman went to consult a nerve specialist in regard to some slight nervous trouble of the younger friend. On that occasion he confided his recent suspicion that the young man might be a thief. Money had repeatedly been taken from a drawer and from a trunk; until lately he had had suspicions only of the servants; he had notified the police, and detectives had watched them. He was most anxious to find out whether his new suspicion was true, as he wanted, in that case, to keep the matter out of court, in the interest of the family. The physician, familiar with the new psychological methods, arranged that the young man come for an examination of his nerves. He then proposed to him a list of a hundred associations as part of the medical inspection. The physician said "head," the patient associated "nose"; then "green" — "blue," "water" — "air," "long" — "short," "five" — "six," "wool" — "cloth," and so on, the average time of these commonplace connections being 1.6 seconds. But there were thirty-seven dangerous words scattered among the hundred — words that had to do with the things in the room from which the money was abstracted, or with the theft and its punishment, or with some possible motives. There appeared, for instance, the word "thief." The association "burglar" seemed quite natural, but it took the boy suddenly 4.6 seconds to reach it. In the same way "police" — "theft" took 3.6 seconds, "jail" — "penitentiary" 4.2 seconds. In other cases the dangerous word itself came with normal automatic quickness, but the emotional disturbance became evident in the retardation of the next word. For instance, "key" — "false key" took only 1.6 seconds, but the following trivial association "stupid" — "clever" grew to 3.0 seconds. "Crime" — "theft" came again promptly in 1.8, but the inner shock was so strong that the commonplace word "cook" was entirely inhibited and did not produce an association at all in 20 seconds. In the same way "bread" — "water" rushed forward in 1.6 seconds, but this characteristic choice, the supposed diet of the jail, stopped the associative mechanism again for the following trivial word. It would lead too

far to go further into the analysis of the case, but it may be added that a repetition of the same series showed the characteristic variations in the region of the suspicious words. While "crime" had brought "theft" the first time, it was the second time replaced by "murder"; "discover" brought the first time "wrong," the second time "grasp." In the harmless words there was hardly any change at all. But, finally, a subtle analysis of the selection of words and of the retardations pointed to sufficient details to make a clear diagnosis. The physician told the young man that he had stolen; the boy protested vehemently. Then the physician gave him the subtle points unveiled by the associations — how he had bought a watch with the money and had given presents to his sister; and the boy confessed everything, and was saved from jail by the early discovery. The brutalities of the third degree would hardly have yielded such a complete result, nor the technicalities of legal evidence, either.

Trapping a Trained Criminal

Of course, this case is that of a highly sensitive mind with the strong feelings of a bad conscience. A professional tough criminal would not show such intense emotions, and hence not such long retardations, if he were as unsuspicious and unaware of the purposes of the experiment as that boy was. But what would be the situation of such a trained criminal who had no conscience and who knew beforehand that the experiment was to determine whether or not he lied or spoke the truth?

In that case, another group of facts is to be considered. We might expect from such a subject very little lengthening of the simple association-time by emotion, but instead of it a considerable lengthening by conscious effort to avoid suspicious and dangerous associations, provided that he were anxious to hide the damaging truth. As soon as a critical word were offered, he would be on the lookout not to betray the first word which came over the threshold of consciousness, but to make sure first that it was harmless, and to replace it if it were dangerous. Experiment shows that such watching and conscious sanctioning takes time, and the replacing of the unfit word by a fitting word brings still larger loss of time; nobody is able to look out for the harmlessness of his associations and yet to associate them with the average quickness with which the commonplace ideas are brought forth. If the dangerous words show association-times of unusual shortness, it is necessary to suppose that the subject of the experiment makes no effort to suppress the truth; the short time proves that he lets the ideas go as they will, without his sifting, sanctioning, and retouching. Even the best bluffer will thus be trapped in his effort to conceal anything, by time-differences which he himself cannot notice.

Experiments with a Multi-Murderer

As an illustration of a case of such a type, I may speak of experiments that I carried on recently for several days in a Western penitentiary with a self-confessed multi-murderer. He played the star witness in a trial against a man whom his confession accused as an accomplice. It made hardly a difference whether the view of the prosecution or the view of the defense was taken: seen from any side, the witness offered a psychological problem of unusual interest. And its importance did not decrease when it was found out, through the verdict of the jury, that the defendant was innocent and had no connection with the crimes of the witness. No side doubted at any time that this was one of the most persistent murderers of modern time, and no side could deny that he was, during the trial, an imperturbable witness with the mildest manners, with quiet serenity, and with the appearance of a man who has found his peace in God.

The first problem for the psychologist was whether the confession of the witness was a chain of conscious lies or whether he himself really believed what he told the court. No outer evidence was fit to settle this question of his mental attitude, and it seemed thus interesting to study whether it might be possible to decide it by the association method.

I had the good chance to see the murderer at once on the witness-stand. As my seat was at the small table of the attorneys for the prosecution, I had him only a few feet from me for careful observation. I cannot deny that my impression on that first morning was very unfavorable. His profile, especially the jaw, appeared to me most brutal and vulgar; I also saw at once the deformation of the ear, the irregularity in the movements of the eyes, and the abnormal lower lip. That this was the profile of a murderer seemed to me not improbable, but that this man had become a sincere religious convert seemed to me quite incredible. Yet, I did not consult my antipathies; I had to rely on my experiments, which I started the following day. This is, of course, not the place to set down a scientific report of the nearly one hundred groups of tests and experiments which were completed; they belong in scholarly archives. Most of them referred to the memory, the attention, the feelings, the will the judgment,

and the suggestibility. Our interest here belongs only to the association experiments and to some related tests. Thus the report here covers only a small section of the case, and ignores entirely everything which does not refer to the subjective veracity.

I told the witness directly that I had come to examine his mind and find out what was really at the bottom of his heart. He at once declared himself perfectly ready to undergo any test. If he thought that he, the experienced poker-player, could easily hide his inmost mind and could deceive me with cant and lies, I turned the tables on him quickly. I began with some simple psychological tricks with which every student of psychology is familiar, but which were naturally unknown and somewhat uncanny to the witness. For instance, I cov ered one of his eyes and asked him to fixate with the other eye a little cross on the table, and to watch at the same time a cent piece which I moved at the side of the cross. Suddenly I told him that he would not see the cent any more — indeed, it had disappeared; and as he did not know that we all have a blind spot at the entrance-place of the optical nerve in the retina, he was much struck by my foreknowledge of such a defect in his eye. Or, I showed him the drawing of a stair which he saw as such; observing his eye movements, I told him that he now did not see the stair any more, but an overhanging wall, and again he was astonished at my knowing everything in his soul. In a similar way, I used some tactual illusions, and soon he was entirely under the spell of the belief that I had some special scientific powers.

Testing his Own Belief in the Confession

Then I began with a real experiment. I told him that I should call at first fifty words, and each time, when he heard a word, he was to name to me as quickly as possible the first thing which came to his mind on the hearing of the word. I asked him not to choose the words intentionally, but to let them go without any reflection; I added that I should learn all from the ideas which he would bring up. My first word was "river," he associated "water"; then "ox," he said "yoke"; "mountain," he said "hill"; "tobacco," he said "pipe." All the interest thus seemed to belong to the choice of the words, and he saw that I wrote his answers down. But the fact is that I did something else also: I measured in fractions of a second the time between my calling the word and his giving a reply. Between his hearing of the word "river" and his speaking the word "water," eight tenths of a second passed; between "ox"—"yoke," six tenths; between "tobacco"—"pipe," eight tenths. On the whole, seven to eight tenths of a second was the very short standard time for those associations which represented familiar ideas.

Now, there were mixed in among the fifty words many which had direct relation to his criminal career and to his professed religious conversion — for instance, the words confession, revolver, religion, heaven, jury, death, Bible, pardon, railroad, blood, jail, prayer, and some names of his victims and of his alleged accomplices. Let us not forget that he was fully under the belief that I had a special power to discover from his spoken words the real tendencies of his mind; if he had had anything to hide, he would have been constantly on the lookout that no treacherous word should slip in. If a word like "confession" or something similar were called among harmless ones, he would never shout at once the first word which came to his mind, but would have watched that no dangerous secret, perhaps "confession"—"humbug," came out and betrayed him. He would have quickly suppressed the word before it was spoken — and yet, however quickly he might have done it, it would have taken at least one or two seconds more; and he would have used the longer time the more freely as he had no reason to suspect that time played any part in the experiment.

Proofs that the Witness Made No Effort to Hide Anything

But the results show the very remarkable fact that the dangerous words brought, on the whole, no retardation of the associative process. After "tobacco" — "pipe" came with the same promptness "confession"—"truth," again in eight tenths of a second, a time entirely insufficient for any inner deliberation or sanction or choice or correction: it is a time which just allows the speaking of the first idea which arises in the mind. 'Heaven"—"God" took, again, less than a second, and so "religion" — "truth," "blood"—"knife," "governor"—"executive," "witness" — "stand," "minister" — "pulpit," "mine-owner" — "mine"; only "pardon" — "peace," "death" — "end," and similar more abstract words took about one and a half seconds, a time which is still too short for real inhibition and second thought. Even the names of his accomplices and of his victims awoke associations in less than nine tenths of a second. The fact that these associations were produced by the witness in the minimum time, which made deliberation impossible, while he was convinced that the words would unveil his real mind, is strong evidence indeed that this man

did not want consciously to hide anything, and that he himself really believed his so-called confession.

If these experiments had been made with him before his confession, he would have stumbled over every third word, and many of his associations would have taken three seconds or more. He would have been unable, in spite of best efforts, to overcome the fear of betraying himself, and this fear would have retarded the associations in a way which would have trapped him unmistakably. But not only the short time, the choice of the associations also indicated clearly that, in an almost incredible manner, a mild, indifferent serenity had taken hold of his mind, and that his criminal life was of no concern to him any more. I gave him, for instance, the name of a city in which, according to his confession, he had been last to poison a victim and to dynamite his house; but in his mind the place did not connect itself any more with murder: in less than a second his mind joined it with "ocean."

The Mental Organism of the Murderer

It is evident from the association-times that no real emotion accompanied any of his memories of crime. He did not have and did not simulate a bad conscience. The emotional retardation of suspicious associations, characteristic of the average criminal, was, as expected, entirely lacking in this wholesale murderer. That does not mean that he lacks feeling; my experiments showed the opposite. To be sure, his sensitiveness for pain was, as with most criminals, much below the average. A deep pin-prick did not produce any reaction, and his whole touch sense was obtuse, while his eyes and ears were very sharp. But, in spite of this lack of organic pain,—he has never been ill,—he is sensitive to the immediate perception of suffering in others. Simulation is excluded: I measured the involuntary reactions. He really shivers at the thought of hurting others. I have no reason for doubting that he had this mental sensitiveness always; and that is no contradiction to the fact that he was spreading pain all around. Nearly all his crimes were performed in an impersonal way; he did not see the victims. He manufactured infernal machines, laid dynamite in the mines and bombs under gates, and thought of the suffering of the victims as little as the manufacturer of children's toys may think of the happiness of the little ones. He assured me that in those fifteen years of heinous deeds he never struck any one personally with his fist; that would have gone against his nerves. He exhibited tender feeling in all directions; he selected, for instance, very delicate color combinations as those which he liked best among many which I showed him. His favorite color seemed to be dark blue; any showy or loud dressing is disagreeable to him. He asserts, even, that he rarely drank any strong drinks: one glass of beer made him sleepy.

Yet, his emotional life is simply dead—the small figures of his association-times would otherwise be quite impossible. And it may be added that even if his religious conversion is genuine, his so-called religion lacks also every sound and deep feeling; it is thoroughly utilitarian; he serves God because he will reward him after death.

The association experiments thus completely fulfilled their purpose: they gave a definite reply to a definite question which could hardly be answered by other methods of evidence. The association experiments proved that the murderer did not try to hide anything. Of course, this was only the first problem to be solved in the case. From this state of subjective truthfulness which interests the psychlogoist to the proof of objective truth which interests the court is still a very long way. It would have been possible, for instance, that all this was pseudo-religious auto-suggestion, or that it was a systematic illusion brought forth by the suggestions of detectives and lawyers, or that the witness was hypnotized, or that his mind was diseased. The experimental inquiry had to study all those and other possibilities; they formed the chief part of my experiments, but they do not belong here, as they have no relation to the method of association-measurement, which was the only concern of this discussion.

The Case of a School Girl

Of course, the theoretical importance of the method is independent of the practical importance of the cases in which it is applied. Multi-murderers are rare; but the simplest case of wrong-doing may demonstrate the success of the method just as well. No sharper contrast could be possible than that between the brutal criminal with his dynamite bombs and the lovely little girl with her chocolate bonbons whom I had seen a short time before. She was anemic and neurasthenic, and could not concentrate her attention on her work for her college examinations. She came to me for psychological advice. I asked her many questions as to her habits of life. Among other things, she assured me that she took wholesome and plentiful meals and was not allowed to buy sweets. Then I began some psychological experiments, and, among other tests, I started, at first rather aimlessly, with trivial associations.

Her average association-time was slow, nearly 2 seconds. Very soon the word "money" brought the answer "candy," and it came with the quickness of 1.4 seconds. There was nothing remarkable in this. But the next word, "apron," harmless in itself, was 6 seconds in finding its association, and, furthermore, the association which resulted was "apron '— "chocolate." Both the retardation and the inappropriateness of this indicated that the foregoing pair had left an emotional shock, and the choice of the word "chocolate" showed that the disturbance resulted from the intrusion of the word "candy." The word "apron" had evidently no power at all compared with those associations which were produced by the candy-emotion.

I took this as a clue, and after twenty indifferent words which slowly restored her calmness of mind, I returned to the problem of sweets. Of course, she was now warned, and was evidently on the lookout. The result was that when I threw in the word "candy" again, she needed 4.5 seconds, and the outcome was the naïve association "never." This "never" was the first association that was neither substantive nor adjective. All the words before had evidently meant for her simply objects; but "candy" seemed to appeal to her as a hint, a question, a reproach, which she wanted to repudiate. She was clearly not aware that this mental change from a descriptive to a replying attitude was very suspicious; she must even have felt quite satisfied with her reply, for the next associations were short and to the point. After a while I began on the same line again. The unsuspicious word "box" brought quickly the equally unsuspicious "white"; and yet I knew at once that it was a candy-box, for the next word, "pound," brought the association "two," and the following, "book," after several seconds the unfit association "sweet." She was again not aware that she had betrayed the path of her imagination. In the course of three hundred associations I varied the subject repeatedly, and she remained to the end unconscious that she had given me all the information needed. Her surprise seemed still greater than her feeling of shame when I told her that she skipped her luncheons daily and had hardly any regular meals, but consumed every day several pounds of candy. With tears she made finally a full "confession." She had kept her injudicious diet a secret, as she had promised her parents not to spend any money for chocolate. The right diagnosis led me to make the right suggestions, and after a few weeks her health and strength were restored.

The Physician as Psychologist

This trivial case with its foolish offense shows how psychological detective work may also be useful outside of the sphere of law. It not seldom becomes the serious interest of the educator and the physician to disentangle hidden thoughts, and the "third degree" of the school and of the consultation-room might easily be replaced by association experiments. On such a basis the nerve specialist would frequently be able to make the right and helpful diagnosis without the aid of any "confession" and without awakening in the patient the slightest suspicion that his physician had discovered the real source of the trouble. Experiments have convinced me that the method may bring to light facts of which even the patient himself is ignorant. Ideas which are connected in his deepest soul, but which he cannot bring up voluntarily by mere effort of memory, are sometimes brought to expression by the mechanical devices of this association method. It seems that as soon as a number of associations have been produced under pressure of the desire to associate as quickly as possible, the mind enters into a state of decreased inhibition, in which suppressed and forgotten ideas rush forward.

This fact must become the more important, the more we learn, under the guidance of the Vienna School, that one of the most troublesome nervous diseases — namely, hysteria — results principally from suppressed affective ideas, and can be cured by awaking anew the restrained thought. Hysteria is "strangulated emotion," and disappears when the forgotten emotional ideas are brought to conscious expression. One hysteric woman always became mute after sunset; another could not take any food but liquids; another was constantly tortured by the hallucination of the tobacco odor. Every physician knows a hundred such hysteric symptoms. No one of these patients knew the reason or origin of her trouble. Slowly the physician discovered the suppressed ideas, which had had no chance to express themselves and had worked disaster in their inhibited form. The woman who could not speak at night had sat once at sunset, years before, at the bedside of her sick father; she had vehemently suppressed every sound in order not to disturb him. As soon as this first scene was brought back to her mind, she regained her voice. The woman who could not take solid food had been obliged, years before, to suppress her disgust when eating at the same table with a man who suffered from an ugly disease. As soon as this starting-point was consciously associated again, she was ready

to dine like others. The woman who smelled tobacco had long before heard by chance, in a room full of smoke, that the man she loved was in love with another, and she had had to suppress her emotion on account of the presence of others. As soon as she connected the smell again in consciousness with that first strangulated emotion, the hallucination disappeared. Hysteric contractions and anaesthesias, pathological impulses and inhibitions, can all be removed if the long-forgotten emotional ideas with which the disturbance started can be brought to light. Just here the association method seems surprisingly helpful. The psychologist who seeks to discover the secret connections of ideas may thus, by his association method, not only protect the innocent and unmask the guilty, but bring health and strength to the nervous wreck.

Psychology in Place of The "Third Degree"

Yet our chief interest belongs to the legal aspect of this method. Carried out with the skill which only long laboratory training can give, it has become, indeed, a magnifying-glass for the most subtle mental mechanism, and by it the secrets of the criminal mind may be unveiled. All this has, of course, no legal standing to-day, and there is probably no one who desires to increase the number of "experts" in our criminal courts. But justice demands that truth and lies be disentangled. The time will come when the methods of experimental psychology cannot longer be excluded from the court of law. It is well known that the use of stenographers in trials once met with vehement opposition, while now the shorthand record of the court procedure seems a matter of course. The help of the psychologist will become not less indispensable. The vulgar ordeals of the "third degree" in every form belong to the Middle Ages, and much of the wrangling of attorneys about technicalities in admitting the "evidence" appears to not a few somewhat out of date, too: the methods of experimental psychology are working in the spirit of the twentieth century. The "third degree" may brutalize the mind and force either correct or falsified secrets to light; the time-measurement of associations is swifter and cleaner, more scientific, more humane, and more reliable in bringing out the truth which justice demands. Of course, we are only at the beginning of its development; the new method is still in many ways imperfect, and if clumsily applied it may be misleading; moreover, there exists no hard and fast rule which fits every case mechanically. But all this indicates only that, just as the bodily facts have to be examined by the chemist or the physiologist, the mental facts must be examined also, not by the layman, but by the scientific psychologist with the training of a psychological laboratory.

ON THE HEIGHTS

BY

WILLIAM ASPENWALL BRADLEY

YOU love the mountains and I love the sea,
Yet love the mountains too — the more since I
Have seen you so uplifted in the high
Heart of the hills, where something seemed to be
Restored to you of childlike health and glee.
Light-footed as a fawn you wandered by
Aspiring paths that climbed into the sky,
Fellow to clouds and breezes, and as free.

And oft, when you had breasted some ascent
And stood with parted lips, swift beating heart,
Flushed cheek, and hair in bright confusion blown,
You were transfigured; in your eyes would start
A look of awe with exaltation blent
As if some spell were o'er your spirit thrown.