While she was an educated woman she knew nothing about drugs and, as I remember, took no interest only to say, 'You are using such and such a drug and it is so disagreeable.'"

Have any similar experiences been reported?

GENERAL REVIEWS AND SUMMARIES

AFFECTIVE PHENOMENA—EXPERIMENTAL

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No writer on the relation of organic and mental processes has defended a more specific or more invariable correlation than Marston (8). He studied the changes in systolic blood pressure caused by an attitude of deceit. He found no significant change of pressure with mere intellectual work. Subjects for the study of deceit were told that a friend had been accused of a certain crime, and a series of incriminating facts were given as established. If the subject chose to try to clear his friend by a lie, he framed an alibi accordingly; if he chose to tell the truth, he selected a marked paper which showed a consistent story written by an assistant, admitting the facts but exonerating the friend. This story was supposed to be the truth. In another set of experiments, the subject received sealed instructions and left the room. If he chose to lie, he opened the envelope, did as directed, came back and lied about it at the examination. If he chose to tell the truth, he did as he liked, came back and told a true story of what he had done. Blood pressure tests were taken before, during and after the examinations. A marked, consistent, gradual rise of blood pressure reaching a climax at a certain point in the story is reported for deceit cases and a tendency toward lowered pressure with truthful accounts. The experimenter on the basis of pressure results, obtained 96 percent. correct judgments as to the truth or falsity of the stories told; while jurors who listened to the testimony did not succeed in judging with much accuracy.

Basing his argument on Cannon's theories, Marston concludes that fear and anger are the only mental processes that can cause moderate rise of blood pressure. Intense joy, sorrow, disgust, or sex excitement may give extreme pressure changes, but only fear and anger show such effects as he found with deceit. He believes

the factor in deceit which influences pressure is fear. Attempted voluntary control of this fear results in a gradual rise to climax, the typical curve. There are numerous possibilities of error in the experiments as published, but it should be added that Mr. Marston, with the cooperation of Drs. Troland and Burt, has since carried through work in which many of the sources of doubt were eliminated. The matter certainly deserves several thorough investigations.

Robbins (10), in an interesting plethysmographic study of stammering, had occasion to find also the effect of shock (fright) upon the peripheral volume. Both shock and stammering gave marked vasoconstriction. There was a latent period averaging 3.4 sec. after the stimulus. The more intense and the more unexpected the stimulus, the greater and the more rapid the vasoconstriction and the slower the recovery. In response to shock, stammerers on the average showed 70 per cent. greater vasoconstriction than normal speakers, the constriction attained its maximum in two thirds the time of the normal, and the recovery required 23 per cent. more time than normal. Constriction due to stammering continued throughout the period of stammering; and for many subjects and for most shock stimuli, the reaction was not quite so great with shock as with stammering. Aside from temporary fall due to shift of attention when a person begins to read, speech (reading) gave rather vasodilatation than vasoconstrictions in normal subjects.

Hyde and Scalapino (5) found that the minor tones of Tschai-kowsky's death symphony caused increased cardiac rate and action current with fall of systolic and diastolic pressure. Toreador's song increased pulse rate, decreased action current, and increased systolic and pulse pressure. Only a beginning has been made with the experiments. The reviewer wishes to suggest that all such studies should use a continuous record showing breathing and as many other factors as possible in detailed interrelation.

Burge and Burge (1) found that great excitement (fright and anger) and activity in cats caused 90 per cent. increase in the catalase content of the livers compared with those of normal cats. This catalase is carried by the blood to the tissues to produce increased oxidation.

Hammet (4) finds glycosuria in approximately 50 per cent. of the cases examined after participating in or observing a football game, and after a difficult written examination. Tests before the

exciting mental process in each case had shown no glycosuria. Most of the effect had disappeared after four hours. He believes urine for medical diagnosis should not be taken immediately after a long physical examination has been given.

Stewart and Rogoff (11), as a preliminary to other experiments, attempted to determine whether fright and other emotional disturbances would exhaust the supply of epinephrin present in the adrenals. Increased liberation of epinephrin would not necessarily imply reduction of the epinephrin store in the glands, and, in fact, it was found that the amount of epinephrin excreted in response to stimulation was not decreased by preliminary frightening. This led to the problem. In the experiments, the nerve supply to one adrenal was cut, all operations being performed under ether anesthesia. Under these conditions, morphine caused relative reduction of the epinephrin supply in the still innervated adrenal in both cats and dogs, but in the cats it was accompanied by symptoms of fright, in the dogs by reverse symptoms. Actual fright or excitement without drugs did not with either cats or dogs cause such relative disturbance of the epinephrin supply in similarly operated animals. Also all the signs of fright could be obtained from an animal in which one adrenal had been removed and the nerves of the other sectioned; this includes dilatation of the pupil on the side on which the superior cervical ganglion had been removed, as well as the normal pupil. During and for some hours after an operation there is a decline in the store of epinephrin in an adrenal whose nerve supply is intact as compared with a denervated adrenal. Infections of various kinds caused marked depletion of the supply in innervated adrenals. Stimulation of the splanchnics increased the amount of epinephrin liberated into the blood, but did not readily reduce the stock of epinephrin in the adrenals. Short periods of stimulation with intervening rest many times repeated, however, gave a decrease.

Two reports by Young are based upon a study of introspective accounts by several subjects. In the first (14) he asks whether pleasantness and unpleasantness can occur simultaneously. A relatively brief stimulus was used to break into a continuous affective situation, or two briefer stimuli from the same or different sense departments were combined or given in alternation, or even a single stimulus was given. Some subjects reported mixed feelings, others did not; and those who did so reported them in sporadic groups. After an analysis of the mixed feeling reports, the writer

concludes that they are all statements about the experience, or statements which attach a meaning of pleasantness or unpleasantness to an object or objects, which express the awareness of an object which usually arouses feeling rather than being a direct setting forth of the experience. This error is favored by intellectualization, fatigue and sleepiness, etc., lack of training in psychological report, suggestion and habituation. Rapid alternations of pleasantness and unpleasantness, affective doubt, and brief interruption of a mood conceived as permanent are also likely to be confused with true mixed feeling. The author concludes that pleasantness and unpleasantness never coexist. Some of the reports said to be cases of "meaning-error" seem to the reviewer merely more or less inadequate descriptions of the sensory content with feeling, which should certainly be allowed in any reliable introspection. The same introspective accounts are used in a second report (15) in which the general method of treatment is similar. The author concludes that pleasantness and unpleasantness are not localizable and show no complicating qualitative differences when regarded independently; that is, abstracted from the sensory content. Reports were demanded of feeling abstracted from the sensory components. The questions of localized feelings and mixed feelings are intimately related.

Tolman and Johnson (13) found that association reaction times in response to words of unpleasant significance averaged distinctly longer than reactions to words of pleasant or indifferent significance, and this was true of words expressing simple sensory qualities as well as of those referring to deeper emotional experience. Women showed the tendency more strongly than men.

Moore (9) attempts to measure the strength of emotional disturbances by determining their distracting effects in terms of delay in solution of simple arithmetical problems. Fear caused the greatest disturbance, and then in order we find anger, embarrassment before a crowd, sex interest, repulsion. Fear and anger showed a negative correlation. The greatest individual differences were found with anger and embarrassment, least with sex interest and repulsion.

Langfeld presents two studies of the judgment of emotions from facial expression (6, 7). On the whole there was rather unexpected uniformity of judgment. Pain, distress, tormented fear were often seen in place of the more aggressive anger and hate, especially in the milder forms. Expressions of anger suggested fear also to

various subjects and fear suggested anger. Various forms of distrust and of aversion were fairly well judged. In combinations, the stronger emotion usually covered up the subtler. Laughter was nearly always observed correctly. Determination and animosity were readily seen. Most subjects quite regularly made use of kinaesthetic imitation and of association with remembered or imagined situations into which the expression would fit. One group of subjects approximated the supposed correct title of the picture in an average of 32 per cent of the cases, and in nearly all of these the correct title was accepted. Of those so accepted, a suggested wrong title was later accepted in 34 per cent. of the total. Of the supposed correct titles which were not approximated in the original judgments, 61 per cent. were accepted when presented, and in 49 per cent. of these a wrong title was accepted when suggested. There were marked individual differences both in the ability to approximate the correct titles in the original judgments and in suggestibility to other titles later; and variations in the one do not necessarily correspond with variations in the other.

A report by Thorndike (12) on esthetic appreciation of simple forms, while showing certain proportions most liked and others most disliked, nevertheless emphasizes primarily the extreme individual differences which one finds in all such work.

Children of kindergarten age and college sophomores are used as subjects in an experiment by Dashiell (3) on affective preferences of single colors, color combinations, and tone intervals. The most striking result was the small reliability of the children's estimates, the scores showing almost no group preference among the colors or color combinations. Aside from the low reliability, however, it may be noted that the children gave nearly the same order of single colors as the sophomores: blue, red, green or yellow, violet, yellow or green, orange. The children showed a negative tendency toward discords, but of less degree than the sophomores.

To obtain a measure of esthetic judgment of a series of 36 pictures, Miss Washburn and her coworkers (2) asked three experts to arrange the pictures in order of merit. The average deviation of the experts in judgments of rank of a particular picture ranged from 7.8 places to .4 of a place, and averaged for all pictures 3.4 places. Women student observers then ranked the pictures. The correlation between individual observer's ratings and the expert ratings varied from 0.82 to -0.42. The combined student ranking correlated with the expert ranking 0.33, p.e. of 0.10. A

subgroup of students of least artistic taste and training showed a correlation with the expert ranking of -0.11 . A subgroup of most artistic taste and training gave results which correlated with the expert 0.46 . A subgroup with no artistic training but especially interested in pictures gave judgments which correlated with the expert 0.43 , nearly as high as those who had also had training.

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ATTENTION

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Two articles only have appeared in the literature available on attention this year. Fukuya (1) studied the relative efficiency and speed during strained and normal attention in copying words,