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The Journal of Abnormal (Psychology) and Social Psychology

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THE JOURNAL OF ABNORMAL PSYCHOLOGY AND SOCIAL PSYCHOLOGY

VOL. XVI.

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NUMBER 1

ORIGINAL ARTICLES

EDITORIAL ANNOUNCEMENT

With this Volume (beginning April 1, 1921) The JOURNAL will extend its field to include that of Social Psychology. In conformity with this policy the title of the Journal will be changed to

THE JOURNAL OF ABNORMAL PSYCHOLOGY AND SOCIAL PSYCHOLOGY

The reasons for combining the two fields are set forth in the following statement:

THE FIELD OF SOCIAL PSYCHOLOGY AND ITS RELATION TO ABNORMAL PSYCHOLOGY

At its inception, less than two decades ago, social psychology was variously defined according to different opinions as to its subject matter. The following classes of data were among those stressed in the various definitions: crowd action, the social bases of human nature, the psychological aspects of social formations and movements, and "planes and currents" of thought and action which arise by virtue of the association of human beings. Through the enterprise of the pioneers these formulations, supplemented by many incidental contributions from others, have grown into a science having as its field a unique set of natural phenomena, and a wide range of practical application. A distinct method also is emerging, though progress here is necessarily slow owing to the large scale and the intangibility of much of the data. Interest in the subject is rapidly growing, and there are many courses given in it in colleges throughout the country. It is doubtful whether this stage of interest and importance would have

been attained but for the contemporary development of a sister science, abnormal psychology. Psychopathologists have in recent years delved deeply into the dynamics of human nature. This statement by no means refers to the Freudian School alone. Social psychology, because it is interested more deeply than any other branch (unless it be educational psychology) in the forces underlying human conduct, has been able to profit in a peculiar way by the discoveries of psychopathology. It seems eminently fitting therefore that a journal should be provided as the direct means of expression for workers in social psychology, and that this organ should be affiliated with **THE JOURNAL OF ABNORMAL PSYCHOLOGY**.

It is appropriate, in view of this enlargement of scope, to attempt an outline of the various interests now properly included under the head of social psychology. The definition of a science is always an arbitrary matter. Quibbling over what should be included or excluded is futile. The intention here is rather to offer suggestions than to set definite limits.

There is first the foundation-study of human traits in so far as they have importance for social life. The individual is our point of departure. His innate and acquired bases of conduct must be examined. Here instinct, learning, and emotion are important according as they adjust or prevent the adjustment of the individual to the social environment. Gregariousness, sympathy, kindness, rivalry, and other social traits are fundamental. In a broad sense the personality of the individual as one of the radiant points of social action offers a field for practical and theoretical investigation. The technique of personality study and measurement is undergoing a rapid development. Our knowledge of the subject has been immeasurably broadened by contributions from abnormal psychology. The fears and obsessions, the unconscious mental processes, the disassociations, the persistence of infantile traits repressed or expressed, passivity and activity, relation to reality, balance and compensation in the emotional sphere, all make their appearance and play their part in normal human personality and the adjustments between the personality and the social order.

After the canvass of the individual comes the study of the interaction between the individual and the group. On the conscious side this relation takes the form of social consciousness, and acting upon ideal or imaginal social stimuli (such as the feeling of the attitudes of others, codes of conduct, etc.). The old question of whether and in what sense there exists a group mind or a group personality is here

involved. The growth of consciousness of self and its dependence on the consciousness of other selves, as well as the foundation of concepts, meanings, and ideals upon social tradition and acceptance, are kindred problems.

Approached from the standpoint of behavior there is offered the whole field of communication: gesture, speech, language, and facial and bodily expression. These functions have been unjustly neglected by psychologists. They are the substructure of the social order; from them develops the entire mechanism of social control, both in the child and in the race. The psychology of the group influence is primarily a matter of social behavior. How do individuals working or acting in a group influence the mental processes of one another? In this important field an experimental method peculiar to social psychology has already attained some recognition. There are experimental results both for the more mechanical and the more intellectual group occupations.

The behavioristic study of the crowd is an interesting division of social psychology. The latent power of instincts and autonomic drives, the mechanisms of imitation (e. g. circular reflex), suggestion, influence of prestige and large numbers, the facilitation, "contagion," or sympathetic induction of emotional response—all really individual phenomena characteristically evoked only by social stimuli—are the leading topics. In this field also abnormal psychology has made important contributions through its studies upon hypnosis, suggestion, automatisms, repressions, and lapse of conscious control.

If we enter the sphere of more permanent social relations, the many adjustments of the human being to his social environment require an understanding of socio-psychological laws. The adjustments of husband and wife as well as those between parents and children bring us into close touch with contributions from the abnormal psychology of the Freudian school. In the social adjustments of deviating personalities abnormal concepts are also of great value. The psychology of ultra-radical movements, of Bolshevism, spiritualistic fanaticism, and the like, is really that of the abnormal personality and its "falling out" with the regime of society. The failure to adjust to the requirements of the social group is the ground for many departures from the normal. In fact it constitutes in many cases of insanity the leading and most comprehensive symptom of modern diagnosis.

We may consider also larger and more permanent groups such as the caste, the professional society, the nation, and the race. To the

study of such bodies sociology has heretofore given considerable attention. It is important however to have a psychological statement of nationality and "the national mind." The role of nations in peace and war, and the problems of a society or league of nations call for aid from the psychological student of these large units. Biology and comparative methods are also brought to bear with social psychology in considering the differentiation, development, and improvement of racial stocks. We are led further in this direction to primitive society and the intricate relations of social and abnormal psychology to folk-lore, tradition, myth, and custom.

There is indeed a large body of problems in the treatment of which social psychology has been employed as an adjunct to sociology. The interest of the sociologists in psychological explanations of social movement, imitation, change and progress constitutes one of the lines of descent of our present social psychology. Psychological interest in these subjects is still rife. There are many theories of the nature and origin of society itself which are drawn from a consideration of human nature. Theories of imitation, consciousness of kind, ejective consciousness, social instincts, gregariousness, familial social origins, *l'egoism*, and a number of others illustrate the contributions of psychology to sociological theory. Invention, leadership, control, and progress are forward-pointing interests of socio-psychological science.

There remain for enumeration the various applications of social psychology. The most important of these are the problems of socialization, in a broad sense the fitting of the behavior of the individual to the social order. Socialization involves likewise a reconstruction or reorganization of the social order so that it shall be better fitted to the individual. In the problems of capital and labor, the formation or trade unions and industrial organizations, the claim of the I. W. W., and the various economic and political reconstructions proposed, we find a complex blending of economic and psychological factors. This general problem involving as it does a conflict of group interests, is a most intricate one. More obvious and hopeful examples of socialization are to be found in the Americanization movement, plans for community organization, and the like.

The laws of group influence and crowd action are not without their importance for government. There is no doubt that legislation in representative democratic bodies is strongly affected (and by no means always for the best) by social influence brought to bear in the conditions (deliberations, discussions, etc.) under which it was enact-

ed. Group discussion and its psychology is an important practical theme. Not only government but other social institutions such as the church, the press, the school, and the university have many aims and problems peculiar to the conditions of human association. Formation of opinion, revivals, school spirit, inculcation of ideals, work in the class-rooms,—these are a few examples. There are other less frequently recognized, but important, applications of social psychology to the work of society. Social Ethics, with its program of amelioration, needs the support of social psychology. A knowledge of the laws both of abnormal and of social behavior is a necessary part of the equipment of the social worker. In many of the professions of individuals, such as medicine, law, public speaking, dramatic performance, executive work, and salesmanship, a working acquaintance with the psychology of human contact is an asset of unusual value. In enterprises and movements comprising large numbers of persons such as political and moral campaigns, patriotic rallies, feminism, prohibition, and military service, the social influence is seen at its strongest. Social psychology should afford not only an understanding, but also a means of directing these great streams of combined human energy. Morale, the psychology of "cause," can be made a driving force in social progress.

Finally, the various social maladjustments of delinquency, mental and characterial defect, criminality, and other forms of social inadequacy should interest the student of social behavior. In this field the endeavors of the students of social psychology combine again most intimately with those of the students of abnormal psychology. The efficacy of punishment and reformation requires suggestion and psycho-analytic re-education in combination with the social psychologist's experience with the laws of social influence and control.

In view therefore both of the present need of an organ for social psychology and of the mutually helpful contacts between that science and abnormal psychology, The Journal is pleased to announce the extension of its scope to include the former, and cordially invites those who are interested in the advancement of social psychology to join the ranks of its readers and contributors.

THE EDITORS.

PERSONALITY TRAITS: THEIR CLASSIFICATION AND MEASUREMENT¹

BY FLOYD H. ALLPORT AND GORDON W. ALLPORT

I

The Nature and Criteria of Personality

THOSE who have been active of late in measuring intelligence have made great progress in the development of measuring scales but very slight progress in the actual definition of intelligence. In dealing with the elusive term "Personality" we may well expect still less satisfactory clarity of definition, no matter what success we have in its measurement. In the measurement of intelligence we have at least the advantage of scales of performance in various mental functions standardized into age or point scale groups. We have, in other words, a means of comparing an individual with his fellows in certain abilities, even though we may not be so bold as to term those abilities intelligence. We may seek, moreover, for a person's mental level in his relative success of adjustment, either to the problems of the school curriculum or to the general problems of life. In this manner a quantitative statement of at least an hypothetical intelligence may be obtained.

The measurement of personality, however, embraces none of these advantages. Individual differences are so great and personal traits so vaguely related to the solution of problems that the notion of an age scale in personality has no significance. Moreover, personalities of divers sorts succeed equally well in the general adaptation to situations of practical life. It may be added that differences of personality are of a qualitative rather than a quantitative sort. These difficulties stand in the way of the development of a personality measurement based on the correlation between tests and familiar objective criteria such as those of intelligence. We must strive toward a descriptive treatment rather than quantitative. Our aim is personality study and description rather than personality testing.

Since, however, description itself demands a definite point of

¹Adapted from material presented before the National Association of Principals of Schools for Girls, Atlantic City, February 26, 1921.

view, and a definite appraisal of elements, it is necessary to seek some criterion of these elements—some means of stating as objectively as possible the personality as an entity apart from the tool of analysis which we employ. The true criterion of personality is without doubt to be found in the field of social interaction. We are incapable of giving a complete popular description of personality without indicating the manner in which the personality in question stimulates or influences other human beings and the manner in which the behavior of other human beings produces adjustments or responses in the personality in question. In describing this personality we inevitably take the view-point of those "other human beings." Robinson Crusoe, alone on a desert island, undoubtedly displayed a very measureable degree of intelligence in his adaptation to his environment. It was only with the advent of Friday, however, that his personality could be said to stand forth in its full significance. Not only is the language of personality a social one, but the problems arising from the interaction of various personalities are in the truest sense social problems. They include every form of social maladjustment—from the whims of the eccentric to the worst deeds of the criminal. In general it may be said that the aim of personality measurements is the establishing of adjustments between an individual and his fellows which are a benefit to both.

It follows from what has been said of the necessity of a social sphere for the exhibition and description of personality that our objective criterion of what a personality actually is must be the description in quantified terms of that personality by a group of persons with whom he is wont to come into contact. It is with the average of the ratings of such a group of persons that our instruments of analysis must be correlated. Human beings to be sure are subject to prejudice, to quick deduction from scant data, and to great differences in powers of discrimination and judgment. These sources of error must be overcome by improvement in the technique of personality rating; they do not constitute a ground for discarding what must be admitted the only available objective criterion of personality.

Without going into detail as to the removal of these difficulties it may be in place here to note two suggestions of method:

(1) The raters of personality in any given experiment must be fairly numerous, in order to give certainty to the average or median, and to permit the discarding of widely variant ratings.

(2) The raters must have had actual opportunity to observe

the behavior of the subjects, and preferably after having received instructions as to the salient traits which it is desired to rate.

II

The Composition of Personality

Having defined the objective standards of personality to which our methods of measurement must conform, it is necessary now to determine tentatively at least the fundamental traits with which we have to deal. Many of the studies up to the present time have made the error of a superficial and hasty selection of traits. They have been content to rate subjects on such attributes as truthfulness, neatness, conscientiousness, loyalty, perseverance, tactfulness, and the like. It is of course possible to rate individuals with respect to these traits, and for practical purposes such a rating would be valuable. It will generally be found, however, that attributes of this nature are subordinated on the one hand to particular sets of conditions under which perseverance, truthfulness, loyalty, etc., are manifest, and on the other hand to some of the more pervasive, more deeply lying, and far less evident, tendencies of the personality. Neatness, for example, may be due to such diverse causes as (1) the persistence of the parental ideal, and passive attitude toward parental authority, (2) a phobia toward dirt, arising as a defense reaction against infantile habits, (3) the compensatory striving of a plain-looking girl to make herself attractive in all ways possible, (4) an extreme sensitivity to the social behavior and attitudes of one's fellows. Thus we see that the deeper and more pervasive tendencies are of far greater importance than the superficial attributes which themselves are merely the product of more fundamental tendencies in their play upon the particular environment. The currents of the river are more significant than the eddies and bubbles which arise through the irregularities of the river bed and shore.

Character is the interplay of the fundamental personality tendencies in the social and economic environment, as seen from the point of view of ethics and legal right. Though fundamental from the practical standpoint, it is superficial in that there are deeper currents beneath it. The tragedies of Hamlet, Macbeth, and Othello indicate what divers trends of personality may underlie a single act which from the standpoint of character alone would brand each of the three protagonists as a murderer.

Let us now consider a tentative outline of those fundamental and pervasive tendencies which constitute the main currents of human personality. The following scheme has been used in the Harvard Psychological Laboratory as a working basis.

PERSONALITY

- I. Intelligence
- II. Temperament
 1. Emotional Breadth
 2. Emotional Strength
- III. Self Expression (Strength)
 3. Extro-Introversion
 4. Ascendance—Submission
 5. Expansion—Reclusion.
 6. Compensation
 7. Insight and Self-Evaluation
- IV. Sociality
 8. Social Participation
 9. Self-seeking and Aggressive self-seeking
 10. Susceptibility to social stimuli

While it should be emphasized that the traits of the above list lay no claim to final comprehensiveness, they have however the advantages of being fairly exclusive of one another and of standing for fundamental and dynamic forces underlying behavior. We shall proceed to the task of their definition in connection with the possibility of measuring them.

III

Definition and Measurement of the Traits Classified

At the start the investigator is only vaguely aware of the things he intends to measure, and he can only guess at test problems and procedures which will indicate the traits which he selects. The persons who do the rating with which the test results are to be correlated in their turn have but a feeble notion of the characteristics to be sought, and are inexperienced in interpreting human behavior in the light of

these characteristics. It is not surprising therefore that at the start correlations should be infrequent and low. A correlation of .30 or .40, although far below the requirement of a more advanced measurement technique, may be taken with a considerable degree of optimism as justifying a further development of the test.

The ratings upon which most of the correlations of the following account were based were obtained in the following manner: Each student of a class of fifty-five men, representing all academic grades, but particularly Sophomores and Juniors, was given three copies of the Personality Rating Scale shown in Appendix A. These scales were given by the student to three associates with the request to rate him as indicated, and in as frank and careful a manner as possible. Envelopes bearing a distinguishing mark were also given out, and the rater in each case was to sign his report, seal it, and return it by the student to the experimenter. These instructions were carefully carried out by nearly all of the students, and their hearty co-operation throughout the tests was secured. It may be said, however, that three ratings for each student is an inadequate number to establish the reliability of tests with much certainty.

For each of the subjects the average of the three estimations of each trait was computed. The names of all the subjects were listed with the averages, one list on a separate sheet for each trait. This procedure facilitated computing the rank and the correlation with the ranking obtained in the test for that trait. It also rendered easier the many trials for ascertaining correlation by inspection with various other data. Owing to the small number of raters, in all cases where there was a discrepancy of twenty-five between any two of the three ratings, the results of the individual concerned were discarded for that trait.

Turning now to the measurement procedure, as might be expected, many more methods of personality testing were devised and tried out than were found in the end successful. The writers lay no claim therefore to any series of personality scales which will adequately cover the classification given above. If they shall be able to demonstrate a few tolerably successful tests with some helpful suggestions for the elaboration of others, they will have accomplished their purpose.

In addition to the procedure described each student was required to write the answers to the questionnaire, selected questions from which are exhibited in Appendix B. It may be remarked that the

questionnaire method, though somewhat under suspicion at present, can be made of service in supplementing the evidence from the tests and ratings. It also provides a glimpse of the personality in action, a human touch which adds color and meaning to the quantitative analysis of the various traits. Valuable results, however, can be obtained only if the questionnaire is stated in "behavioristic" rather than "introspective" terms. To ask the subject whether he is honest, moral, thoughtful, literary in tastes, etc., or to analyze himself by inward searching, is only to encounter the obstacles of carelessness, rationalization, and defense reactions. The questions asked should be in terms of what the subject actually does in his daily life; let the subject judge himself as another person might—by his habitual behavior.

Let us proceed now to a consideration of the traits and tests in detail. The order will follow that of the classification given in Part II.

INTELLIGENCE

It was considered important to provide a test of intelligence for purpose of correlation with the various other categories. Professor W. F. Dearborn's Group Test of Intelligence, General Exam., No. 5, was used. This intelligence test, though excellent for immature subjects for whom it was designed, proved to be inadequate as a test of intelligence of our group. The differentiation in the results of individuals had to be obtained by limiting the time, so that the results indicated little difference but that of ability in speed of performance. There was no correlation between the scores thus obtained and the ranking in any of the traits. Intelligence, however, should be considered as one of the most significant factors in personality, since it determines the quality and success of so many of the general adjustments of the individual.

TEMPERAMENT

1 & 2 *Emotional Breadth and Strength*. The traits numbered one and two in the classification are intended to cover a rather modern treatment of temperament. They occupy the second and third places respectively in the personality rating scale (Appendix A). The rather vague notion of quick and slow in emotion is replaced by the breadth or spread of emotionality. It is thought that the number and variety of objects which to the individual are emotionally toned presents a

valuable dimension in the analysis of his temperament. It will be seen later than there are relations between the emotional tendency and the extroverted and ascendant types.

As to the tests employed there was little that was found to have value. The Pressey Affective Spread Test (see Bibliography) was used, but no significant correlation obtained.

SELF EXPRESSION (STRENGTH)

Under our third large division of Personality are included a number of rather loosely related traits indicating the subject's most general type of "ego-expression" and adjustment. The essential contrast made in this division is that between the assertive, self-expressive, and generally expansive and dominant type on the one hand, and the withdrawing, secretive, and yielding personality on the other. The former type is one which a new acquaintance readily grasps, and which he finds convincing and forceful. In popular language he is a man "with a personality." With the latter type one is rarely *en rapport*, and the personality seems baffling or else purely negative and weak. It must be understood that these traits are by no means always associated in this manner in individuals we meet, but the distinction presented has a certain rough practical value.

Extroversion—Introversion. The extroverted person is one whose mental images, thoughts, and problems find ready expression in overt behavior. Mental conflicts trouble him but little, and he appears to have nothing to repress or to avoid. The introvert, on the other hand, dwells largely in a realm of imagination, creating inwardly a more desirable ideal world rather than adjusting himself outwardly to the real one. He is not always a misfit, however, for given sufficient ability, his internal or covert reactions may be the vision of the poet or artist. On the whole he takes many things too personally, is anxious and self-searching, if not actually afraid of the repressions and conflicts which have not found a salutary neural outlet or resolution.

This valuable distinction, derived from Freudian psychology and first made clear by the writings of McDougall and Jung, has within recent years opened up a remarkable vista for the understanding of humanity. Owing to its importance many tests were sought by us, and many possible correlations scrutinized, but with little result. A general difficulty lies in the impossibility of knowing whether a certain negative reaction in a test is due to a repression or to an actual absence

of that element in the individual concerned. This opposition between Freudian and non-Freudian reactions pervades a great deal of the work in personality study, and renders many apparently ingenious tests almost impossible to interpret. Another reason for the lack of correlation lies in the ratings by associates. This trait is not ordinarily recognized by any but trained raters who have an intimate knowledge of the subject. It is not so much the absence of overt behavior that marks the introvert as the presence of rich and persistent internal responses; and the latter of course is the most difficult to detect, being accessible only to one who is subtle enough to read the subject from small and unconscious clues.

4. *Ascendance-Submission.* When a person comes into a face to face relation with another person whom we may suppose is his equal in every way there is generally a real, though sometimes scarcely conscious, conflict between the two egos. This is true both because each is endowed with the fundamental drives of humanity which are essentially self-seeking, and also because two persons are rarely sufficiently alike to establish a perfect harmony of responses. Social behavior is not a process like the movements of cog-wheels in machinery, but a conflict and adjustment of variant attitudes of individuals. In conflicts, generally speaking, there emerge a victor and a vanquished; and this is true of the face to face dual reactions described. One of the two opponents becomes the master; his interest dominates, and he carries his point. The other yields and accordingly is dominated, though by no means always against his will. The former personality we describe as ascendant. In terms of social behavior he is *active*. The latter is said to be submissive; his attitude in the face to face relation is *passive*. (This trait is No. 1 in the Personality Rating Scale.)

It must be understood that a person may be ascendant in some situations and submissive in others. The most dominant man among his peers may be thrown into the passive attitude even by the recollection of his parents or early teachers. We may safely say, however, that in dealing with equals, and in the aggregate of their responses, most men may be said to fall in one or the other of these two classes. The principle is well illustrated among children by dynamometric strength contests. In contests of two boys facing each other, each with an instrument in his hand, it is found that, almost at the beginning of the trial, one boy feels overcome by the masterful strength of the other, and adopts the attitude of making a respectable score rather

than of standing at the top. In every walk of life the "leading" type and the "following" type may be readily noted.

Test of Ascendance-Submission. For the purpose of measuring this trait an Active-Passive Reaction Study was devised. This study consisted of the description of a number of typical situations in each of which the ascendant-submissive relation was involved. The subject was asked to react in a spontaneous, emotional manner to these situations, and to write down immediately the way in which he would conduct himself if faced with the conditions described. This type of test, to be sure, presupposes the co-operation of the subjects, and an interest on the part of each in actually analyzing and truthfully presenting his own type of behavior rather than in merely making a good impression.

Following are two of the typical situations presented in the Active-Passive Study. They will serve to give the reader a general idea of the test method as well as of the nature of the ascendant-submissive relation which we are now considering.

(2) Suppose you are 10 years of age now, but with the traits you actually had at that age. You are playing war with some boys the same age. (a) Are they likely to make you fight on the side of Germany? (b) If they do, what will you do about it?

(3) Upon leaving college you become a salesman and are trying to sell a life insurance policy to a middle-aged financier of great note. He says, "Young man, I don't know how long you have been in the game, but you will never succeed unless you acquire more experience and confidence in yourself." What will you say or do?

In the first situation (fighting on the side of Germany) an interesting series of scores was derived. It was found that the individuals who appeared on the basis of their answers in the Reaction Study as a whole to fall in the ascendant group reacted usually by recording an active struggle to keep from being made a German, or at least a refusal to play the game under such humiliating circumstances. The submissive individuals were, in three cases out of every four, those who simply acquiesced and played the role of the German. Another response indicating the trait of submission, though to a less degree, was the attitude of acceptance with the idea of making Germany win.

The second situation proved likewise to be suggestive. The answer indicating an undisturbed persistence in trying to sell the insurance scored + 12 (i. e. appeared twelve times as often in the replies of the ascendant individuals as in the replies of the submissive); taking the defensive scored + 6; acknowledging the criticism with thanks scored -4 (i. e. appeared four times as often in the replies of the

submissive individuals as in the replies of the ascendant); apologetic attitude, —6; emotional reaction, angry leave-taking, etc. scored —10.

It is significant that when all the situations had been scored there was usually a sufficient incidence of the ascendant and submissive answers in the case of any individual subject to allow for a fairly consistent and certain decision as to the type to which the individual belonged. When the subjects were all ranked from the most ascendant to the most submissive on the basis of these scores the correlation with the ranking by Personality Rating was found to be .40. Considering the tentative nature, both of the situations used and the method of scoring, as well as the inadequacy of the technique of rating, this correlation is high enough to justify further development of tests of this nature.

5. *Expansion-Reclusion.* This trait is easily recognized, but requires careful definition. As stated in the Personality Rating Scale (trait 8) the expansive person is one whose "ego" or whose "personal touch" enters into all that he says or does. The successful minister or politician, as well as the executive and artist in the general sense, belong to this type. When, however, the person is not gifted, and is by chance aggressive as well as expansive, he is socially objectionable. The reclusive person either consciously or otherwise keeps himself in the background. He fulfills his office in a perfunctory manner without extending himself into his work. He is by no means, however, necessarily secretive or introverted, or even submissive. The expansive person usually writes a questionnaire or other personal documents in a manner charged with personal feeling, thought, and even reference. There is a certain richness in this sort of reaction; we feel a fullness of contact with the person. He may be said to have a definite or outstanding personality. The writings of the reclusive individual, however adequate objectively, are poor in self-feeling and expression. His manner as well as his style leave us unsatisfied or in doubt; we have not made a satisfactory contact with the person. Probably this trait, expansion-reclusion, more than any other is the key-note in the judgment of personality by one's fellows.

Test of Expansion-Reclusion: We endeavored to get a measurement of this quality by asking the subjects each to write a letter answering an advertisement of a position, a letter in which one would be free to tell as much or as little about one's self as desired. The advertisement which was answered was worded as follows:

Wanted: Young men for detective work; good government positions ahead. No experience required. Address, Ganor, St. Louis, Box 777.

The instruction was to answer this advertisement as seriously and with as natural a reaction as if actually seeking the position. The subject could say as much or as little as he chose.

The letters produced were read and scored by a group of twelve graduate students in psychology on the basis of the trait of expansion-reclusion. The score of 1 was given to a letter indicating the most expansive personality which they could imagine to occur in a group of 50; the score of 50 indicating the most reclusive. The following expressions of this trait were borne in mind in rating the letters: a considerable number of references to self, statement in detail of qualifications, particularly those of a rather personal sort, and the development of subjective ideas, feelings, and interests in relation to detective work. The absence of these characteristics combined with general meagerness or brevity, and the general impression of conveying little about the personality, were grounds for scoring the letter on the reclusive side of the scale.

Examples of the expansive and reclusive types of letter are given below:

Letter of D (Expansive)

Mr. Ganor, Box 777,

St. Louis,

Dear Sir:—

In replying to your ad, I should like to say that I am desirous of undertaking this work because I feel introspectively capable of doing the work. I think that this line of occupation is one that cannot fail to keep up my interest—is one extremely variegated and opening up new channels of adventure at each succeeding step—of which, I must say, I am extremely fond. I do not hesitate to say that I am positively certain of being able to do the work knowing as I do that I am gifted for it and shall undertake it, if successful in obtaining the position, in the full confidence that I *will* make good. I must acknowledge, however, that I have had no practical experience whatever in this line, but I think my lack in this respect will be compensated for by my enthusiasm for undertaking this work. Hoping to hear favorably from you.

Very sincerely yours,

Letter of R (Reclusive) (See Personality Graph IV of same subject).

Mr. Ganor,

Box 777,

St. Louis, Mo.

Dear Sir:—

Having seen your advertisement for men for detective work, I am writing you that you may consider me as one of the men desirous of entering that work. At present I am a senior at Harvard University expecting to finish my course about the

last of June. Until that time I would not be able to consider entering your service, but if you do not expect to enroll men immediately, I would be glad if you would keep me in mind, knowing that you could count on me surely by the end of June, 1921.

Sincerely,

The correlation between the average ratings of the letters made by the twelve judges and the Personality Rating was .34, which again must be considered suggestive in the light of the crude and tentative methods.

In connection with this important trait a few suggestions may be added. In certain cases we have known the handwriting of expansive persons to be unusually large and, to use Dr. June E. Downey's expression, uninhibited or impulsive. In regard to motor expression in general, certain expansive persons when tested have shown pronounced tendencies to over-estimation in kinaesthetic reproduction of distances; certain cautious persons are prone to underestimate. The exact relation between these kinaesthetic judgments and the personality trait we are now considering needs to be worked out in greater detail before we can generalize. Another indicator of expansive egotism is found in the number of "I's" used, or other direct references to self, in reports given by the various students in regular seminary courses. The number of ego-references were obtained only when the reports of the individuals were on equally objective topic and were considered per unit of time. A count of this kind, the victims of course being unaware, was made. Certain individuals make with surprising constancy as high as eighty or ninety ego-references per one-half hour of speaking; others make as low as four or five; the median approximates the lower end of the scale, being about ten.

6. *Compensation*: The trait of compensation is not mentioned in the Personality Rating Scale, nor have we any satisfactory tests to offer. Its presence is indicated in thoroughly answered questionnaires, but owing to the fact that it can be understood only through a knowledge of the complete history of the individual, it is extremely difficult to bring to a focus in any measurement procedure. The method of discovering whether compensations are present must take into account two factors: first, the limitation or defect, physical, mental, social, or financial, which was or still is, present in the case before us, and secondly, the nature and perseverance of the process of overcoming the difficulty, or satisfying the fundamental demands of the ego through vicarious channels. A complete discussion of this trait would take us too far afield. It is not clear whether there is such a

thing as a generally compensating personality or whether the compensation is dependent only upon the peculiar circumstances, defects, and abilities, of a given case. The self-made man is probably one of the best examples, and suggests a general compensatory attitude. Few of the deep-lying currents of the individual's life are of such importance as this. It is the chief basis of what is popularly known as "character building."

The following case illustrates this process. It was only after a careful study that the compensatory mechanism was discovered. For such practical issues as the one here involved, and for understanding people generally, a test of this trait would be most desirable.

G. L. came to the office greatly agitated over the fact that his mark in psychology course was reported as a D+. He said that he must have a C— in order to be retained on the list of the Federal Board, the government's agency for furnishing an education to young men who had fought in the war and had incurred some wound or other considerable sacrifice. On one previous occasion G. L. had drawn attention to himself. The class was given some group intelligence tests, and he had tried the first problem only, for finding that he was very slow, he had refused to finish the tests, writing at the top a lengthy but rather stupid excuse, saying that he was in no condition, the test would not be fair, etc.

In general appearance G. L. was slow-moving, stodgy, and rather oppressed looking. His complexion was pale, and had the unwholesome inelasticity of putty. His reactions, both mental and physical, were very slow. He was considerably above the age of the average college student. The general impression he created was certainly not favorable; every aspect of his personality was against him. An investigation of his case revealed the following facts:

Born of humble parentage, of low caste socially, with an inferior physique, and exceedingly slow in mental reactions—though not distinctly defective, this young man had struggled for years to maintain employment. His efforts were persistent and conscientious, but without avail. Though faithful and patient G. L. was repeatedly laid off when he failed to keep up with a rush in business. His chief drawbacks in the business world (as stated objectively by himself) were (1) slowness and (2) "lack of personality."

During the war, after serving *near* the front for two or three months, a shell burst a little distance away from him, and he developed a nervous break down, a typical case of shell-shock with some paralysis. After recovery he was discharged, but entered government employ again as a crude laborer in a munitions factory. One day, his story goes, he was carrying a large shell when it slipped and dropped on *both* his feet injuring him painfully. After being again discharged, G. L. worked for months to be placed upon the Federal Board and so incur the advantages of the disabled soldier. These advantages G. L. told off earnestly and significantly on his fingers: the government would agree to give the wounded ex-service man a college and technical education, aggregating if necessary 5 years, paying all expenses, tuition, books and living; and if the man made good the government would keep him in some form of employment with good remuneration the rest of his life. Furthermore, and *most significant*, in all civil service examinations ex-service men of his class would have a 10 per cent. lower passing grade than other men. (Just the handicap which G. L. figured that he needed to secure a position in competition with brighter men!)

The occupation which he himself suggested—and which in this round about way he was laboring to attain—was an assistantship of some sort keeping records of some government museum. This certainly would be an ideal sinecure for an educated inferior mind of great slowness.

The mechanism here is fairly obvious. There was in G. L.'s case recognized inferiority of personality, social caste, physique, and mental reactions, for which he compensated by a remarkable program of events, most if not all of which rested more fully in his own hands than he himself would admit. We may perhaps hazard the assumption that the Freudian mechanism of wish-fulfillment underlay his shell-shock experience as well as the accident wherein the disability was incurred which placed him permanently under the protection of the Federal Board.

This shrewdness in so shaping events as to compensate for inherent defects may perhaps not win our full approval. And yet is it not remarkable how effectively the compensatory tendency has operated so as to enable the man by cunning and perseverance to provide a position for himself where he might become a respectable citizen in the career of government employ, rather than the casual laborer, mendicant, or even criminal, to which his defects would otherwise condemn him? In place of the cowardly inertia which appeared at first sight, we find all the dynamic energy of the evolutionary struggle for existence condensed into one human personality. To the Socratic dictum "Know Thyself" he has added "and Compensate Therefor."

7. *Insight and Self-Evaluation.* The term insight indicates the degree to which a person is able correctly to appraise his traits of personality. (See Trait No. 5 in Personality Rating Scale.) It is derived from the use in psychopathology in which it signifies the extent to which a person realizes that his delusion or hallucination is or has been a fiction of the imagination. A person with good insight is not likely to be deceived by his own rationalization and by the self-extermination of his acts by refusing to recognize their motives. The possession of this trait or the modification of the personality so as to acquire it has deep practical significance. The process of reformation of a criminal or of character improvement in the socialized individual, is possible only when one's personality is revealed to one's own eyes. The measurement of this trait was provided for as follows: Each of the subjects made out for himself a personality rating scale. In his ratings he differs more or less from the average of the estimations of the three raters in the various traits. The average of his deviations for the various traits gives a practical index of his insight, the lower the average the higher the insight.

Closely related to Insight is the trait of Self-Evaluation, indicated in the Rating Scale as No. 9. The individual here is asked to rate his *abilities*, for example, his general intelligence, rather than his traits of personality. This estimation, of course, must be made prior to the giving of the intelligence test. The self-evaluation index of each individual is expressed by the difference between his actual rank in the

group in intelligence test score and his self-ranking, prefixing a + or — according to whether he over or under-rated himself.

There are some pertinent conclusions from work done in the Harvard Laboratory in previous similar investigations. An interesting relation exists between the degree of intelligence and the self-evaluation index. There is a striking tendency for those who are high in intelligence to have a negative index, that is, to underestimate themselves, and for those who are low in intelligence, to have a high index. This finding is in harmony with the result of Hollingworth in his self-evaluation in various desirable traits. The possession of the trait in question seemed to insure a more accurate recognition of it, both in self and others; while those low in the desired qualities tended to overrate themselves. The actual inverse correlation between intelligence and self evaluation index which we obtained from an earlier experiment upon thirty subjects was $-.67$.

The following chart, Fig. 1, shows this inverse relation of intelligence to self-evaluation. The dotted line indicates the relative intelligence of a group of sixteen subjects (according to the Otis Group Tests), and the blocks their corresponding self-evaluation indices. The horizontal line represents both the median of the Otis scores and the point above which the self-evaluation index is positive, i. e. indicates over self-evaluation, and below which this index shows negative or under self-evaluation.

SOCIALITY

The final group of traits is intended to call attention to the individual in his rôle as a unit of society. The self-expressive group dealt with the general types and levels of adjustments of the individual to his world. Sociality, however, is intended to bring out the specific reactions which show how much an individual is dominated in his behavior by considerations purely of self and by aggressive self-interest which overrides the interests of others and seems to be incapable of modification by social stimulation and control. The other side of the picture of course is an actual interest in the welfare of others and an inclination to be stimulated by their presence and behavior. In this group lie the foundations of the ethical aspect of character, high ideals, principles, and the like.

8. *Social Participation.* In this practical field actions must speak louder than words. A most important indication of sociality is amount of time and energy (not money or good wishes) which the

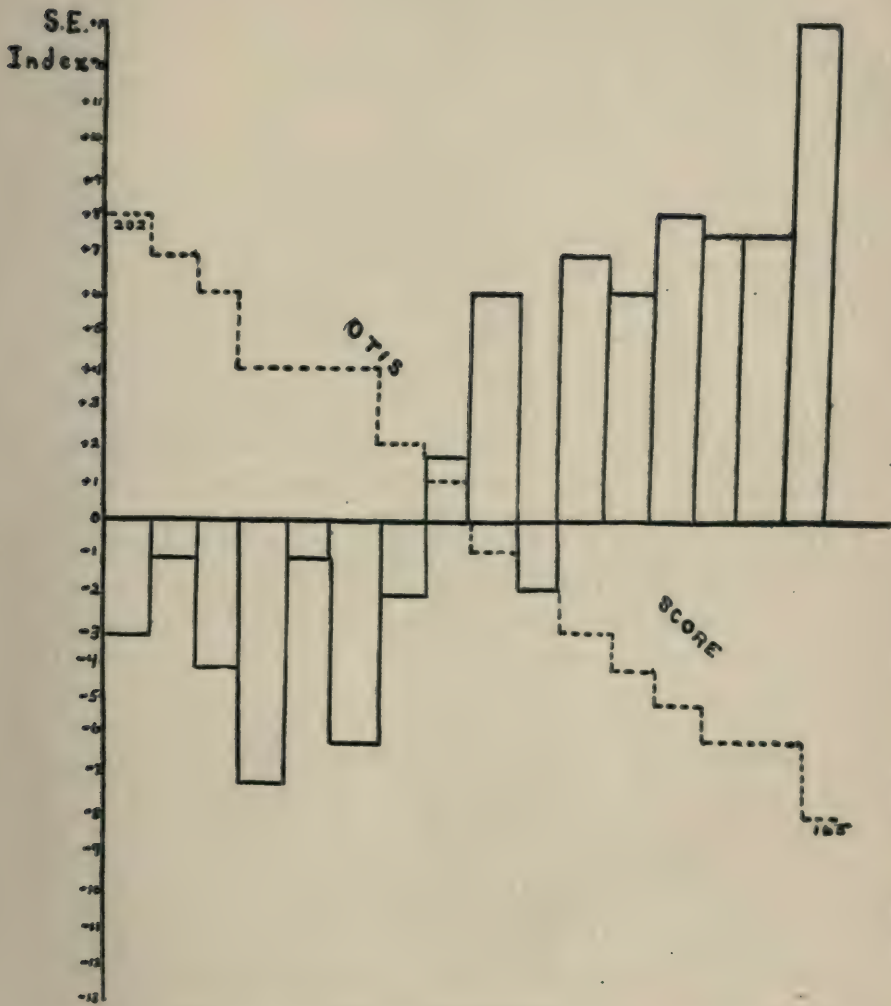


Figure 1. Showing the Relation between Intelligence and Self-evaluation in 16 subjects.
 (For an explanation see text).

individual gives to social activities. By "social activities" is meant not merely attendance at dances, clubs, and the like, where the behavior of others is a matter of secondary interest only; but more especially actual occupation with the guidance, understanding, control, and amelioration of other human beings. It is an interest in the social behavior and welfare as such. Participation is the trait sought, not mere passive interest. It is indicated as trait No. 6 on the Personality Rating Scale.

An analysis of the questionnaire reports indicated that 56 per cent. more individuals in the group expressed an interest in social activities than actually took active part in them. Naturally enough there appears to be no reliable test of this trait other than observing the habits of the person or accepting his statement therefor. A correlation was found between the Personality Rating for extroversion and that for social participation amounting to .40. In comparing the results of the questionnaire (questions 15 and 17) with the graphs of personality, to be described later, the following relations were found:

Of the nine reporting participation in social work,

6 were ascendant; 3 were submissive (2 of these expansive).

7 were of strong type; 2 were of weak type.

By "strong" and "weak" type are meant individuals who were respectively high and low in the group of traits under self-expression taken as a whole.

9. *Self-seeking and Aggressive Self-seeking.* Selfishness without being distinguished from aggressive selfishness is the tenth trait on the Personality Rating Scale. A test of this trait is much to be desired. Upon it depends very largely the success or failure of a person as a citizen of the community. When the self-seeking person is incapable of forming habits modifying his natural egoistic tendencies to accord with social influences, and when as a result he pursues these tendencies in opposition to the socially recognized rights of others, he becomes a criminal. It seems quite possible that a tactful adaptation of the principle used in the Active-Passive Reaction Study might afford a useful measurement.

10. *Susceptibility to Social Stimuli.* A great deal might be written about the degree to which a personality is habitually sensitive to the behavior, suggestions, gestures, emotional expression, and physiognomy of others. Obviously one can neither understand men nor control his own actions in accord with the social regime unless he can

be stimulated to respond to these objects. Inasmuch as such stimability is a prerequisite for the successful adjustment of an individual to his social environment it may be termed a kind of "social intelligence." Our efforts toward the measurement of this ability have consisted of a test of judging facial expressions. The material and possibilities of such a test, as well as the nature of the process of facial interpretation, are discussed in two articles by Professor H. S. Langfeld (see Bibliography). We have followed his suggestion and devised a test, not however in the nature of naming the facial expressions, as this involves linguistic ability, but by underlining the name of the expression most fitting the picture out of a list of eight possible expressions. Fourteen pictures, photographed from sketches of a German actor representing various moods and emotions were chosen as material.

The only correlation which we could detect in this test was that between ability in judging facial expressions and artistic ability, particularly of the literary type. Of the nine men who made the highest scores in the facial expressions test, seven had literary ability to the extent of actually having produced and gained some recognition by publication or otherwise. There was only one case of a low score in facial expressions where the individual had also a record of literary production.

IV

The Graphical Representation of Personality

Aside from the main purpose of developing tests or measurements of personality one of the most valuable possibilities in a study of this sort is representing in graphical terms the degrees of the various traits which go to make up that unique thing—a human personality. Personalities, like faces, have no duplicates; each one is a unique mixture of varying degrees of divers traits. It is at least conceivable, however, that there may be a general agreement of individuals in the rough pattern produced by graphing their qualities. We may perhaps expect certain traits to follow the same general level as others. Where this is true we may be said to have discovered types. Our chief aims, therefore, in graphical representation shall be: first, a picture of the individual personality and its checking up by the questionnaire or other information; second, the discovery of striking or unusual personalities and strongly contrasting personalities; and third,

to find out what general types if any the various combinations of traits may reveal.

Inasmuch as the tests themselves are in too primitive a state of development to justify their graphical representation, the ratings in the various traits plotted on the following charts were based on the average of the three personality ratings of a given individual. The first point in the graph, corresponding to Intelligence, however, was taken from the actual intelligence tests. As suggested above, owing to the fact that the test was not adapted to his particular group, this point on the graph must not be taken too seriously. Both the point corresponding to the degree of insight and the point denoting self-evaluation are Personality Ratings on these points and not the indices described above.

The trait of compensation was not rated and hence is not shown in the graphs. Aggressive self-seeking was not differentiated in the ratings or graphs from simple self-seeking. There was a general tendency to rate the individuals too high in this trait, that is, as too unselfish. The true median therefore lies somewhat above that shown on the charts. Susceptibility to social stimuli is indicated by the actual rank in the class in the score of the facial expressions test.

Explanation of the Personality Graphs. The four main groups of traits, namely Intelligence, Temperament, Self-expression, and Sociality are indicated as sections in the order stated from left to right, separated by heavy vertical lines. It will be convenient often to regard these sections as wholes. The facial expression test column is separated from the other members of the sociality group by a heavy line, because it seemed better in this case to leave it out of account in considering social and non-social types.

The manner in which the graphs were plotted is as follows: In the vertical columns are given the various traits,—at the top, one extreme (that coinciding with a rating of 1 in the Personality Rating Scale), and at the bottom the opposite extreme (50 in the Rating Scale). The horizontal line through the middle indicates the median rating (25) in the trait concerned. To take an example in the first graph, subject F was among the lowest five in the group in the intelligence test score, was rated two or three above the median in the strength of emotions, about 10th from the top in extroversion, and in self evaluation about 30th from the top (i. e. from the most over self-evaluated).

Following is given a key to the abbreviations used in the vertical columns of the charts:

- H. Int. = high score in Intelligence Test
L. Int. = low score in Intelligence Test
- B. Emot. = Broad Emotions (emotional breadth)
N. Emot. = Narrow Emotions (lack of emotional breadth)
- S. Emot. = Strong Emotions
W. Emot. = Weak Emotions
- Asc. = Ascendant
Sub. = Submissive
- Ext. = Extroverted
Int. = Introverted
- Exp. = Expansive
Rec. = Reclusive
- G. Ins. = Good in Insight
P. Ins. = Poor in Insight
+ S. E. = Over Self-evaluation
— S. E. = Under Self-evaluation
- Soc. Part. = Social Participation
Non. Soc. Part. = Lack of social participation
- Non. Self-seek. = Lack of Self-seeking
Self-seek. = Self-seeking
- G. Fac. Exp. = Good at judging facial expressions
P. Fac. Exp. = Poor at judging facial expressions

The seven graphs reproduced below were selected from those of fifty-five subjects and serve to illustrate some of the individual characteristics. When the graphs were sorted two main types were apparent. It was found that the traits under Self-expression went fairly uniformly together. There were of course exceptions. On the whole,

however, we can distinguish the strong type (e. g. F and S.) and the weak type (e. g. H. and R.), with the self-expression traits as a whole, respectively above and below the median. In the following explanations these two types are designated as extroverted and introverted, this trait being regarded as most salient. A further classification can be made in which are to be found distinct types, i. e. the social and a-social. The former consists of those having social participation and non-self-seeking above the median, the latter of those having these traits below the median. Four fairly distinct groups (with a few transitional cases) may thus be defined as follows:

Strong

1. Extroverted—Social
2. Extroverted—A-social

Weak

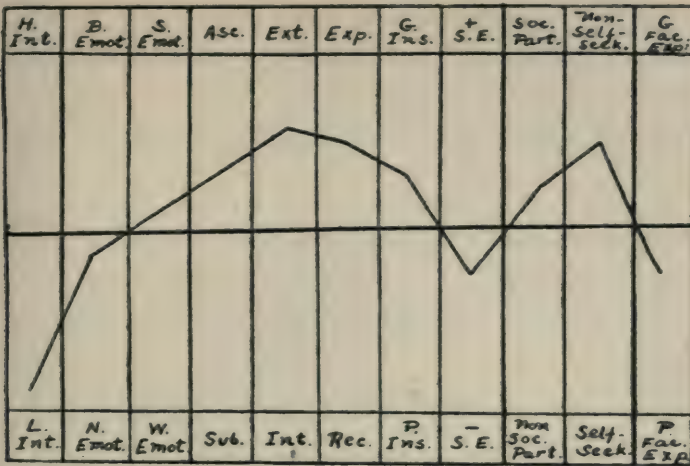
1. Introverted—Social
2. Introverted—A-Social

Other special relations of traits are indicated below.

V

Inter-Relations of the Main Divisions of the Personality

A few remarks may be made upon certain relations which were found to exist among the various large divisions of the personality traits. In order to discover whether a given type of temperament went with a self-expression (or strength) type, the graphs were sorted into piles on the basis of both the breadth and strength of emotions. The number of cases showing the different sides (extroverted-introverted, etc.) of the self-expressive traits selected, was counted in each pile. In this way any distinct predominances, for example, of the narrow over the broad emotionality in introversion, was shown. Table I indicates these numerical relations; and the general description of the emotional traits predominantly accompanying the various traits of self-expression is given at the right. The figures indicate the number of individuals having their emotions characterized by the letter at the top of the vertical columns who belong, also to the strength type indicated at the left of the line in which the given figure occurs.



F

GRAPH I.

Subject F belongs to the *extroverted social type*. The narrow breadth of the emotions accompanied by strength is, as will be later shown, characteristic of the strongly extroverted type. The extroverted social type is more numerous than the extroverted a-social.



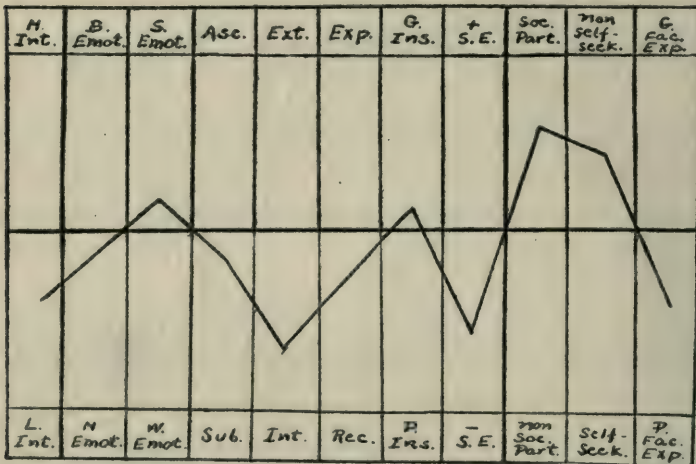
Fo

GRAPH II.

Subject Fo illustrates the *extroverted a-social type*. His personality does not seem to be as strong as that of F owing to the slight reclusion.

Note again the rise of the curve in emotionality, from N. to S. Emotions.

Questionnaire says he is "easily embarrassed." This fact as well as the low sociability seem to accord with reclusive (but not introverted) habits.



H

GRAPH III.

Subject H. belongs to the rather exceptional *introverted social type*. He is somewhat abnormal, almost a psychopathic personality. Neurotic heredity.

This subject, possessing some insight, is very depressed as well as introverted. His low S. E. index would indicate this. He is totally pessimistic, saying in his questionnaire that he would commit suicide if it were not for his parents. Life holds no interest or attraction for him.

The social interests are to be explained probably as persistences of strong social welfare leanings, political interests, and boys' club activities around the age of ten and in high school. Since entering college he has lost interest in the world about him, become depressed and apathetic. This marked introversion probably was connected with adolescence.

H's questionnaire reveals some very enlightening facts. First of all, he asked his physician if he ought to write the answers, because having just recovered from a nervous collapse he thought it would be unwise to dwell on his personal troubles too much. He is bashful in the presence of his elders and with girls. It is difficult for him to recover his composure. He feels a nervous tingling and a burning of the cheeks for two or three hours when angry, and does not trust himself to say or do anything for a time. Emotions easily upset. Has day dreams of physical prowess (is actually a frail, weak youth) in which he is fighting a crowd, kicking a goal with a football from any angle within the fifty yard line, shooting goals in basket ball with his back to the basket. States himself these fantasies may be a compensation for poor physique. Has many "fussy" mannerisms, such as biting or tearing nails, biting lips, tearing papers, etc. The sex relation "shocks his sensitivity—unpleasant mental images, etc." He is entirely apathetic toward girls. Has only one girl friend who is five years older than himself. His roommate has had a very detailed book on sex on his desk for several weeks, but H. says he never troubled to open the cover. In his sex reactions H. is decidedly a-typical.



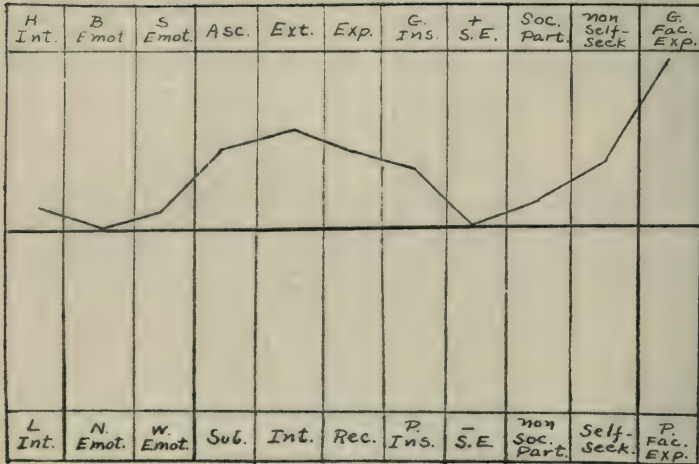
R

GRAPH IV.

Subject R. is an example of the *introverted a-social type*. This is a very remarkable personality, the only one in the group below the median in all traits. We may suppose it is very difficult to establish any "contact" with this man. The extreme lowness in both reclusion and under self-evaluation are worthy of note. His answers to the questionnaire are very short and laconic. Socially considered, this is a very poor personality.

The low emotionality may of course be due to repression of outward evidence of emotion.

The repression and "touchiness" of the introvert are shown in this man by the fact that he was the only subject in the group of fifty-five who considered any of the questions "too personal" to answer. He placed cross marks (x), the designated sign, in place of answers to questions touching his reactions when angry, and events in his sex life.



S

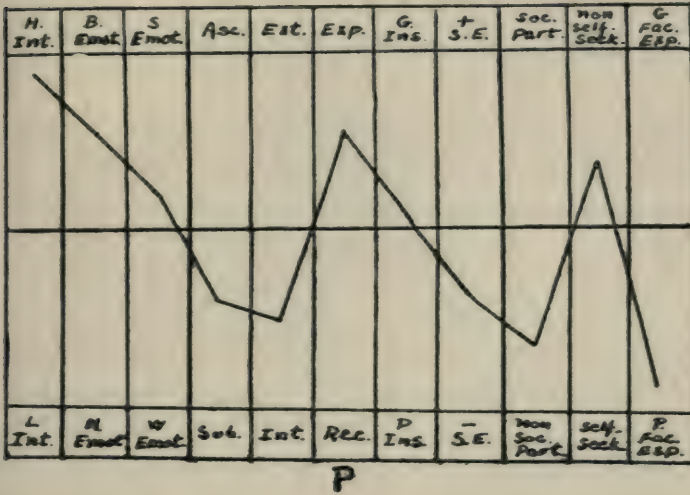
GRAPH V.

Subject S. stands out in marked contrast to subject R. Here is evidently a strong, dominant personality. His questionnaire was particularly expansive, and charged with self feeling and reference, though of an extroverted sort.

In S. we find a combination of literary achievement and an ability to read facial expressions. His perfect self evaluation is worthy of remark.

In his interests he is active, loving prize fights, games of strength, etc. He writes his disagreement with the author in margins of books.

Probably the clue to this titanic individual is found in compensation. Evidently thrown early upon his own resources he has had all kinds of jobs, some very menial, in which he asserts that he has learned human nature. He has probably done more than this in building up a strong personality.

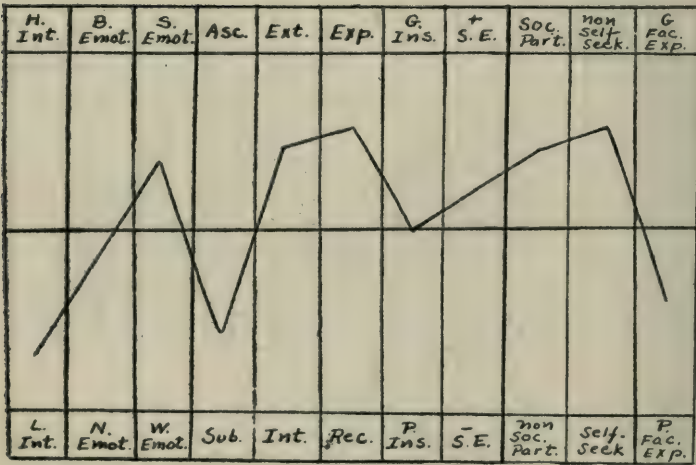


GRAPH VI.

Subject P. appears from his graph to be a somewhat stormy and troubled soul. And this is the case. His outstanding emotionality and expansiveness, coupled with his moody introversion and self-depreciation give his personality a uniqueness whether for weakness or for strength.

His type is particularly of interest in showing the combination of deep introversion with wide expansion. We all know a few people of this sort who expand and spread their introverted knot of personality out over the social world. Students of this type often show expansion by asking questions in class which owing to their introverted bearing seem to others unintelligible or even absurd. On the other hand a touch of genius might produce from such a combination a Byron or a Tchaikowsky. P.'s questionnaire, ten pages in length, expands in an introverted outcry against the tedium of college life, and the worthlessness of academic studies leading only to "a piece of sheepskin" with his "name on it in Latin." He wants to get away, get married, to go west, and make money. His introversion is best shown in what he says he would do in imagination in a case of balked anger. His imaginary maltreating of his enemy (which he says he would repress in actual life) is indeed fearful to read. When falsely accused of a misdemeanor he tempered his sullen resentment with a mild glory in his martyrdom.

The discrepancy between the intelligence test and facial expression test scores is interesting.



L

GRAPH VII.

Subject L. shows the combination, also not infrequent, of submission and extroversion. Of the opposite type, ascendant-introverted, we have not found a single clear example.

This individual probably presents a ready social contact, having a combination of traits which should render him easy-going and well liked. He is not troubled by exaggerated emotions; he yields readily, following rather than wishing to lead; he is devoid of the baffling and disturbing repressions of the introvert; he expands his ego forming ready points of contact; and he is socially inclined and unselfish.

STRENGTH-TYPE AND EMOTIONALITY

S. Type	N.	B.*	W.	S.*	Emotionality Traits
Ext.	23	5	14	14	Narrow—Medium Strength (+) see note* Medium breadth—weak
Int.	14	12	16	10	
Asc.	13	9	9	13	Medium breadth—strong
Sub.	14	5	14	5	Narrow—Weak
Med.	9	3	7	5	
Exp.	16	14	16	14	Medium breadth—Med. Strength
Rec.	19	4	14	9	Narrow—Weak
Total	36	17	30	23	

*Owing to the fact that there were in the total many more cases of narrow emotions than broad, and of weak than strong, the figures in these columns are to be given somewhat weighted emphasis.

	Social (33)	A-Social (24)
Strong Type (33)	21	12
Weak Type (24)	12	12

TABLE I

Key:

N = Narrow

B = Broad

W = Weak

S = Strong

Med = Medium

The tendencies expressed in Table I are somewhat more clearly shown in Figure 2, the two extremes of the two emotional traits respectively, being indicated by the letters in blocks. The crossing of the emotional traits in the extrovert and introvert is perhaps the most significant point. Submissive and reclusive differ from introverted in having a narrower range of emotional response.

FIGURE 2
RELATION BETWEEN SELF-ASSERTION AND EMOTIONALITY

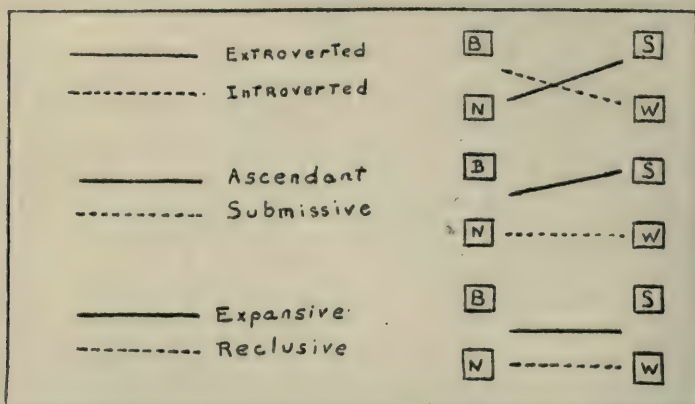


Figure 2. Emotion and Strength-Type.

VI

Suggestions on Personality from the Questionnaire

The answers to certain items of the questionnaire were compared with the personality ratings and with other questionnaire items so as to discover any possible further indications of the inter-relation of personality traits.

Compensations were indicated, mostly arising from childhood tendencies, in about eight or nine cases. They were generally of the athletic sort, and were closely associated with persistent childhood influences (Q. 1), and with creative ability (Q. 5).

Those who reported the foster child fantasy (Q. 25) strangely enough seemed to be of the extroverted type. They were also somewhat ascendant though often reclusive.

There were about eight cases of a-typical sex response and interest (i. e. eight cases recognized as a-typical from their reports). They consisted of those to whom there was something repulsive about the sex relation and those showing unusual indifference or repression in sex events. Of these eight a-typical sex reaction types:

- 7 were also day-dreamers (strongly persistent)
- 6 showed introverted responses in anger
- 6 showed introverted responses in anger and unjust punishment

- 6 had unstable emotions
4 showed compensatory tendencies.

The following list showing the frequency of occurrence of various types of answers to the questionnaire may prove of interest. Doubtless many of the figures should be higher because of the failure of the subject to remember or truly to analyze himself. The figures indicate that per cent. of the total number of subjects whose answers clearly indicated the presence of the trait or conditioned named.

Item	Questionnaire Number	Percent of occurrences
1. "Interested" in social work.....	17 (a)	76%
2. Persistent childhood influences and interests	1, 2	53%
3. Day Dreaming (rather strongly persistent)	12	51%
4. Unstable emotions, bashfulness, embarrassment	11, 21, 22	45%
5. Creativeness	5	32%
6. Annotating books	24	28%
7. Introverted anger and emotional states	8, 9, 10, 13	26%
8. Foster Child fantasy.....	25	24%
9. Actual participation in social work....	17 (b)	20%
10. Compensations indicated	gen'l	17%
11. Ideas of reference	19	14%
12. A-typical sex life	26, 27, 28	13%
13. Typical sex life (abstinence stated)....	26, 27, 28	16%
14. Typical sex life (indulgence stated)...	26, 27, 28	7%
15. Typical sex life (neither stated).....	26, 27, 28	64%

VII

Summary and Conclusions

This paper has endeavored to present a working classification for the study of personality including the main divisions of Temperament, Self-expression or Strength, and Sociality. The traits selected stand, we believe, for fundamental forces in the human life, and form the needed basis of sociability, habit formation, and character. It may be said that personality means the definitely fixed and controlling

tendencies of adjustment of the individual to his environment. They generally have a long and important history in the life of the individual. If we include in our definition the adjustment to non-societal objects, intelligence must also be comprised in our classification. Personality, in the stricter sense, however, may be said to be the adjustment tendencies of the individual to his *social* environment. It is essentially social in its bearings. Of the various traits, intelligence and temperament are probably for the most part inborn. The qualities of self-expression and sociality are probably in the main acquired by the reaction of the hereditary structure of the individual upon his social surroundings. In this field the persistence of childhood and adolescent influences are of vast importance, and the need of an understanding of personality formation by parents and teachers correspondingly imperative.

A well controlled process of rating individuals by associates is probably an adequate means of obtaining an objective notion of a group of personalities with which the results of tests devised for this sort of measurement may be correlated. The most promising suggestions for such tests and studies resulting from our investigation are as follows: a reaction study of miniature situations for ascendancy and other traits; a letter writing, ego-reference, and motor expression test for expansion; a test of judging facial expressions; the insight and self-evaluation index; an objectively and specifically stated questionnaire.

When the traits of personality are either rated or (better if possible) tested, they can be conveniently plotted in graphical form giving a picture of the individual. A refined impression is thereby gained by which we can know and deal with the person in an intelligent manner.

Certain types seemed to fall out from our fifty-five graphs; viz., the strong type of personality (extroverted) either social or a-social, and the weak type of personality (introverted) either social or a-social. We find interesting relations between these major types of personality and temperament itself (emotionality), e. g. the tendency of the extroverted individual to have narrow and strong emotions and of the introvert to have broad but superficial emotions. In general the emotionality of the strong type is of greater breadth and strength than the emotionality of the weak type.

The present classification and research is to be regarded as but the beginning of the investigation of personality. The development

of a complete and sensitive instrument of individual measurement for personality as well as for intelligence is a distant but perhaps not an unattainable goal. Progress must be made along two lines: first, the theory and genetic study of personality and the isolation of recognizable traits which are truly fundamental, and second, the practical technique of refining impressions in the rating of individuals and of devising crucial tests of the various traits.

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APPENDIX A

PERSONALITY RATING OF

THESE RATINGS WILL BE TREATED CONFIDENTIALLY

Read these directions carefully. Rate the person named above on a scale of from 1 to 50, according to the place you believe he would occupy in a group of 50 *average college students*, in each of the following ten classifications. The extremes (1 and 50) are described below. Under "rating" place the number (any number from 1 to 50 inclusive) which you think indicates the relative position of the individual in the group. There will be 10 such ratings in all. Be sure you understand what is meant by each of the descriptions. Read them carefully.

NO.	TRAIT	RATING
I.	1. Most pronounced tendency of group of 50 average college men to take the <i>active</i> role, and to dominate, lead, organize, etc., in dealing with his <i>fellows</i> . 25. Average, neither distinctly active nor passive. 50. Most pronounced tendency of group of 50 average college men to be <i>passive</i> in contact with his fellows, to be led rather than to be a leader.	
II.	1. Most <i>highly emotional</i> in the group. Reacts emotionally to objects and situations with the greatest frequency, and to the widest range of things. 25. Average. 50. <i>Least emotional</i> . Reacts in phlegmatic manner most frequently, and to widest range of things.	
III*	1. <i>Deepest and strongest emotions</i> of any in the group. 25. Average. 50. <i>Most superficial and weak emotions</i> of any in the group.	
IV.	1. Most pronounced tendency of group to <i>direct his thoughts and acts outward</i> , away from himself, to be objective minded, interested in the world about him, etc. 25. Average. 50. Most pronounced tendency to <i>direct his thoughts inward</i> toward himself, to be subjective, brooding, "shut in," etc.	
V.	1. Most pronounced ability of group to see his virtues, defects, and other traits <i>as others see them</i> . 25. Average. 50. Most pronounced <i>lack</i> of this ability.	
VI.	1. Greatest tendency of group to engage in <i>social work</i> , social problems, reform, etc. 25. Average. 50. <i>Least tendency</i> to engage in social interests.	
VII.	1. <i>Highest general intelligenc</i> in group. 25. Average. 50. <i>Lowest general intelligence</i> .	
VIII.	1. Most pronounced tendency in group to " <i>spread himself</i> ," air his opinions (<i>either</i> objectionably or unobjectionably), <i>expand</i> his personality into all he does, etc. 25. Average. 50. Most pronounced tendency to keep his ideas and feelings to himself, to be reserved in exhibiting his personality in thought or act.	
IX.	1. Most pronounced tendency in group to <i>over-estimate his abilities</i> . 25. Average. 50. Most pronounced tendency to <i>under-estimate</i> his abilities.	
X.	1. Most <i>unselfish</i> in group. 25. Average. 50. Most <i>selfish</i> .	

Rated by (Signature)

(Kindly place in envelope and *seal*. This information is confidential, and will not be disclosed to the person rated.)

APPENDIX B

QUESTIONNAIRE

1. Show as specifically as you can how certain persons and events in your life have determined your present interests, habits, and traits of character.
2. (a) What vocation or interest made the strongest appeal to you in childhood? (b) At the age of 16? (c) At the present?
3. What subjects do you like best in college?
5. (a) Did you ever design or plan a new object or write an original production? If so, what? (b) How did it succeed?
8. How many times have you been so angry at a person that you could not forgive him (or her)?
9. (a) How many times have you been angry in the past week? (b) For what causes?
10. Give instances of what you do in thought or imagination or otherwise when you cannot vent your anger by definite action toward its object.
11. Are your emotions stable or are you easily upset?
12. (a) Are you given to day dreaming? (b) What is the content of such day dreams and what is their effect on you?
13. (a) How many times have you been punished unjustly? (b) For what causes? (c) What did you do about it? (d) How long did it bother you?
14. What mannerisms do you have that you know of? (e. g. Putting objects in your mouth, shuffling your feet, automatic movements while thinking, talking to yourself, etc.).
17. (a) Are you interested in social conditions and social service work? (b) What have you done along that line?
18. (a) Have you any hobbies or special interests? (b) Name them.
19. (a) Do you ever feel that people are talking about you behind your back? (b) What do you imagine they say?
20. In a group do you consider yourself reserved or assertive?
21. (a) Are you or have you ever been bashful? (b) At what age?
22. (a) Are you easily embarrassed? (b) Under what circumstances? (c) How easily do you recover your composure?
24. (a) Have you ever written comments in the margins of library books or other books not belonging to you? (b) About how many times?
25. (a) Have you ever fancied that you were a foster child—that is, that your supposed parents are not your real parents? (b) At what age and over what period of time? (c) Did you ever really believe this?
26. (a) How did you gain your knowledge of sex? (b) At what age?
27. (a) Is there anything repulsive to you about the sex relation? (b) If so, why?
28. Are there any events in your sex life which have influenced your life history? Specific statements are desired if you are willing to make them.

THE STANDPOINT OF SOCIAL PSYCHOLOGY

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THE phrase "social psychology" implies a description of psychic phenomena as they are found in groups of various degrees of organization. The mere fact that individuals are in juxtaposition to one another in the lowly or highly organized group is only of secondary interest, though it is of real concern inasmuch as it affords an opportunity for the development of socio-psychic phenomena. But the phrase does not imply a description of *all* psychic phenomena. The pain, for example, that is occasioned by the window falling upon a finger, those pleasant experience that arise on a chilly day when the sun shining upon us through the window pane induces us to draw closer to the window, and a host of others, more or less analogous to these, are outside the circle of those that directly appeal to the student of social psychology. Truly, however, they may appeal indirectly to such a student, in which case the strength of their appeal is in direct proportion to the immediacy of their connection with unquestioned social phenomena. While I sit in my study, for example, the rumble of a truck upon the brick pavement outside is borne upon my ear to my disturbance. This in itself is of no interest to the social psychologist. But it suggests to me the situation of my newly acquired neighbor to whom I recommended this as a quiet street. I imagine, or I conceive him as assuming an attitude of reproach toward me, and I flinch somewhat at the thought that I may have been somewhat less than explicit and frank in my relations to him when he was considering moving into my neighborhood. The audible rumbling of the truck is the first step in the historical development of a series of definitely socio-psychic phenomena. The neighbor I imaged as having moved into the block in response to my own recommendation, and I am flinching in response to his disappointment as I image it. The experience of the young man in his attic room while preparing to participate in a debate a week later is meat for the social psychologist. The would-be debater is shaping and reshaping his argument always with one purpose in mind: to present such stimuli as will

induce a favorable reaction on the part of the judges; and he has the while more or less distinct imagery of his prospective audience in attitudes of approval or of disapproval of this argument and of that one when stated in one and another form. Once more the Boy of '61 and the Boy of 1917 are caught up into a certain elan—into a national spirit—when they march up and down upon the village green with their fellows in companies. Why? Because they know and imagine that tens of thousands of other boys like themselves from the Atlantic to the Pacific are doing the same thing, and that all are doing for the same reason that they are: viz. in response to the same set of orders from Washington. Were it not that knowing and imagining are in this case links in a chain building up an elan, these boys would be merely in juxtaposition upon the green, each one a jumping jack carrying a gun, and the social psychologist would pass them by. Their juxtaposition without the conscious processes I have mentioned could never develop the striking social phenomena that war time affords.

The activity of the artist and the reformer are illustrations of socio-psychic phenomena also. What they conceive to be the unexpressed or half-expressed voice of human need and aspiration is their guide in control of their behavior. In other words, they are reacting to an imagery of other people than themselves, and these people are conceived by the reformer as more or less inevitably reacting in definite ways to what he himself is saying and doing.

The behavior of the organizer of a large enterprise is another case in point. This is social behavior and its success will depend upon the completeness of the organizer's understanding, and his capacity for representing in his own consciousness the probable reaction of other folk to his own scheme in detail.

The foregoing, I think, is sufficiently suggestive of types of conscious socio-psychic phenomena.

But our phrase implies not only conscious phenomena, but unconscious mechanical backgrounds of the human personality as well: those backgrounds by reason of which individuals are sensitive to the presence, real and imagined, of other people; to conventions and customs; to what is "in the air"; to the spirit of the age; to public opinion; to prestige; to ideals as expressed in art in its various forms, etc. This means that at any rate some human instincts come into the ken of the social psychologist as well as other acquired predispositions or complexes. The students of instincts and the Freudians (or better, the cousins of the Freudians, who, I think, take a saner view of the

unconscious) have gone a long way toward suggesting how important are these backgrounds in the process of developing and organizing human social relations.

I may say here that the student of social psychology seems to me to be interested secondarily even in the forces and forms of physical nature in as much as they, on their part, serve as stimuli upon the population, inducing appropriate reactions thereto, that are fairly uniform among the members of the group, and ultimately settle into uniform habits. By this reason, each one is better able than he otherwise would be to understand his neighbors and to react to them, and to develop a spirit of unity.

To this point, I imagine, there may be no serious difference of opinion. Difficulty arises, if at all, when we begin actually to examine the phenomena and to analyze them with a view to developing a science. The very first empirical datum that comes to the hand of the psychologist here is an awareness—a consciousness of stimuli and reactions among people. This awareness may be perception or imagination or thinking. The instinct, the predisposition, the unconscious complex are inferences among others that we arrive at in our efforts to understand reactions, and very helpful ones at that. Other inferences may be more questionable. For example, there is something about group life, about co-operation among individuals, that leads us to talk about a crowd mind, a group mind, or a social mind. The individual in a crowd or in a highly organized group does not behave as does the same individual in isolation. In highly organized groups there grows up a keen feeling of unity and of identity from day to day, and there is a conviction that progress has been made and will be made in the future by the whole group, and that it stands for a certain set of ideals and purposes. These are probably the phenomena above all that prompt some students to postulate the social mind—however it may be phrased. To do so perhaps satisfies a desire for completeness and system when the term is used in the sense in which we employ it as applied to an individual. No objection can be made to the term when it implies *only* the facts, theories, ideas, purposes, traditions, etc., that are held in common by the members of the group. On another hand it is described as a super-individual mind—one that is in addition to the minds of individuals but of the same stuff as they are, and that co-ordinates and unifies them. It is beyond the methods of science to arrive at such a mind.

Once more this social or group mind is described as a “super-

individual mind" which "consists of the same stuff as the individual minds; its threads and parts lie within these minds; but the parts in the several individual minds reciprocally imply and complement one another and together make up the system which consists wholly of them; and therefore they can 'only be described in terms of mind.'" Neither, probably, is there any serious objection to this use of the term when it is interpreted as it appears to be meant—excepting as it implies an organization of the purposes of many individuals and so prompts the question where such an organization rests.

Why should we talk about the group or social mind at all? What is a mind of such description supposed to do for us? It is to furnish the groundwork for our sense of social unity among individuals of the same class, state or nation, the basis for the spirit and effort of cooperation and progress amongst them; and for the alleged fact that individuals are changed between isolation and association with others. But above all the strongest motive for developing such a conception is probably the felt need for a passage from the individual to the social. It seems to me that all the phenomena for which we seek an accounting or an explanation can be included under these heads, and that setting out, at any rate, as structuralists, we can be satisfied without recourse to the use of such a troublesome phrase as "social mind." To explain:

No group possesses a stronger sense of unity than the family—not merely because its members have lived together for years, but because while living together they have grown intimately acquainted with one another. Each member knows each other's temper, habits, outlook, capacities, ideals, background of experience, ambitions and all that. He knows the interpretation of each other's gesture and vocal inflection. He can be sure that his brother's feelings are like his own or different, and when he infers from certain signs that his brother's reaction to a given set of conditions is like his own an enlarged sense of unity with his brother ensues. The same course is running between each and every other member of the family. Ultimately the result of prolonged and intimate familiar association is a sense in any member's consciousness of the inevitableness of a certain reaction on the part of every other member to his own actual or projected behavior, and in every member is the matter of course feeling that the family, as a whole, stands for certain purposes and is bending its way toward realizing them. Each one in his mind's eye, so to speak, sees that reaction, even though not in detail; the more critical the

juncture the more vivid the detail. The unity is felt and taken for granted quite as we, in altogether ordinary circumstances, foresee and take it for granted that we will breakfast and scan the morning paper before beginning a hard day's work on the morrow. Wherever one member may be, near or far away, he is in some terms or other imagines the reaction of other members of the family to his behavior at present or to his plans for prospective behavior. He knows whether their attitudes can be made to his own and if so by what means. He can direct himself to the end of winning their approval. It is precisely at critical moments as I have already intimated, when he is doubtful what course he should pursue, that this imagery and this sense of unity with a family are strongest in him. I believe all I have said is in entire accord with the experience of each of us. Rob him of this capacity to represent others of his group, as occurs in some pathological cases, and the sense of unity and the capacity and motive for cooperation go by the board.

In like manner one may speak of club and school and army life. Each one understands, interprets, and mentally represents each other. A is satisfied and courageous upon discovering that B and C and each of the others is of the same mind as he and reacting to him and to each other. But B and C and each of the others is doing fundamentally just as A is doing because all are responding to much the same situations, and have an approximately common background of experience. Hence there is unity and preparation and courage for co-operation. *We need think here only of several individual minds whose objects or fields of attention considerably overlap*, whose reaction therefore are analogous one to another and recognized or arising from personal contacts. It is unnecessary to use the ambiguous term "social mind" or "group mind" exception in the sense that all minds in the community happen to cherish approximately the same objects.

It seems to me that this way of putting the case offers, as I stated it above, the passage way from the individual to the social; a passage that lies wholly within the individual himself—so that there is no real dividing line between the individual and the social; a passage way that implies no organization excepting that within the individual himself. The development of a nation then is secured by all those means by which each citizen can be made to represent others. It is an enlarged case of the family.

When preparations for international war are on, and when the war is being fought we have an illustration in broad scope of what

I am trying to say. A national morale or sense of unity is developed by directing each citizen's attention to the same posters and catch phrases and ideals, and as a partial means to this end by getting hosts of them to doing the same thing. In season and out of season it is borne in upon him with emphasis through the press, platform and other means that every one of millions in the population is doing and thinking just as he is in response to the same stimuli and to one another. Each citizen feels and works, consequently, as if every other citizen were at his elbow and as if each one were responsive to each other.

These forms of consciousness that, according to the thesis, play their part as I have suggested, take the course of forms of consciousness in other connections; they lapse and unconscious mechanism is substituted for them. Just as we can hardly be said to have a conscious relation to our coats but nevertheless do the appropriate thing with them when we find them in the morning, so with these social relations; the *consciousness* of them lapses and we do the appropriate thing without at any rate *definite* consciousness that we are in a social relation of unity with others. Thus the unconscious comes into the ken of the social psychologist both in the form of instincts which precede conscious action and of acquired complexes which both precede it and arise from it. But conscious phenomena are the first empirical data in this connection.

"THE SUB-NORMAL MIND VERSUS THE ABNORMAL"¹

BY HENRY H. GODDARD, PH.D.

DIRECTOR BUREAU OF JUVENILE RESEARCH.

IT WILL be recalled that Binet and Simon in their study of the relation of intelligence to the development of language, prepared 25 abstract questions arranged as nearly as possible in the order of difficulty. Their nineteenth question was "when two persons discuss a question before coming to an understanding about the words, what happens?" To this, some children of eleven years of age gave the following answers: "It will happen that they contradict themselves." "They will talk nonsense." "They will not talk about the same thing." "They will get angry." "They will end in a dispute." What an epitome of one phase of the history of psychology! What happens when people discuss consciousness, perception, and a score of other terms? Let the eleven year old children answer, "they contradict themselves," "They talk nonsense," "They will not talk about the same thing," "They get angry," "They end in a dispute."

The terms abnormal and subnormal have not yet been the cause of any such unpleasant result, but they may at any time occasion their share of trouble if we go on discussing the not-normal without using accurately these terms. Here are two words with a clear distinction, which can be of great usefulness in clarifying our discussions if we can agree upon what we wish to connote by each one.

Up to the present time there is little or no consistency in the usage of the terms. For some writers, everything that is not normal is abnormal; for others, it is subnormal; for still another class of writers the terms are used interchangeably. For example, the feeble-minded are as often called abnormal as sub-normal and a person of low intelligence may be called sub-normal when the condition is due to disease and not to arrested development.

The situation is the natural result of our lack of knowledge of the various conditions that we wish to describe and our consequent inability to use an accurate terminology. It seems, however, that we now have a sufficient understanding of the processes involved to enable

¹Read at Chicago meeting of American Psychological Association. Division of Clinical Psychology. December 29, 1920.

us to agree upon a usage of these terms that will be strictly scientific and consequently useful.

Almost the first use of the Binet-Simon Scale in this country was made by Dr. Huey in testing out the entire population of the Lincoln Institution for the Feeble-Minded and by the writer in testing the population of the Vineland Training School. Since none of these inmates was found to have an intelligence above 12 years, it was inferred that this was the upper limit of feeble-mindedness and the lower limit of normality. It was further inferred that all persons who were old enough to have a higher intelligence but who had the rating of 12 years or less were feeble-minded or sub-normal. Samplings were made in other institutions for the feeble-minded with the same result. On the basis of these results, the American Association for the Study of the Feeble-Minded at its annual meeting at Lincoln, Ill., in 1910, tentatively adopted a classification of the feeble-minded which has become universally accepted, namely, those with a mentality of 2 years or less were to be designated as idiots, those of from 3 to 7 inclusive imbeciles and from 8 to 12 morons.

The view that everybody who tested 12 years or less was feeble-minded prevailed until the results of the mental tests in the army reduced this to an absurdity. The army findings that 10 per cent. of the soldiers had a mentality of 10 years or less and another 15 per cent. a mentality of 11, and 20 per cent. a mentality of 12, giving as a result that 45 per cent. of the army had a mentality of 12 years or less, threw an entirely new light upon the problem of sub-normality and feeble-mindedness. It is obviously not true that 45 per cent. of the population is defective and not everybody who is even 10 years old mentally is feeble-minded.

We have evidently been guilty of bad logic. In the early history of mental tests several students finding that various groups of farmers, housemaids and even some legislators who were obviously *normal* in the popular acceptance of that term, tested under 12 years, drew the hasty conclusion that the tests were unreliable.

It is now clear that the only thing at fault was the concept of who is feeble-minded. Had these investigators pointed out to us that there were great groups of people of 10, 11, and 12 year mentality who could not possibly be called feeble-minded they would have made a distinct contribution.

To replace ourselves on the right track we must call to mind the definition of feeble-mindedness. This has always included not only

the mental level but the inability to get along in the world, "manage their own affairs with ordinary prudence and compete with their normal fellows." The error lies in the wrong inference that all who test 12 years or less are incapable of maintaining themselves.

The next problem can now be considered: Why are some 10 year olds feeble-minded and others not? If we accept provisionally the 13 year mind as the lower limit of normality, then we have the condition that some people with mentality of from 8 to 12 are sub-normal but not feeble-minded. This, as a matter of fact, we know to be true. We know that many people of low mentality are cases of mental disease rather than mental arrest. They are the psychopaths.

But although our knowledge is as yet incomplete, it is not probable that all who are not feeble-minded are psychopaths. In other words, it seems more probable that many people who are sub-normal according to the above definition are neither abnormal nor feeble-minded. What then, is the distinction between sub-normal and feeble-minded in these cases? According to definition of feeble-mindedness the difference is in their ability to take care of themselves. In other words, a person of mentality from 8 to 12 is generally able to manage his affairs and compete in the struggle for existence unless in addition to his low mentality he is handicapped by other disadvantageous traits, such as, for example, high temper. A certain man of 10 year mentality could earn enough money to support himself if it was not for his violent temper whereby he continually loses his jobs.

One writer has suggested that in view of these new discoveries we must re-define moron. This is not necessary unless we wish to make the term stand for *all persons* with mentality 8 to 12. According to the classification adopted by the American Association for the Study of Feeble-Minded the term moron was to include that group of the *feeble-minded* who have a mentality from 8 to 12, not all persons from 8 to 12. The term moron is improperly used when it is applied to any person who is not feeble-minded, no matter what his mentality.

The term sub-normal would therefore seem to be applicable to the feeble-minded and to such other persons as have a mentality below whatever age may be agreed upon as the lower limit of normality.

It has been customary to speak of the various grades of intelligence as being ranged along an upward trending curve. On such a line, all below a certain established point could probably be designated sub-normal. They comprise the group that has not developed to the required level. This is in line with the long established custom of

describing the feeble-minded as cases of arrested mental development. The organism is normal and functions normally as far as it goes but its development has stopped too soon.

By etymology the abnormal person is the one that deviates from the normal line. To include all such deviates our upward curved line as a diagram of developing intelligence must be extended laterally to become a band or ribbon which can be divided lengthwise by a line separating the normal from the abnormal. Precisely where that dividing line is to be drawn is not yet possible to say. So far as adults of normal level are concerned this is the old question of who is insane and who is not.

The new contribution to this problem is the discovery that children and persons of low mental level are as often abnormal as sub-normal. In other words, our band or ribbon is divided lengthwise into the normal and abnormal and horizontally into the normal and sub-normal. The lower part of our ribbon is sub-normal and a section of that is both sub-normal and abnormal. It is important to note that abnormality in this sub-normal level may be the result, of the deterioration of a mind originally normal as well as of disease in a naturally sub-normal mind. It is perhaps of some use to think of this division on the basis of structure and function as it seems to be largely such a matter. The sub-normal person is one of incomplete structure; the abnormal is one of imperfect function.

If this view is accepted we should refer to the person, whose mind is found to be *functioning* badly, as abnormal. He might be either below, at or above the normal level. He would still be abnormal.

The key to the entire situation has been the discovery of the psychopathic child. As long as we thought that all persons below a certain mental level were cases of arrested development there was no necessity for distinguishing between sub-normal and abnormal. As long as abnormality in adults was not appreciated until they were definitely crazy, there was no need of the word abnormal other than as a synonym for insane. But with the advent of mental tests and substitution of accurate measurements for mere superficial observation and guesswork, we began to accumulate data, analysis of which showed the very beginnings of deviations in mental functioning. So that today we can see the possibility of diagnosing abnormal functioning of the mind with a nicety that compares to the old methods of psychiatrists as the Wassermann reaction compares to the old methods of

detecting syphilis or the tuberculin test with the former slow and late detection of tuberculosis.

The discovery that many sub-normal children are psychopathic and not cases of arrested development explains many conditions that were formerly difficult to understand. For example, in our Vineland study of the heredity of the feeble-minded there were cases in whose families we found no other feeble-minded, no matter how far back we would go. We did find much nervousness and insanity and various other conditions indicating a neuropathic condition and following Tredgold we put this down as feeble-mindedness due to neuropathic ancestors; but this was never satisfactory. It is not good biology, and one was at a loss to know how insanity in the ancestors resulted in arrested development in the child. It is now clear (and this has been confirmed by going over the particular cases involved) that these children in the Vineland Training School, considered feeble-minded because of their low level of intelligence, were actually cases of psychopathy rather than arrest of development. Every observer and student of the feeble-minded in institutions has always been troubled by peculiar exceptions to what was believed to be the general rule in regard to the feeble-minded. Such for example, as the fact that the feeble-minded are generally, when well treated, quiet, well behaved, easily disciplined and agreeable persons on their own plane. But then we always had to provide for the exceptions. Some of these children were sly and persistently mean, subject to periodic outbreaks of temper or "spells." Some were liars, thieves, runaways or sex perverts. It is now known that these exceptional cases were either not feeble-minded at all but entirely psychopathic or that they had psychopathy grafted on to their condition of arrested development. In other words, they belong to our group that is both abnormal and sub-normal, in which case their subnormality is due either to arrested development or to deterioration from a higher level.

For years students of childhood have been puzzled by cases of persistent misdemeanor, those troublesome children whose conduct could not be accounted for. These children were often brought for examination, parent or teacher expecting that they would be found to be feeble-minded and thus their conduct would be explained. But to our surprise and annoyance many of these cases tested fully up to age and occasionally tested even above age. In such cases our only report could be "we do not understand why they behave as they do since they are of normal mentality." We were inclined to explain their

conduct as due to environment, early training or the lack of it, or to any peculiar condition discovered. We now know definitely that as a rule these cases while not sub-normal were abnormal. They were cases of psychopathy or child insanity.

Again those who have worked with mental tests have repeatedly been perplexed by the fact that the child mind did not seem to follow the path marked out for it according to our best understanding. For example, here is a child that tests up to age, a year later he still ought to test up to age if he is making normal progress, but the actual tests a year later show that he has gained only 6 months or possibly has not gained at all. In other cases a child is a year or two backward at present and upon examination a month later he seems to have gained six months or a year or even two years. We tested the Vineland public school children on three successive years and expected to find all those who were not feeble-minded, that is who had not tested 3 or more years backward on the first occasion would have made their normal year's progress between each two examinations. While this was true for the great majority, there was a considerable percentage that was very disturbing to our theories because of their irregularities in this respect. Moreover, some of those who were considered feeble-minded on the first test, at least were 3 years backward, were found to have improved, possibly two years on the one year. All this is now perfectly understandable on the reasonable assumption that these cases were abnormal rather than subnormal or normal. In other words, they were psychopathic children.

It is not necessary at this time to point out all of the ways in which this concept of the psychopathic child straightens out our problems. It is necessary to note the consequences for future scientific work in the study of children. In the first place it must be noted that while this explains many anomalies in our previous work it also makes much of that work either of little or no value, or at least necessitates that it be scrutinized with great care. We evidently have been dealing with mixed groups either of sub-normals and abnormal (and have treated them as though they were all subnormal) or if studying normals, our groups have contained some abnormal. In other words we have included in our groups of feeble-minded many children who were not feeble-minded but psychopathic.

The intelligence Quotient is already going out of use, having proved to have much less value than we had hoped for it, even for normals, while with the psychopaths it has of course, no use what-

ever. It is possible to say when a machine is 75 per cent. completed but it is impossible to say when it is 75 per cent. worn out. In my judgment the term is mischievous at best because it leads us to think that we have something valuable when we have not. Still more serious is the fact that it may mislead us into accepting as satisfactory or even highly gratifying a condition that is positively dangerous. There are strong indications that most of the I. Q.'s of 150 are abnormals and require expert care and treatment rather than complacent pride in their accomplishments. What we want to know in all these cases of the not-normal individuals is not only the quantity but the quality of their minds.

Even mental level itself has a different meaning with the psychopaths than with the normal or sub-normal. Our concept of mental level is that a person has the intelligence of a child of a specified age and we recognize at once that this is only a convenient way of approximating his condition or getting a handy and more or less accurate picture of him. As a matter of fact a 30 year old man with a mentality of 10 is quite different in many ways from a 10 year old child of 10 year mentality. But when it comes to diseased conditions of the brain with the consequent disturbance of mental function the measurement of level is still less satisfactory. With the normal person mental level means that his mind has developed to about the point indicated and stopped which is a valuable piece of information. In the psychopath however, we have the condition that some of the mental processes are functioning normally and others have been more or less destroyed. Our tests give us the value of these different processes and then we *average* them and call that the mental level. For example, it is not uncommon to have a psychopathic child miss some questions in age 4 and pass some in age 14. We combine these according to the rules in scoring and say he has a mentality of 10. But it is obvious that this does not give even an approximate picture of his mind. The misleading character of such a procedure has already been mentioned when we spoke of those children who were so abnormal in conduct and behavior that it was thought they might be defective, but when examined they tested at age and we diagnosed them as normal individuals. The fact is they were far from normal but their deviation from normal was in function and a mere scoring up of tests of intelligence, gives, not deviations in function, but merely the structural level. The greater the degree of abnormality the less the value of expressions of mental level until with the violently insane mental level is practically meaningless.

The conclusion from all of this is obvious. The quantitative study of mind, the determination of mental levels, important and valuable and necessary as it has been, was only a preliminary step, a first stage; and having practically mastered that preliminary we must now proceed to the much more valuable work of qualitative analysis.

The devising of new tests and scales of intelligence will doubtless continue to be a useful exercise for undergraduate students, but from now on the real business of the clinical psychologist will be the qualitative study of mental functionings, the determination of the degree of abnormality and the significance of the abnormality as found in different mental processes.

It has long been suggested that certain forms of genius are akin to insanity. If this be true, it must mean that abnormal functioning in some processes makes for efficiency and usefulness, whereas in other processes it is destructive.

SUMMARY

There is a structural development of the human being which may be called normal. There is a point below which, development is so incomplete as to make it extremely doubtful whether the individual can function as a satisfactory member of society. A mind of this low level may be called *sub-normal*.

When such a sub-normal mind is further handicapped by unfortunate temperament or disposition the individual is *totally* incapable of functioning as a member of society and is therefore feeble-minded.

At all stages of this structural development there is a wide range of *functioning*, there is a normal functioning, and there is a point beyond which the functioning may be said to be *abnormal* because such functioning renders the individual so different from the mass of human beings as to make him incapable of filling a useful place in society.

It is possible than in a few exceptional cases a functioning that must be termed abnormal may nevertheless render the individual unusually useful—genius?

Many former studies are worthless and the literature must always be carefully scrutinized before we can accept and apply the conclusions that may have been drawn from data that were assumed to be homogeneous but were not.

In future, cases should be carefully examined for functional peculiarities before one can be sure that one is working with a homogeneous group.

A GROUP SCALE FOR INVESTIGATING THE EMOTIONS

BY S. L. PRESSEY

STUDIES FROM THE PSYCHOLOGICAL LABORATORY
OF INDIANA UNIVERSITY

I. *The Pressing Need for Investigation of Other than Intellectual Traits*

THE extraordinary activity of the past three or four years, in the development and use of tests of general intelligence, has yielded a wealth of information with regard to the relation of intelligence to social and economic efficiency. And it is beginning to appear that intellectual traits may be distinctly less important than has been supposed, in conditioning delinquency, economic capacity, or even scholastic training. Thus, Doll¹ has recently shown that the inmates of a penitentiary may average in intelligence quite up to the average of the general population. Rosenow² has pointed out a common statistical error which has frequently led to the over-evaluation of the intellectual factor in connection with the interpretation of correlation coefficients, in the study of delinquency. Wells³ has presented findings which indicate lack of any close relationship between intelligence and mental stability. A number of workers⁴ have made clear the comparatively low correlation which is to be expected between college grades and score on the army intelligence scale. The writer has recently submitted data which suggest that character traits such as persistence and interest may be quite as important as ability, in conditioning work in grammar school.⁵

¹Doll, E. A. The Comparative Intelligence of Prisoners. *Journal of Criminal Law and Criminology*, Vol. II, 1920, pp. 191-197.

²Curt Rosanow, "Is Lack of Intelligence the Chief Cause of Delinquency?" *Psychological Review*, XXVII (1920) 147-57.

³Wells, F. L. Intelligence and Psychosis. *American Journal of Insanity*, Vol. LXXVII, pp. 245-July, 1920.

⁴See, for instance, Anderson, John E.: Intelligence Tests of Yale Freshmen," *School and Society*, 1920, 11, pp. 417-20. The correlation between test scores and the first semester grades was found to be .37. Perhaps the largest body of such material has recently been reported by Bridges from Ohio University, at the Chicago meetings of the American Psychological Association, in December, 1920. The average correlation between grades and the army Alpha score, for a total of over five thousand cases, was found to be .35.

⁵Pressey, S. L. An Attempt to Measure the Comparative Importance of General Intelligence and Certain Character Traits in Contributing to Success in School. *The Elementary School Journal*, Vol. XXI, pp. 220-229.

Such studies emphasize the need for methods of investigating, in a highly systematic manner, individual differences in interests and emotional make-up. The present paper will (a) present an examination or "test" intended for such research, and will (b) emphasize two unusual features of this examination which the writer believes are of some general importance in connection with such work.

II. *The Tests*

The form to be presented was developed from two earlier attempts in this direction⁶ and was put into final shape during the summer of 1920. The tests appear, each on one page of a small four-page folder, each page being 6 inches by 9 inches.*

The first page begins as follows:

X-O TESTS

DIRECTIONS: On each page of this folder there is a test. Work these tests in order, finishing each test before you go on to the next. Do not hurry, but work as rapidly as you can; your score will depend partly upon the quickness with which you work. Begin with Test I below.

TEST I

t..... d.....

Read over the twenty-five lists of words on the page below and cross out every word whose meaning is unpleasant to you—every word which you do not like. You may cross out as many or as few words as you wish; but be sure to cross out everything that is unpleasant.

1. disgust fear sex suspicion aunt
 2. roar divorce dislike sidewalk wiggle
 3. naked snicker wonder spit fight
 4. failure home rotting snake hug
 5. prize gutter thunder breast insult
-
25. boat yellow crazy indecent shame

⁶Pressey, S. L. and L. W. "Cross Out" Tests, with Suggestions as to a Group Scale of the Emotions," *Journal of Applied Psychology*, Vol. III, pages 138-150, June, 1919; and Pressey, S. L. and Chambers, O. R. "First Revision of a Group Scale Designed for Investigating the Emotions, with Tentative Norms," *Journal of Applied Psychology*, Vol. IV, pages 97-102, March, 1920.

*The blanks are being sold by C. H. Stoelting Co. 3037-3047 Carroll Avenue, Chicago.

FURTHER DIRECTIONS: Read through the lists again. Do not change any of the marks you have already made. In addition to these, draw a line around the ONE word in each list that is most unpleasant to you. If you are not sure, guess. If there is no unpleasant word in a list, find the least pleasant. Work rapidly; but be sure that you have a line around one, AND ONLY ONE, word in EVERY list.

When you have finished this test, turn over the page to Test II.

As has been indicated, the test consists of twenty-five such lines. In the first scoring of the test, the total number of words crossed out is first counted, and the number written in the space for the total—the line marked “t” at the beginning of the test. The number of times some other word has been circled beside the word most commonly chosen as most unpleasant, is then counted, and this number is written in the “deviation space,” headed “d.” Thus in the first line the norms show that the word chosen as most unpleasant by the greatest number of people is “disgust.” If the individual in question circles any other word in this line, it counts as one deviation.⁷

The second test consists of twenty-five lines such as:

- | | | | | | | |
|----|---------|--------|----------|-----------|--------|--------|
| 1. | BLOSSOM | flame | flower | paralyzed | red | sew |
| 2. | LAMP | poor | headache | match | dogs | light |
| 3. | BATH | naked | choke | tree | alone | danger |
| 4. | KING | father | baseball | queen | rights | razor |
| 5. | SLEEP | grade | ache | fright | tongue | worry |

⁷The selection of words for this test was made in the first place on the basis of extended experience in work with the insane and with delinquents. The present form is the result of two revisions, involving a very careful study of the percent crossing out and circling each word. Each line has been planned to contain words of roughly the same amount of unpleasantness. The words are also arranged in a set scheme for purposes of analysis. The words are grouped as unpleasant because of their relation to emotions of disgust, fear, sex-feeling, and suspicion; finally there is a set of “jokers.” The “jokers” are words known, on the basis of the preliminary results, to be pleasant or at least not unpleasant. There is one joker in each line. The jokers are aimed to give a check (particularly in the use of the tests with psychotic or feeble-minded cases) as to whether the directions were understood. That is, if the directions were thoroughly understood, none of these pleasant words should be marked.

The joker in the first line is “aunt,” in the next line, “sidewalk,” in the next line, “wonder,” in the fourth line, “home,” and in the fifth line, “prize.” That is, the joker drops back one word in order, in each successive line; the joker is the fifth word in the first line, the fourth word in the second line, and so on, the series beginning over again—the joker being the fifth word once more—in the sixth line. This scheme makes it easy to follow the jokers through, in scoring. However, it is not a scheme easily hit upon by a person taking the test, or followed by chance, as an automatism, by a pathological case. Other groups of words proceed after the same fashion, the key being given by the first line. So the sex words run—sex, divorce, naked, hug, breast; the fear words—fear, roar, fight, snake, thunder, and so on. For a more detailed description of the plan and development of the test, the reader is referred to the second article mentioned in Note 6 above.

The subjects are told first to go through the test and cross out all the words in small letters which are connected or associated, in their minds, with the word in capitals at the beginning of each list. They are then told to go through the lists again, and draw a circle around the one word in each line which is *most* closely connected with the capitalized word. The first score is again in total of words crossed out (or richness in emotional association). The second score consists in total number of deviates from modal choice, in choice of words circled.⁸

The third test consists of twenty-five lines of which the five below will serve as examples:

1. begging swearing smoking flirting spitting
2. fear hate anger jealousy suspicion
3. dullness weakness ignorance innocence meekness
4. careless fussy reckless silly childish
5. poor extravagant sporty shrewd bad-mannered

The subjects are told first to cross out everything they consider wrong. Then they are told to go through the lists again, and draw a circle around the one thing in each list which they consider worst. Scoring is again in terms of total words crossed out, and total number of deviations in selection of the worst thing.⁹

The fourth test consists of twenty-five lists such as:

1. injustice noise self-consciousness discouragement germs
2. clothes conscience heart-failure poison sleep
3. sickness enemies money blushing failure
4. falling queerness religion dizziness boss
5. sin operation conspiracy lightning marriage

⁸As will be seen from close inspection, the words are chosen very carefully with reference to pathological conditions and criminology. This is, of course, an attempt to present a free association test in group test form; and it may be added that the words were taken in the first place from the Kent-Rosanoff Study (Kent, Grace Helen and Rosanoff, A. J., *A Study of Association in Insanity*, *American Journal of Insanity*, Vol. 67, Nos. 1 and 2, 1910).

⁹The test is, obviously, an attempt to put in a convenient group test form an ethical discrimination test. As such it has a long history. (See, for instance, Fernald, Guy. "The Defective Delinquent Class: Differentiating Tests," *American Journal of Insanity*, Vol. 68, No. 4, April, 1921). In general, an effort has been made to obtain judgments as to the comparative importance of different types of wrong-doing (as in the first list given above), or to obtain an indication as to the tendency of one's prejudices (as in the fourth).

The subjects are told, first of all, to cross out all the things in this list about which they have ever worried. Then they are to go over the lists a second time, and draw a circle about the one thing in each list about which they have worried most. Again the scoring is in terms of the total number crossed out (or anxiety tendency), and peculiar choices in words circled (or emotional idiosyncrasy). And again the test has back of it experience with abnormal personalities, and is obviously framed with reference to the investigation of certain anxiety states. The attempt was also made to involve the content of certain types of delusion, in mental disease.¹⁰

So much for the separate tests: in the first summarizing of the examination, the total number of words crossed out on all four tests is first summed, and is considered an indication of total affectivity or emotionality. The deviations are then added together, and the total used as an expression of "total idiosyncrasy."

Two special features of the examination, which the writer feels to be of very great general importance, remain to be pointed out.

III. *The Examination as an Exercise in Test "Form"*

In the first place, the examination carries further than any other test so far produced the possibilities of the modern group test in (a) condensation of material and problem, and (b) saving of time and labor.

(a) The examination is an extreme example of condensation of matter on the blank. Each word in each test is in reality a separate question,¹¹ in choosing words to be crossed out. This means a total of

¹⁰The words are, in fact, classified from this point of view, according to a scheme which runs: five, three, one, four, two. So the "hypochondriacal" words run as follows: germs, heart-failure, sickness, dizziness, operation. The melancholic and self-accusatory words run: discouragement, conscience, failure, religion, sin. The paranoid or suspicion words begin: injustice, poison, enemies, boss, conspiracy. The words chosen with reference to the self-conscious or shut-in personality begin: self-consciousness, clothes, blushing, queerness, marriage. The "neurotic" list starts: noise, sleep, money, falling, lightning. . . . As in the first test, the classification is not to be taken too seriously, but is at least suggestive, makes an interesting point of departure in analysis.

¹¹For instance, the material of the last test is quite largely from Woodworth's questionnaire, used in studying neurotic individuals in the army. This questionnaire consisted of such questions as: Have you worried about smoking? Yes. No. The person taking the examination was to underline yes or no, according as one answer or the other were correct. Putting the questions in this way, it required an 11" by 17" sheet to ask 116 such questions. That same question is asked as unmistakably by including smoking in the lists of the writer's last test, the instructions being that all things about which the subject has worried are to be crossed out. But the form used in the writer's examination permits one hundred twenty-five such words, plus the twenty-five questions as to which thing in each list is most worried about, in a space 9" by 6". That is, a total of one hundred fifty questions is presented in this space.

125 questions to each test, or 500 in all. The second part of each test (selection of one word in each line to be circled) adds twenty-five items to each test, thus obtaining a double yield of score from all the materials. And the grand total thus becomes—600 items of score, all presented on the two sides of a 9 inch by 12 inch sheet!

Further (b) since each question is answered merely by a single stroke of the pencil in crossing through or circling, and since (an important consideration) there is very little reading in proportion to the number of questions asked, the average college student answers all these 600 questions in twenty-five minutes; the average adult takes little longer. Further, there is no technique whatever required in the administering of the tests. The tests are "self-giving";¹² all that is the examiner does is pass out the blanks, and collect them again as each subject finishes—there is no timing of each test to the second, no technique in giving or other special procedure. Finally, scoring is altogether objective, free from elaborate schemes of weighting, does not involve repeated rehandling of the first crude scores, or elaborate calculations; most important of all, scoring methods are altogether the same for all four tests. The blanks can thus be scored by untrained clerical help. And such works can obtain the first score on the entire 600 items in about three minutes; scoring on "differential units" (to be described shortly) requires less time. A 600 item examination can thus (1) be given by an examiner without any special training or preparation whatever, can (2) be taken by the average adult in about thirty minutes, can (3) be scored by any clerk in three minutes.

IV. Research Tests and "Differential Units"

The examination thus (the first special feature mentioned in the introductory section) embodies certain new ideas regarding test form which have permitted great condensation and reduction of material, and great conveniences and saving of time and effort in the using. It is only because of these mechanical advances that the second feature above mentioned is possible. The nature of this second special feature can perhaps best be indicated by saying that the examination is not, really, a single examination, but several examinations combined.

¹²The subjects are simply told, as the blanks are passed out, to "read the directions, and do what they tell you to do"; as appeared in the copy of the first test reproduced above, the directions for each test are printed on the blank. Since the tests are not time limit tests, the subjects simply finish one test and then go on to the next without any special directions; and since the directions are very thoroughly systematized, and similar, from test to test, there is little difficulty with the directions.

The usual method, in building a test, is to select the items for the test according to their value in measuring the particular element which the deviser wishes to investigate, and then (the selection of items determined once for all) to deal henceforth in terms only of total score. But the writer wished to use the examination for exploratory research in a number of fields. And he did not wish to base his selection of items for any problem of differentiation merely on a bit of preliminary work; he wished to be able to re-select and recombine his items as the work progressed, in studying any particular problem. So it was finally decided to combine in the examination a variety of materials (as in the last test, where items of possible significance with reference to five different types of mental abnormality have been combined), and to develop "differential units" for study of special problems. The result is that *total scores on the entire examination are the blurred result of a number of factors, and are of relatively little importance.*¹³ However, *it is possible, from the mass of data yielded by the examination, to combine certain items in such a way as obtain, from the single examination, highly differential information with reference to a number of problems.* The point is of fundamental importance for the understanding of the examination. And to illustrate methods of developing and using such "differential units" the following bit of research is presented.

¹³The totals are, however, of some interest in a first appraisal of data. The following data from 114 college students (58 women and 56 men) are, therefore, presented, to give a general idea of the nature of these totals:

Words crossed out—25 percentiles, medians, and 75 percentiles in order: totals 200, 230, 260; test I 27, 41, 52; test II 41, 55, 70; test III 60, 73, 86; test IV 33, 46, 55. The average number of words crossed out in the five groups of test I run as follows:

disgust	fear	sex	suspicion	jokers
14.2	8.6	13.0	10.1	.3

Only one case crossed out as many as three jokers. For the five groups of test IV the following averages were found:

paranoid	neurotic	shut-in	depressed	hypochondriacal
9.3	9.6	9.7	11.1	9.8

Words circled:—25 percentiles, medians, and 75 percentiles in order: totals 41.6, 47.2, 51.7; test I 9, 11, 13; test II 8, 10, 12; test III 10, 13, 16; test IV 13, 15, 17. Modal choices run as follows: Test I—disgust, divorce, spit, rotting, insult, street-walker, cruel, dirty, sewer, drunk, stink, filthy, suck, illegitimate, vomit, cheat, slash, kill, sin, assault, abortion, pus, pox, disgrace, indecent; Test II—flower, light, naked, queen, worry, dark, strong, high, brave, truth, beautiful, baby, girl, chills, worms, figure, unfair, horrors, suspect, disappointment, trick, work, children, country, water; test III—swearing, hate, ignorance, careless, bad-mannered, snob, prostitute, lynching, smutty, thoughtless, divorce, illegitimate, stupid, immodest, indecent, chewing, stingy, street-walker, dope fiend, strike, broker, quitter, gossip, nagging, brutal; test IV—self-consciousness, clothes, money, religion, sin, accidents, insult, God, blues, unfairness, depression, loneliness, temper, business, syphilis, disease, forgetfulness, worry, fault-finding, medicine, tuberculosis, nervousness, habit, teacher, awkwardness.

The question was as to whether the examination might not be used to distinguish those college students who, because of lack of interest or other extra-intellectual reason, were doing unsatisfactory work (the third problem mentioned in the first section). The tests were given to 105 regularly enrolled college students, 29 of whom a few weeks later, at "mid-terms," received warning from the Deans' offices that their work in at least one class was unsatisfactory. The question is as to whether these 29 might have been distinguished from the remaining 77 in advance, by means of the tests.

The method was very simple and straightforward. The percent. of those warned and of those not warned, crossing out each word was first found. The ten words were then located in each test, crossed out by the greatest proportional per cent. of those who did not receive warnings, and the ten words chosen especially by those receiving warnings. A differential score for each case was then worked out by subtracting number of words crossed out, of the ten favored by those warned, from number crossed out, of the ten favored by those not warned. The combined differential result on test I, III, and IV made up the total differential score.¹⁴ The results were then tabulated as follows:

.....	score on differential words	.....										
-7-8	-5-6	-3-4	-1-2	0-1	2-3	3-5	6-7	8-9	10-11	12-13	14-15	16-17	total
1	2	5	5	6	5	2	2	1	.....	warned			29
not warned	.....	3	3	14	16	13	15	8	3	2			77

The first line of scores is, of course, the distribution for the cases warned. It will be seen that thirteen of those receiving warnings made differential scores overlapping not at all upon the scores of those whose work was satisfactory; over 80 per cent. of those below the twenty-five percentile were warned, in the total distribution.

In contrast to these results may be put findings with another large class, using the army scale alpha, as follows:

..... score on Scale Alpha

¹⁴The second test was found of relatively little value for this study. The writer wishes to express his obligations to Miss Edith Hopkins for her careful work in making the routine tabulations throughout. The first tabulations of words crossed out (it might be added, for the benefit of any who may wish to undertake a similar analysis) were made onto unused blanks, and the conversions to a percent basis made with a slide rule. The total labor involved in such an analysis is not, then, great.

60	70	80	90	100	110	120	130	140	150	160	170	180	190	total
1		1	2		3	4	4	6	3	1	1	2	warned	28
1	1	2		6	9	10	12	13	11	6	9	2	1 not w'n'd	83

There is complete overlapping of the two groups; only 25 per cent. of the cases warned are in the lowest quartile.¹⁵ It is further interesting to note that correlation of score on the differential unit of the emotional tests with average mark for the previous June, for a total of 46 cases for whom these marks were available, gave a coefficient of .58—as compared with the coefficients of .37 and .35 for the army scale mentioned in note 4.

V. Discussion

The above findings are obviously of the most tentative character, and in need both of further analysis and further verification. But they are at least suggestive. They suggest, the writer believes, two conclusions. (1) Investigation of emotional and characterological factors, by means of that carefully systematized and controlled method which is called "testing," is possible, and promises results of great value. (2) Recent developments in "test form" (and in statistical method) make possible the gathering of data of practically any type with a precision, a readiness, and economy of time and labor, undreamed of a few years ago. Careful study of these methods will well repay any investigator, in criminology, social work, psychiatry, or any related science.

VI. Summary

1. The paper presents an examination for investigating the emotions.
2. A very careful development of test form has made possible the inclusion in the examination of a total of 600 questions. Nevertheless, the entire set of tests is presented on two sides of a 9 inches by 12 inches sheet. The average adult requires less than thirty minutes to cover the entire 600 items. A blank can be scored in less than three minutes. The examination is self-giving.

¹⁵It should be acknowledged at once that the comparison is by no means so satisfactory as it should be, particularly as the differential unit was tried back on the group from which it was derived. But—the emotional scale is more differential than Alpha in crude total of number of words crossed out! For 38 per cent. of the students warned are in the lowest quartile in total number of words crossed out! Further data largely verifying these findings will be presented later.

3. Some data are presented to suggest that such examinations will be more accurate than the army scale Alpha in prognosticating unsatisfactory work in college.

4. It is urged that work along these lines is the pressing need, and that such an examination as just described, permitting research along a number of related lines, is likely to open up the field for investigation more readily than a test organized for only one specific purpose.¹⁶

¹⁶Since finishing the above paper the writer has received a very interesting letter from Miss Caroline Dreyfus of the United States Health Service Hospital, No. 58, New Orleans, in which she describes use of the "X-O Tests" as a basis for more extended individual questioning. For instance, on the last test, one individual circled the two unusual words "rivals" and "enemies" as matters most worried about. Questioning "led to the display of distinct ideas of reference which had not been elicited before in any previous examination. Another patient crossed out the word 'whispering.' Conversation about this led to confession of hallucinations which had been denied up to this time." Such results are, the writer feels, of no little interest.

It should also be added that the blanks for the test are now being handled by C. H. Stoelting Co., 3037-3047 Carroll Avenue, Chicago, Illinois; or they may be obtained from the writer.

REVIEWS.

THE PSYCHOLOGY OF SOCIAL RECONSTRUCTION. G. T. W. Patrick, Ph.D., Professor of Philosophy, University of Iowa. Boston. Houghton Mifflin Company. Pp. 260. Price \$2.00.

THE AUTHOR'S purpose is the examination of some of the current and popular plans for social reform and the application of certain of the elementary principles of psychological science to these problems. He emphasizes repeatedly the need for a scientific, historical and psychological background in discovering a new social order which shall be based on human needs and human nature rather than on commercial or economic motives.

Man, who has hitherto been more or less of a puppet in the hands of such forces as evolution, revolution, climate, and industry, is now for the first time consciously and purposively attempting to direct his own fortunes. This is a hopeful sign. It is characteristic of our times that our sensitiveness to the evils of our imperfect social order should have increased, and that we should tackle them with a will to cure them. The exalted, self-complacent social mood of the early part of the twentieth century is undergoing a reaction; the veener slipping off which merely covered suppressions that were not properly sublimated or redirected; for society, as well as individuals, may have its "complex."

The inquiry into the psychological foundations of the new social order insists on a reorganization which will provide directly for the exercise of man's inherent and instinctive proclivities. He should be given a field for the expression of instincts like that of pugnacity, which cannot be suppressed, but which could and should be sublimated. Since the human unit changes slowly and society rapidly, the question before the social reformers should be, not the modification of human behavior to a new system, but the adaptation of a social order to the men who are to live therein. We must lay more emphasis on the material and equipment with which we have to deal. If our aim is an attempt at eliminating undesirable traits in human behavior, then education, rather than political and social institutions and new laws, should be the means. Human nature repressed will balk, and social discord will ensue. We may "abolish" private property but we cannot stifle the instinct of ownership. It is not the enjoyment of luxury and peace, but the pursuit of them, the struggle, that gives zest to life. Our social schemes are too visionary, too shadowy. They do not provide outlet for expression, either by substitution or sublimation, of the instincts inherited through thousands of generations. All we have offered to us is a standardized world, made safe and sure for ultimate stagnation. Our new plans should confirm to those laid down by nature. Dr. Patrick then treats of some of the more powerful instincts which demand satisfaction, and sees in such instincts as loyalty, devotion, sex and parental bent,

group solidarity, and self-sacrifice, the springs of action from which the best in us may be drawn out. Yet in the proposed new order which gives no opportunity of expression for these fundamental needs of the restless, aggressive, aspiring man, it is assumed that art, literature, religion, patriotism, morality, will spring from wealth and leisure, which would be obviously impossible in a non-striving society.

Again, if one of the schemes proposed for his betterment were made effective, man who is not essentially a laborer, although he may have the instincts of creative workmanship strong in him, is placed in work that is mere toil. The problem is how to increase and distribute our goods, and at the same time adapt our industrial system to the mental make-up of its workers. Drudgery, in some way, will have to be vitalized by loyalty, emulation or love. We must be able to humanize, not socialize, our industrial society. The picture of injustice today is based on fictitious values, material comforts. There appears to be no attempt to break away from the pursuit of the dollar, no objections to the prevalent business ideals. The one common point of agreement is the matter of wage adjustment, the distribution of the fruits of labor. We find no opportunity allowed for each to earn for himself some gain or glory. This program of equal distribution of wealth would be ultimately followed by staleness, mediocrity, and degeneration. Communism may work for bees and ants but not for the achievingly inclined twentieth century man. Collective ownership, except in very narrowly integrated groups is a contradiction of terms. Addition to leisure may not be a safe experiment. It is in our work, not in our leisure, that we should find life. The arguments for internationalism are founded on commercial and industrial rather than social and moral grounds. In nationalism, the larger the group becomes, the more difficult the integration. Industrial partnership offers a possible but still uncertain solution.

In this centrifugal age of ours, of which self-expression is the keynote, we must be on guard to preserve the integration and solidarity which is essential for the existence of social discipline, which will maintain justice within the state, in the Platonic sense, and which will guarantee to the generations to come a like opportunity for social stability. Knowledge of the real sources of welfare, of values beyond comfort, leisure and material goods, will bring about happiness and self-realization and restore to society both religion and morality which were formerly the field for expression of the instincts of loyalty and submission. We must enlarge our conception of education, and no longer leave it to mere chance, to journalists, movies and other near-sighted but far-reaching media. Our northern type of people demands not merely idealistic schemes of revitalized religion, moralized education, rational eugenic principles and a just economic system, but insists that the program should be workable, should be established on a concrete basis. The confidence and respect of the people, formerly given to political and to social leaders, must now be transferred to science whose representatives must be experts. Science, hitherto all powerful

in destructive devices should be turned to channels of construction, not merely to bring about remedial and repressive measures which temporarily may be productive of brilliant results, but to build up a vigorous manhood, strong to resist evils, insuring for posterity a racial health and stability whose energies shall flow to moral, aesthetic and social ideals.

While one catches the inspiration and enthusiasm of the author one can not help but wish that he had been able to give us some definite concrete scheme, based on his psychological theories, which could be made effective in this sorry world of ours. Mere references and somewhat vague suggestions leave the reader to a certain extent unsatisfied by their incompleteness. The way has been paved for the production of another volume, at a later date, in which we shall perhaps be offered a clear-cut program. If such a book should be forthcoming, we might suggest that a specific table of contents, including a subdivision of topics and section titles, would render it more serviceable as a practical discussion of a vital subject. The present work, while somewhat rambling and repetitive, will serve as a vigorous and inspiring introduction to its author's *workable program* of social reconstruction.

GLADYS C. J. SCHWESINGER.

PSYCHOLOGY AND FOLK-LORE. R. R. Marett, Fellow and Tutor of Exeter College. Reader in Social Anthropology, Oxford University. New York, The Macmillan Company, 1920. Pp. IX+275. \$2.75.

IN a series of essays and addresses on various ethnological subjects; *Psychology and Folk-lore* presents a variety of appeals to the psychologist for the employment of his methods in a new and fertile field. Dr. Marett initiates the appeal by urging a more inclusive training for the field worker in anthropology. Technical and sociological preparation necessary to identify and collect systematically should be supplemented by psychological training to insure a more sympathetic approach to those primitive human beings who are the real documents supporting and shaping the theories of the scientist. The ethnologist collects his curios, and therein reads the life of the tribe; the sociologist studies his primitive colony in order to fit their customs and institutions into his preconceived theories of society. Objectively, from what he sees, he proves his hypothesis of material culture resulting from genius *in situ*, or else resulting from culture contact, whichever his bent. But the final history must come through the savage, the chronicler of the tribe.

The mental processes of primitive man are incoherent, not occidentalized. To his words and actions civilized motives and significance must not be attributed. To understand his folk-lore, and his medicine man, the anthropologist must know the primitive way of thinking and of doing. Although the savage is not akin to the mentally defective, he is as unique a problem. In emotions he is perhaps less elusive than in mental processes; and it is here, by a sympathetic study of his emotions, that psychology may assist in an inter-

pretation of folk-lore. Behind customs, proverbs, folksongs, and superstitions are solidified emotions varying little from those of other human beings. The mind may provide quirks of expression, erratic impedimenta, but the emotion expressed or impeded is fundamentally the same for all. Moreover, since only that is likely to survive which has had sufficient affective accompaniment, so we may expect to understand the nature of survivals more adequately by studying the emotions of the race from which they come. Here psychology and anthropology unite to produce a truer "history of vital tendencies."

The essays of which *Psychology and Folklore* is the first vary in the extent to which their content lends itself to psychological analysis. Any activity, whether war dance or religious incantation, pot making rites or magic infusion for aigue, which involves the personal element is more readily understood when attacked sympathetically. With some of the specific problems the advantages of projecting oneself as much as possible into the life of the people is obvious.

Folklore, for instance, is not merely a set of fossilized customs; it is a living force. To interpret the dance, the drama, the song accurately the anthropologist must himself acquire the emotion by actual participation—the doing to become the knowing. He thus tempers the dispassionate attitude of the scientific tabulator, lives his way into knowledge instead of raking scraps from the surface. Marett suggests that already psychology has offered theories which interpret folklore not as remnants of obsolete institutions now meaningless, but as crude offshoots of an incoherent, unintegrated mind. Chance, faulty associations easily lodged in an impressionable mind lie at the base of much superstition and magic.

Savage demagogy is a question of prime importance for a complete understanding of savage society. Sociology assigns to psychology all questions of the mechanism of leadership, of which savage leadership in the person of the medicine-man is a strangely complex phase. Has progress and invention been due to a few superior minds who discovered how to impress their genius on the sluggish, imitative mass of inferiors—or has it been a group progress, a gradual modification from day to day? If anyone in savage society falls in the category of genius, it is the medicine man—for either he is an unscrupulous demagogue with the success due a genius, or endowed with more common sense than his fellow tribesmen, he is sincerely applying it. Much effort has been spent to determine the sincerity of the medicine man administering his magic cures. He must know that before he produces from his mouth the stones which are to effect a cure, he has taken them into his mouth. But considering the incoherent association of savages, the absence of any logical assembling of experiences, their suggestibility, and auto-suggestibility, their nervous instability and epileptic tendencies, the medicine man may *not* know what he has done a few moments previous to his miracle. It is such tangles that the psychologist may comb.

Dr. Marett has offered much interesting material for psychological treatment, but does not himself attempt the analysis. Throughout he reiterates the desirability of psychology to complete the equipment of the anthropologist. In spite of the blanketing of the personality in customs which send their creepers into every crevice of daily life, the instincts of primitive human beings are not deeply buried. In penetrating the lives of these imitative folk a completer knowledge of people is necessary in order to balance a knowledge of things. "Folk-lore," say Marett, "means more than the mere compilation of curious oddiments. It is the study of the life of the folk—insight into mind and character."

A useful synopsis precedes each chapter.

ADA L. GOULD.

THE FORM AND FUNCTIONS OF THE CENTRAL NERVOUS SYSTEM, AN INTRODUCTION TO THE STUDY OF NERVOUS DISEASES. By Frederick Tilney, M. D., Ph.D., Professor of Neurology, Columbia University; Attending Neurologist, the Presbyterian Hospital, and the New York Neurological Institute, Consulting Neurologist, Roosevelt Hospital, New York, and Henry Alsop Riley, A.M., M.D., Associate in Neurology, Columbia University, Associate Attending Neurologist, New York Neurological Institute; Attending Physician, Neurological Department, Vanderbilt-Clinic, New York. Foreword by George S. Huntington, ScD., M.D., Professor of Anatomy, Columbia University. New York: Paul B. Hoeber, 1921. Large octavo XXIV + 1020 Pages, 591 Figures containing 763 illustrations, of which 56 are colored. Price, \$12.00 net.

THE College of Physicians and Surgeons in New York has seldom published a more momentous contribution to medical education than this work from its neurological department—and in the hundred and fourteen years of its existence its instructors have made many contributions to Medicine and to biological science in general. Certainly not since Barker's "The Nervous System and Its Constituent Neurones" (1899) has America made so valuable an addition to educational neurology.

Like many other things in human life the work needs to be perceived, "immediately" experienced, in order to be appreciated. The preface veraciously states that "in addition to much original work, many sources have been drawn upon for neurological facts and interpretations. Chief among these have been the great modern masters of neurology, Cajal and Dejerine. The more recent contributions of distinguished English neurologists, including such leaders as Gaskell, Elliot Smith, Hughlings Jackson, Head, Sherrington, Horsley, Holmes, Campbell, and Wilson have provided a wealth of material," while the "American School" of neurology is adequately represented, besides,—Herrick, Huber, Jelliffe, Dana, Starr, et al. per terras.

The book is dedicated to Doctor George Sumner Huntington, Professor of Anatomy at Columbia.

This work, like the authors' "Introduction to the Study of Nervous Dis-

ease," is "designed to fill the gap between morphology and the practical requirements of clinical medicine. It aims to visualize the living nervous system, to make accessible an appreciation of its vital relation to the functions which go to make up life, as well as the defects in these relations which result in disease." As Professor Huntington points out in his Foreword, it tends to obliterate the evil "divisions commonly existing between premedical, preclinical, and clinical studies," (a reform started in the University of Oregon with the appointment of the "Professor of Zoölogy and Director of Fundamental Education in Medical Science"). Numerous pictures of parts of the brain as found in a large variety of the brutes, so that direct comparison is possible, provide material by which the student of animal psychology might considerably profit. (Stegosaurus, however, the ten-ton dinosaur with a sixty-gram brain (the size of that of a three-weeks kitten) is not noted.)

An interesting educative feature of the book is the twenty-five or thirty symptom-groups (syndromes) of as many important neuropathological conditions, adaptations of the case-history method. They serve to directly fix in the reader's mind the relation between functioning structures and their respective diseases. "By this method," as the Preface notes, "the anatomy and the physiology of the central nervous system are no longer permitted to remain as independent branches of medical science, but are here incorporated as essential parts of the practical knowledge necessary to the proper diagnosis and treatment of disease." Nothing is more essential certainly than this synthesizing reform in the old, over-analytic anatomies and even text-books of neurology. The psychological reader however, (and medicine is being forced, against its will, to acquire a little interest in the human mind!) the psychological reader will regret that a few pages of fine print (if nothing more) had not been devoted to taking the synthesis further into the far more interesting and not less essential realm of the stream of mind. This might have proven to be an excellent investment among the psychologists. For them mostly the book as it is will be just a bit, or further, outside their common range. Even if the book were written for medical folk, as the authors would doubtless say, every psychologist and philosopher of mind needs it literally in his thinking business,—and ought somehow to be coaxed into transferring the gist of it into his "end brain." Why this basal inconsistency of limitation, then, in the systematic integration?

On the other hand, the constructive physiologist, psychologist, sociologist, and such, will find here, especially in the numerous discussions of function under the various parts of the nervous system, what perhaps is the most comprehensive and useful summary of present opinions anywhere available. There is a very full and detailed description of the cortex (pallium), the newer material of Brodmann, Campbell, etc., in systematic completeness. In these details of the stratigraphy of the cortex, if anywhere, when we have found the interpretative key for opening up its mysteries, will be found the physical "basis" of mind (as a psychomotor adaptation). The student of personality will find in this book of

Tilney & Riley a skeleton of integration which perhaps, we shall learn ere long to clothe with a consistent tissue somewhat such as the behaviorist and every "good" psychologist besides seeks elsewhere in vain. For example, here is the whole scientific sanction of the subconscious aspects of the mind; and here too are the data through which the student of things-in-general i. e., psychology, can readily comprehend how affects color and often determine our thoughts; and just why the cortex represents movements but never muscles, and so on—just what he most needs to know!

Here is a synopsis of the contents of the work divided into fifty chapters: The Central Nervous System, Its Importance and Significance; Embryological Development of the Central Nervous System; The Unit of Structure of the Nervous System, The Nerve-Cell or Neurone; The Integration of the Neurones to Form the Nervous System, The Neurone Theory; Exposure and Investigation of the Spinal Cord in Situ; The Spinal Cord, Its General Character and Anatomy, Its Coverings and Circulation, Histology of the Cord Segment, The Function of the Gray Matter in the Cord Segment, The Function of the White Matter in the Cord Segment, Its Principal Syndromes; Removal of the Brain and Investigation of the Brain Case; The Medulla Oblongata, Encephalization and a General View, Relations, Surface Appearance and Anatomy, Internal Structure and Histology, Functional Significance, Principal Syndromes; The Pons Varolii, Significance, Anatomy and Embryology, Internal Structure and Histology, Functions and Principal Syndromes; The Cerebellum, A General View of Its Evolutional Significance, Relations, Surface Appearance and Anatomy, Internal Structure, Histology and Embryology, Its Functional Significance, The Principal Cerebellar Syndrome and Its Variations; The Midbrain, General Significance, Anatomy and Embryology, Internal Structure and Histology, The Functions and Principal Syndromes; The Interbrain, The General Significance, Anatomy and Embryology, Internal Structure and Histology, The Functions and Principal Syndromes; The Endbrain, The Cerebral Hemispheres; Surface Anatomy, Development and Comparative Morphology, Cerebral Measurements and Cranio-Cerebral Topography, The Coverings of the Brain, The Cranio-Cerebral Circulation, The Cortex; The Medullary Substance, Functional Significance and Principal Syndromes of the Medullary Substance, The Internal Nuclei, Functional Significance and Principal Syndromes of the Corpus Striatum, Cerebral Localization, The Somatic Motor Area, The Somesthero-Sensory, Visual and Auditory Areas, The Limbic and Insula Areas, The Parietal Frontal and Prefrontal Areas, The Internal Structure of the Hemispheres and the Ventricular System.

There is a useful Glossary of five pages; there are important references for supplementary reading; and a forty-three page index.

The 763 illustrations are little short of splendid, and none short of this large number. A series of diagrams showing the various columns, etc., through the cord and the brain-stem, cannot fail to be of great teaching value to visualiz-

ing students, young or old. The histology and the embryology are "complete" to this year of grace.

Very likely the work has "faults," but certainly the present reviewer is not one to search too diligently for them amid such a teeming wealth of neurologic virtues and excellencies. And it is a fact that he has none worth mentioning in mind.

The work is indeed an honor to its authors, their University and their Country.

GEORGE VAN NESS DEARBORN.

NEUROLOGICAL CLINICS. Exercises in the Diagnosis of Diseases of the Nervous System. Given at the Neurological Institute, New York, by the Staff of the First Division. Edited by Joseph Collins, M. D., New York: Paul B. Hoeber, 1918.

This publication consists of a series of cases presented by the staff of the First Division of the Neurological Institute at their bi-weekly conferences.

The reports are characterized by their brevity, with the inclusion of the essential and important diagnostic points and the avoidance of unnecessary, long case-histories. This makes the reading and assimilation of the cases easy—which is not the case with the ordinary reports of this sort, especially neurological and psychiatric presentations.

MEYER SOLOMON.

LOCOMOTOR ATAXIA (TABES DORSALIS). An introduction to the Study and Treatment of Nervous Diseases. For Students and Practitioners. By William J. M. A. Maloney, M. D., (Edin.) Fellow of the Royal Society of Edinburgh; Fellow of the New York Academy of Medicine; Fellow of the New York Neurological Society; Neurologist to the Central and Neurological Hospital; Formerly Professor of Neurology, Fordham University, New York. Illustrated. D. Appleton and Company, New York and London, 1918.

This work by Maloney handles locomotor ataxia in a way which is appealing, interesting and instructive. After considering the relation of syphilis to tabes, he takes up the results of the syphilitic lesions in respect to motion, sensation, attitude and movement, the cranial nerves, the sensory and motor vegetative symptoms, and finally chemical disturbances. The diagnosis, course and treatment of the disease are then given.

Maloney lays particular stress upon the mental state of the tabetic. He pays particular attention to tabes as a cause of fear, fatigue and depression. He compares tabetic psychoses to prison psychoses. He thinks much of the value of psychotherapy in the treatment of this disease, and goes over the treatment in a thorough manner from this standpoint, in addition to all the other modes of attack.

The entire presentation is marked by sincerity and clarity.

I have found this discussion of locomotor ataxia more interesting and impressive than any other that I have read up to date.

Everyone who deals with or is interested in locomotor ataxia should read this work.

MEYER SOLOMON.

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ORIGINAL ARTICLES

THE DILEMMA IN THE CONCEPTION OF INSTINCT, AS APPLIED TO HUMAN PSYCHOLOGY

BY WILLIAM ERNEST HOCKING

1. The common use of the term instinct is not embarrassed by the fact that its meaning is hybrid. It means a mode of *behavior* and it means a mode of *interest*; and for ordinary purposes the mixture of physical ingredients with mental ingredients makes no trouble and requires no explanation.

But when a technical definition is sought mixtures are no longer satisfactory; a concept must have a fixable character, not a dual personality. Yet the effort to reach a "clear and distinct idea" of instinct commonly results in a dilemma. When the definition does justice to all that instinct means in physical terms, it fails to fit what instinct means in mental terms; and vice versa. When either side is securely nailed down, the other warps up and refuses to fall into the plane. The definer is tempted to ignore one or the other aspect of the conception; but this way of escape cannot be successful in human psychology, for reasons hereafter to be stated.

2. If the meaning of a conception could be determined by its history, there would be little doubt about the definition of instinct. For the native haunts of the idea of instinct are in behavior, animal behavior. The epoch is not far past when the animals had all the instincts, and had nothing else to go by, while man had all the reason, and had no instincts to help his reason out. This is far from being the case today; but it remains true that the conception of instinct is more at home in the place of its birth than elsewhere. It is quite possible to give a definition of instinct which takes care of all the items usually dubbed instinctive in animal behavior and excludes the rest. The following composite photograph of various such definitions shows their tendency to converge:

An instinct is an innate behavior pattern, common to all members of a species or of a sex of a species, leading from a situation marked by a specific signal or 'stimulus' through a fairly regular and more or less complex series of operations to an end favorable to the survival of the individual or of the species. Its most useful marks or criteria are adaptiveness, and untaught skill in the use of specific organs.

3. If, however, we try to approach a definition of instinct from the side of our own experience, we find it awkward. Try to enumerate the items of your own stream of consciousness that you regard as instinctive, and the reason for this will become clear.

Unless we are exceptionally instructed or sophisticated individuals, we do not label our instincts by that name while we are using them. When we are angry, it seems to us the reverse of an irrational course of conduct: it seems rather the reaction of reason itself to the irrational behavior of others, — we know nothing of an 'instinct of pugnacity' in such a moment. Or if we find ourselves disinclined to take a high dive while social impulses favor the performance and reason reassures, we as a rule make no conscious avowal, even to ourselves, of an 'instinct' of fear. The grounds for action or inaction appear to us objective; we rationalize them: and in this process the instinctive factor is transmuted, or is apparent chiefly to others.

The salient mark, from our own standpoint, of those events which psychology comes to call instinctive, is simply *interest*, — positive or negative interest. Instincts stand out from the rest of our mental life chiefly because of their emotional accompaniments and a sense of power or ease that goes with the action. In the vernacular, the domain of instinct is simply the domain of the "things one *takes to naturally*," — satisfactions which life discovers and which neither offer nor need any explanation.

4. The recognition of instincts in ourselves is greatly aided by the role played by the non-rational in the *social context* of our lives. There are the common interests which obviously help us to understand one another without elaborate explanations, to work and play together, to build intricate social arrangements on safe calculations of what human beings will want and do, and to be amused at the familiar-strange ways of the whole human tribe.

It is this quasi-cynical interest (characteristic of all psychology) which a man takes first in his fellows and later in himself, that accounts for the inescapable attachment of the conception of instinct to the mind, where naturally it is a stranger.

5. In its use, in the mental field, we have a striking instance of the disposition of mature human self-consciousness to make a mythology of itself, and to fill itself full of hidden mechanisms which it conceives as springing perpetual surprises upon its unsuspecting person. Mankind dearly loves a little machine which it can substitute for itself when it tries to think about itself. And if the machine has trap doors, which conceal a subterranean chamber full of dynamos and secret springs, and guarded by a jealous, sycophantish, and otherwise stagely-villainous censor engaged in tyrannical repressions, the mythology acquires all the fascination of a detective story or a new automobile.

If consciousness is the place where appearance and reality coincide, everybody should be a natural authority upon his own states of mind. But no one who has taught any subject with a strain of psychology in it can have failed to notice the almost complete docility with which most students will accept doctrines about what they are made of, and their almost eager readiness to believe themselves full of 'complexes,' and other phantasms of the living.

Now it would be absurd to say that these mechanisms, which evidently hail from the world of physical behavior, throw no light upon our conscious selves. Consciousness has its self-luminous regions; but it is not all self-luminous: and in those regions where it admits of light being thrown upon it, nothing else promises so much light as just these curious machines. But it is necessary to be clear that all such behavioristic elements are *imported*, — not found in the natural output of introspection, — if we would see the nature of the difficulty of the conception of instinct on its mental side.

6. This difficulty will become more apparent if we consider the importance of the work which instinct, in human psychology, is called upon to do.

When we study instinct in animals, we are first attracted by the amazing tricks which lead to results so much superior to most works of conscious device. Then we learn that instinct is engaged not primarily in doing tricks, but in governing the whole normal round of animal life, its breeding, food-getting, migrating, etc., — broad categories which describe equally well the natural round of human life.

It is at this stage that we are likely to import the conception into human psychology; for instinct in man is not of the trick-working order but rather of the order of interests which govern the broad

life-cycle. And the classic list of human instincts as 'love, hunger and self-defence' expresses well the meaning of the conception at this stage.

In popular and literary use, the conception will probably adhere to this meaning. When Goethe wanted to express the quasi-cynical, Solomonian view of human life (Solomon, the first psychologist whose works have come down to us) he did so in the lines, which I will venture to render as follows:

Why all this ado under the sun, this labor and turmoil of men? —
 They are striving to nourish themselves, to bring children to birth and to
 nourish them: —
 No one achieves a jot more, torment himself as he may.

The whole sum of human biography and history is told in terms of these three great impulses or interests, and on the basis of introspection, these major interests are simply *there*. An interest explains all the actions that men carry out for its sake; it does not explain itself. And it may reasonably be held not only that an interest needs no explanation but that it is incapable of explanation. Value is the only self-explaining thing in the world: and interest is value conceived as present to a conscious and active being.

But when values are referred to instincts, the conception of instinct seems to offer some explanation of those values. It implies that our interests are *not* self-explanatory; that we are not content to take them simply as ultimate facts. And it proposes to explain them by referring them to something very different from value, namely to the behavior-machines we were speaking of. It is here that the difficulty becomes acute.

I am not referring at present to the fundamental difficulty involved in the proposal to get light on the character of an interest by conceiving it as a mode of motion. All explanation proceeds by referring a thing to something else. And it is especially evident that if instinct is to explain interest, it can do so only on condition that instinct itself is defined in non-mental terms. For if instinct were defined by its conscious aspect alone, then to say that the original interests of human life are due to instincts would be a circle: for instinct, as a mental fact, can only be defined by the facts of interest.

But the difficulty is this; that if we avoid the circle by defining interest in terms of the behavior mechanisms, there is a serious gap

between those items of conduct which can fairly be referred to the mechanisms, and that large area of conduct which is governed by the major interests of which we have been speaking.

7. In the first place, the great interest-trends of human life are highly general, and the behavior mechanisms in proportion as they are strictly conceived appear highly specific.

If you carefully limit the conception of instinct to operations which mechanical conceptions (with a reasonable margin of hope) allow you to explain, you naturally begin with reflexes, and pass on to chain-reflexes and more highly compounded forms; but you end by leaving out just those major trends which make the conception psychologically important. You provide explanations for movements of manipulation, but not for curiosity; for separate movements of grasping, masticating, swallowing, locomotion, but not for a 'food-getting instinct'; for blushing, sex-play, copulation, but not for courting, sex-love, domesticity: for grasping, reaching, pulling, but not for 'construction.'

It is natural enough for the stricter scientific conscience to seek relief from this situation by roundly denying that love, hunger, self-defence, construction, curiosity, etc., are instincts at all: asserting that the only legitimate instincts are those units of behavior for which a definite stimulus and definite response can be determined, while the more general categories are instincts only for literary men and philosophers. And this is a perfectly reasonable attitude; for, we repeat, the concept of instinct is primarily a behavior-concept; and the right to define it lies with the physiologist.

But to accept this position is to take away the conception from those uses for which it was brought into human psychology; to restrain it from offering explanation for that round of life and its major values for which it was first invoked; — in brief, to confine its use in human psychology to the comparatively trivial.

8. In the second place, the great interest-trends are doubtful in their identification and in their boundaries. They were certain to fall under scientific suspicion, if only because every writer gave a different list, and because between the lists there was enormous divergence in the number of items. If some mentioned three, others (as William James) enumerated between thirty and forty.

Is there, or is there not, an instinct of fear, or of imitation, of self-preservation, of curiosity, of constructiveness? Is there an instinct for each phrenological bump? The explanatory promise of

the conception is so alluring that writers are tempted to coin an instinct for any fairly persistent trait of mankind which they wish to signalize. There is said to be a moral instinct, an aesthetic instinct, a religious instinct, a political instinct, or even (as one writer asserts) an Anglo-American instinct for parliamentary government.

There is no wonder that the technician is deterred from launching out on seas peopled by such monsters as some of these. And yet, if all such traits are omitted, in favor of the demonstrably congenital stimulus-response arrangements, the major part of human nature remains untouched. "The theory of instinct becomes comparatively trivial when they are omitted, yet it has always been muddled when they are included." †

The hard alternative would seem to be that between behavioristic clarity with inadequacy, and introspective adequacy with muddle.

9. But there are at least two conceivable ways of bettering this alternative.

In spite of the disposition of the concept, when defined in mental terms, to break away from all scientific restraint and sobriety, it may still be possible to introduce usable criteria which will limit the play of pure fancy and tame the concept to scientific uses. This is the way adopted by Dr. William McDougall.

Or, we may tie to physiological clarity, and try to enlarge the mechanical resources in such wise as to cover more adequately the field of human conduct as we know it.

This second path, that of contemporary behaviorism, Dr. McDougall regards as hopeless, not alone because the major impulses are so far out of the reach of present explanatory devices, but because, in his view, physiological explanations fail to account for the very simplest types of animal behavior.

The present status of the question, then, might be stated in some such way as this: Any student of human nature today must make up his mind,

- a. Whether physiology can explain *anything* in behavior;
- b. Whether there is reason to hope that it may explain *everything* in behavior;
- c. Whether the introspective account of instinct can be made fit for scientific use.

In following sections, I wish to discuss these issues, beginning

† Human Nature and its Remaking, page 66.

with an enquiry into the reasons which lead Dr. McDougall to think that the physiological route has no outlet.

II

10. Dr. McDougall finds two defects in physiological theory of behavior which are not accidental and remediable, but constitutional.

First, its inability to account for persistence of effort toward an end *with endless variability of the means* employed. A machine may be regarded as making toward an end; but it makes for that end either by a rigidly fixed course of intermediate steps, as in case of the locomotive on its track, or else, as in case of the self-steering torpedo, by a course having a very limited range of variation. The visible criterion of conscious action, according to William James, is the pursuit of ends with the choice of means; and this is a criterion of conscious action only because, as McDougall believes, such action cannot be mechanically accounted for.

Second, its inability to account for responses which are responses to *meanings*, — not to any assignable sense stimulus or group of sense stimuli. Wherever you can discover a recurrent set of sense-elements in the initial situation, you can believe in the possibility of mechanical explanation. But where, as in the case of the crying of a child, the expressive reaction may be provoked by situations of a thousand sorts from physical pain to the mere fancy of neglect or reproof, where you can safely defy any one to allege a constant sensation or group of sensations in these initial situations, in brief, where the only invariable antecedent is a 'meaning,' the very attempt at mechanical explanation becomes absurd.²

Let us consider these two difficulties in turn.

11. First, can there be a physiological explanation of the pursuit of ends with unlimited or very large variability in the choice of means?

It may be admitted at once that the explanation of instinctive behavior by the chain-reflex pattern has definitively broken down, for all such cases. The most obviously instinctive behavior, such as nest building in birds, is too irregular in its progress, permits too many interludes and divertissements, alarms and excursions. A chain-reflex should have an invariable order: process A should always come before process B, because its conclusion is necessary to set process B in motion. If by accident process B is set off first, it will

² Cf. *Body and Mind*, ch. xix, esp. p. 264f.

never go back to A, but will proceed mechanically to C and D. If, per contra, there appears to be a degree of liberty, so that ABC may be performed as well in the order BAC, or even CBA, the chain-reflex needs some outside assistance, such as would be supplied by a mental picture of the whole result to be achieved.

Further, any chain is likely to be interrupted or impeded; in which case, a proper chain has little power of substituting a new link for the unworkable link. If, as in most complex instinctive processes, intermediate steps may be carried out in many ways, one has to fancy the chain endowed with a supervisory official capable of perceiving the equivalence of the substituted links to the original links *for the purpose of the end in view*. Naturally, an intelligent chain can explain intelligent action; but in mechanical explanations we have always to be on guard against a generous disposition to lend some of our own mentality to the machine for the sake of helping it over the critical phases of its operation.

12. That type of mechanism, then, does certainly fail to explain instinct. And I dwell upon this point, because I believe that wherever we find vitalism today, it depends upon a criticism of physiological explanations which is in principle essentially the same.

Why, for example, does Driesch require an entelechy to understand how an embryo slashed at random can develop into a typical adult? Is it not because, being forced to work with different means, it yet arrives at the same end?

Why does Bergson, thinking of organic evolution, appeal for explanation to a vital principle? Is it not because independent series of organic forms, having different beginnings and different intermediaries, nevertheless converge to similar results? In the processes which eventuate in the eye of the pecten and the eye of the vertebrate, Bergson can only see a single experimental impulse operating with widely variant means.

In a word, in all these cases it is *guidance* that requires explanation and it is precisely guidance which mechanical agencies are judged incapable of giving.

13. But if the mechanical explanation of guidance has its difficulties, it will not do to assume that the vitalistic explanation is free from them.

Any principle of explanation which refers physical conduct to an entity of mental order seems to save the biological postulate that all organs (and hence consciousness) must be of some use, but it does so

at the expense of the postulate that all physical events have physical explanations.

If one were forced to choose in this lamentable way between postulates of equal dignity, one choice might be as defensible as the other. But it is more than doubtful whether vitalism, in sacrificing one principle, actually saves the other.

For if consciousness is to be of any use at all in carrying on life, it cannot be limited to those residues of conduct which mechanics at any time threatens to leave unexplained. Consciousness must explain all of conscious behavior or none. The only principle that accords in the least with introspection is this: that whatever my body as a whole does, *I do*, — not a fraction of it, but the whole of it. We cannot separate out the 'guidance' from the rest of behavior in that way. If I go down to breakfast, that event is not to be described as a process carried out by certain hunger-mechanisms inciting certain locomotor mechanisms, while I, the conscious self, simply steer the event at the turns of the stairs and in the unexpected encounters with other living entities. It will not do to bring in consciousness to account for *remainders*.

Putting this principle into positive form, it means that if consciousness has any explaining power at all its scope *includes that of mechanism*: whatever mechanism does consciousness may do also, — so that no extension of the field of mechanical explanation would press upon or invade the field ascribed to conscious action. And conversely, no proof that guidance, or any other feature of behavior, is incapable of mechanical explanation would serve to insert consciousness more firmly in the biological realm.

14. And I am inclined to think that the proof that "guidance cannot be explained" has not been given, and indeed cannot be given. Unless I am mistaken this alleged gap in explanation is already in a fair way to be filled.

The very effective use now being made of the conception of appetite, or appetence, as a factor in instinctive action by Professor Wallace Craig, when supplemented by the studies of my colleague Professor R. B. Perry looking toward a behavioristic view of purpose, seem to me to leave the physiological view of instinctive behavior in a hopeful condition.³

³ Wallace Craig, *Appetites and aversions as constituents of instincts*. Biological Bulletin, February, 1918.

R. B. Perry, *Purpose as tendency and adaptation*. Philosophical Review, September, 1917; *A behavioristic view of purpose*. The Journal of Philosophy, Feb. 17, 1921.

Craig defines appetite (or as he now prefers to say, 'appetence') as a state of agitation which continues as long as a certain stimulus is absent; aversion as a state of agitation which continues as long as a certain stimulus is present. In the case of the appetite, the agitation is adapted to set in motion 'seeking behavior' which tends to lead the animal, under ordinary circumstances, to the appetited stimulus, whereupon the reaction appropriate to that stimulus follows, and the organism returns to a state of comparative repose or equilibrium. Meanwhile, the channels which that stimulus is to set into action are in a curious condition, a condition different both from activity and from inactivity, and which can best be designated, perhaps, by the word 'readiness.' It is in this 'readiness' that we may now, according to Professor Perry's analysis, find the physiological secret of 'guidance.'

15. Readiness is evidently a present condition, if it is anything at all: and yet it refers definitely to a future contingency. To be thirsty is to be at the present time in a condition such that the sight of a vessel with the proper liquid in it will set off appropriate seizing, lifting, and drinking reactions.

This present condition involves a certain muscular set as well as a certain set in the nervous tissues. Offer some one a cork ball painted like a cannon ball, and observe what is involved in his 'readiness' to lift a heavy weight. So far as the nervous condition is concerned, the readiness may be conceived to involve a lowered synaptic resistance, and an incipient innervation of a group of reflexes, of which the 'consummatory reaction' is the last in order.

This 'last in order' — in the above case, the drinking reaction — is *now* last in some spatial order, as it will be the remotest in temporal order, — much as the batter now last in a series of batters sitting in a row will be the latest to come to bat, or as the ball now in the bottom of a Roman candle will be the latest in time to emerge.

But if the readiness of this final member is the *cause* of the readiness of the preceding members of the series, there is a physiological meaning for the relation expressed by saying that these preceding members exist 'for the sake of' that final event. And this final event, or rather the readiness of its channels, may in turn be said to 'select' the activities which lead up to it.

And if one of the selected preliminary operations proves unavailable when the time comes, the same mechanism will be capable of selecting a substitute. If the readiness to drink spreads into adjoining channels until it takes the mental form of a plan for getting a drink

and then an actual beginning of operations upon the plan, the failure of any part of the plan, as through a missing cup, will simply divert into other channels the readiness which, so to speak, *radiates from the channels of the consummatory reaction*. This peculiar disturbance tends to affect in some degree all channels which in the (generalized) experience of the animal have led up to the final event; and if one of them is stopped, others become more ready, until one of them supplies the bridge between the existing situation and the appetted end.⁴

In all this, there is no pretence that the mechanism of end-seeking or of selecting is actually understood: we merely suggest that there are prospects, and that it is too early to say a priori that the phenomena of guidance can have no physiological expression.

16. The second barrier to physiological explanations of behavior is found by McDougall in the fact that many responses — and the most important ones — are responses not to sense stimuli, but to meanings. Let me recall two or three of McDougall's illustrations of this difficulty.

First, the telegram illustration. Compare two telegrams, — Our son is dead, — Your son is dead. Slight difference of sense-stimulus; enormous difference of response. The response is not to the sense-stimulus, but to its 'meaning.'

Second, curiosity in presence of the novel. Curiosity has various other possible occasions, and novelty various other possible results: but let it be admitted that novelty has a tendency in growing human organisms to excite the behavior characteristic of curiosity. The logical consequences of such an admission are highly interesting. Assume that a stimulus may be defined as a sensation or set of sensations which will set off a given reaction *each time it recurs*. That which is novel or strange is defined as that which has not previously occurred, and which, when it occurs again, will no longer be novel. If novelty, then, is a stimulus to any instinct, it is a stimulus which *negates the very definition of a stimulus* above given. The recurrence of novelty contradicts the recurrence of sensation-groups. Further, the novel is relative to the experience of the individual: that which is strange to A is not strange to B. Hence there can be no set of sense-stimuli which can be universally counted upon to arouse curiosity. Novelty is uniform only as a meaning, never as an object.

⁴ This conception of multiple readiness is used to explain another type of selection by Joseph Peterson. Completeness of Response as an Explanation Principle in Learning, *Psychological Review*, 1916, 153-162.

Such instances (and we may recall also the crying reaction above mentioned) put beyond question the proposition that what occasions the reaction is, in a large part of behavior, no assignable set of sensations, but a meaning.⁵ Indeed, the case of response to meaning is so clear, when stated, that Schneider's now somewhat ancient classification of impulses into sensation-impulses, perception-impulses, and idea-impulses, seems to have been accepted by William James without hesitation:

"To crouch from cold is a sensation-impulse; to turn and follow, if we see people running one way, is a perception impulse; to cast about for cover, if it begins to blow and rain, is an imagination impulse."⁶

17. But does the fact that idea-impulses exist prove that in such cases the event is not physiological? Not unless we commit ourselves to the view that having an idea or a meaning is a mental fact to which no event in the brain corresponds. But surely it would be at least as difficult to prove that there is no brain event corresponding to meaning as to prove that there is no brain event corresponding to guidance. Admitting to the full that "meaning is the essential link in each case between the series of physical impressions and the series of physical effects" — and I believe this to be a true and important observation — admitting that in the case of the crying reaction, "the only invariable antecedent of the expression of distress seems to be disagreeable feeling,"⁷ is it not contrary to all probabilities to suppose that such a meaning as a 'disagreeable feeling' is not well represented in a complex of physiological states? It is not necessary that the stimulus should be limited to congeries of sensations in order that it may be physiological. I am obliged to judge, therefore, that upon scrutiny this second barrier likewise disappears.

18. We see no reason, then, to set limits to the possible progress of physiological explanations of instinct, — always with the usual understanding that no such explanations presume to identity with the thing explained, still less to displace it. But we must here point out that when we save the day for the physiological explanation of idea-impulses, or responses to meaning, by insisting that there may be a physiological basis for meaning in some central process character-

⁵ 'Meaning' is here to be understood in the sense of the general idea, not in the sense of simple reference from particular to particular, as occurs in any case of conditioned reflex or other forms of the transfer of stimulus through learning.

⁶ *Psychology*, II, p. 385.

⁷ *Body and Mind*, p. 266.

istically different from sensation-process, we involve the physiologist in a serious admission as to the psychological value of his explanations, and hence of his entire conception of instinct.

For the situation we have reached is this. Either the physiologist must admit that there may be centrally initiated reactions (corresponding to the responses to meaning) or he must abandon his case. But if he admits such centrally initiated responses, he admits at the same time that our knowledge of the physiology must be derived primarily from our introspective knowledge of the corresponding experience, not our knowledge of the experience from the corresponding physiology. He hands over the conception of instinct, at the point of its most important development, to the student of the mind on its own ground. Certain consequences of this admission we have to trace in our final section.

III

19. The conclusion we have so far reached may be stated summarily as follows: We can save the possibility of a physiological explanation of instinct, but at the cost of much of its usefulness.

In the phenomena of 'guidance' and 'response to meaning' there is no demonstrably impassable barrier to the physiological theory of behavior. But neither of these phenomena will be made a whit clearer by the discovery that a mechanical process can be imagined which might run along with them. Here it can hardly be said that the explanation helps to understand the event: it is rather the event that sets the pace for a limping and highly speculative power of explanation.

The possibility of extending the behavioristic picture of instinct into these regions is highly important for the general theory of the relation of body and mind: but for actual investigation, that picture is useful only where we can identify in physical terms the stimulus or initial situation and the response. Where either stimulus, or response, or final situation must be identified with hypothetical conditions of indemonstrable processes in inaccessible nervous centers, any advance of knowledge must be gained from other sources — presumably from introspection — and our conception of instinct will perforce take on a mental ingredient.

Let me now make this general conclusion more concrete by pointing out how various further facts about instinct likewise carry us

into this region of central factors. These facts concern chiefly the ways in which our instincts are connected with one another, — matters of great difficulty, but of the first importance and of endless interest. My contention will be that the empirical facts cannot be brought into their rightful order without an appeal to introspection.

20. Consider first a group of facts which we might label *the instinctive regulation of instinct*.

Our instincts do not simply 'go off' like a piece of fireworks when the fuse is lighted: they are subject to certain adjustments in their working, — adjustments which are so universal and typical that they are themselves usually regarded as instinctive, and might be called instincts of the second order, or reflexive instincts.

Play is an excellent example. Play would perhaps not exist unless there were more primitive instincts needing preliminary exercise, and showing a budding readiness before their day of maturity. Among the stimuli of play, then, we must reckon this 'readiness,' — a central condition. And all instincts which take part in play are kept under the constant control of meanings which can only be referred to central processes, — the make-believe or feigning idea, for example. In feigning, the normal stimulus of an instinct may be absent, and some substituted sense-object may assume that character, as when in bayonet practice a soldier sets up an excelsior dummy and imputes to it the character of enemy-ergo-stimulus-to-pugnacity; or the veritable stimulus may be present and the course of the reaction may be held in check by the feigning attitude. This is especially the case in the feigned hostilities of social games.

Analogous to this instinctive control of instinct in play — and often fusing with it — is control of instinct by *social dispositions*. Craig has observed a characteristic restraint of pugnacity in the domestic quarrels of pigeons:

"The male is always restrained in his attacks upon his mate. Indeed, the male shows restraint even when quarreling with neighbors outside his own family: for if they are birds with which he is familiar, he fights them with less fury than he would show to an utter stranger. Many other examples could be given of what I must call the pigeon's sense of rights and duties.⁸

One of the most striking of these instinctive regulators of instinct, however, is *pugnacity* itself, which in the above instances was a regu-

⁸ American Journal of Sociology, July, 1908, p. 98.

lated reaction, not a regulator. For as McDougall has excellently pointed out, pugnacity is excited by a hindrance to the operation of other instincts, notably of acquisition and of sex; and its function seems to be that of bringing an access of energy to their pursuit.

In discussing 'guidance' we have already noted that an impeded nervous current has resources for finding some substitute path, or even for adopting some alternative object of appetite. But pugnacious behavior is marked by the rejection of these outlets: it insists on its object and on its path, and bends its effort to the removal of the obstacle or the competitor. What could be the physiological sign for preferring the pugnacious resource to either of the others?

21. The differentia of the pugnacity-arousing situation must lie in something corresponding to an unusual mental reluctance to give up this particular object of appetite, or this path, for some other object or path, together with a recognition of possible *removableness* in the obstacle or competitor. It seems to be a function, in part, of the energy of appetite; as if the circumstance of choosing a particular object of pursuit and of beginning that pursuit had made the value of that object more imperative, sometimes carrying the appetite over a threshold beyond which the resource of substitution in case of check is no longer admissible. Beyond this threshold, the determination of energy is toward a subordinate or auxiliary appetite, that of removing the obstacle.

But the pugnacity-differentia is also a function of the presumptive removableness of the obstacle, as may be seen by noting the relation of pugnacity to two other of these instinctive regulators of instinct, — namely *fear* and *curiosity*.

The place of the instinct of fear (or of flight with emotion of fear) is a moot point among psychologists; with a strong tendency to deny the existence of a single instinct of fear, and to refer the various responses commonly included under that head to a number of different 'fears.' It must be said however that the search for a common element among these different fears has not been prosecuted with especial vigor, partly because physiology has no clear way of dealing with logically common elements, and partly because the variety of fear-provoking situations is so great, varying all the way from the specific stimuli of sudden loud noises, threatening animal expressions, etc., to certain states of imagination induced by solitude, darkness, and the uncanny generally.

But there seems to be a key to all this variety when we consider the very close physiological kinship between pugnacity and fear, which suggests that if pugnacity regulates other instincts, fear may furnish a complementary regulation. With this in mind, we discover that most of the fear-provoking situations are fairly described as *situations in which our primary instincts cannot act*, or do not fit us for acting. We have no instinctive equipment enabling us to live in water, or abysses of air: in darkness, instinctive adjustments are largely hindered, especially adjustments to sudden and stealthy movements, etc. All fear is, in this sense, a reaction to the uncanny. And fear, in this common character, is an instinctive disposition tending to remove the organism from environments in which other instincts cannot act to an environment in which they can act.

Pugnacity and fear, then, both respond to the thwarting of instinct; but pugnacity responds to a type of thwarting which is remediable (typically due to a competitor, hence to a kindred and commensurable force), while fear responds to a type of thwarting which is irremediable.

Both of these reactions in their typical forms are vigorous, and imply cognitive *certainty* regarding both the unpropitiousness of the environment and the question of its remedialness. But both, again, shade into a common region of uncertainty, in which the animal halts between fear and fight. In this case, and in the similar hesitation whether to treat the environment as propitious or as unpropitious there comes into play, in the more highly developed organisms, a further regulatory instinct, — *curiosity*.

During growth, curiosity has a slightly different regulatory role. At this time curiosity changes its direction as the major instincts develop: thus, when a boy's constructive disposition begins to appear, a curious interest in analysis, dissection, etc., accompanies it. That same condition of *incipient readiness* which stimulates play seems to stimulate also a curiosity to which play itself lends effective aid. One might conceive these incipient instincts as chronically hesitant in the human being, qualified as he is by the very non-fixity of his instincts to live in an environment which changes from generation to generation, and for the same reason required to establish his own specifications of stimulus and response: curiosity has obvious uses in the growing stage of such a creature. But it remains as an auxiliary to all instincts, especially to such pairs of instincts as branch out in

opposite directions from a common situation, as do fear and pugnacity, and so give rise to recurrent passes of uncertainty.

Thus, the primary instincts are provided with a remarkable structure of instinctive regulation, in which the stimuli for the instincts of the second order, the regulators, are *finely differentiated conditions of the central nervous current*. Some of these secondary instincts, perhaps all of them, have also specific sense-stimuli of their own; but in human psychology, their most important function is in this subtle regulation of other instincts, which we can only explain by appealing to central stimuli.

22. Consider, secondly, the relation between general instinctive tendencies and specific mechanisms. As we have just noted in the case of fear, the physiologically verifiable sequences are relatively specific, and appear as various fears rather than as a single instinct. Until it is seen that central conditions may act as stimuli, physiologists are reluctant to recognize a biological fact corresponding to the logical common character of different fears. And the same is true of all those general tendencies which we saw as making up the broad round of life.⁹

But since the conception of appetence has given us a physiological picture of the subordination of means to end, and the conception of a stimulus has widened beyond the sense-group order to include central processes, such as might correspond to highly general ideas, there can be no reason for further hesitation to recognize the broad categories as genuinely instinctive, — if there is sufficient reason *for* doing so.

That there is sufficient reason for recognizing many of these general instincts I have already indicated in my book on Human Nature and its Remaking (see esp. the tabular 'Survey' p. 56); though I found myself at that time (1918) in much doubt about several of these categories, and printed a question-mark after them. This was true particularly of two very general instincts which I then called the instinct to physical activity and to physical inactivity. These would correspond roughly to the two types of reaction, expansive and contractive, from which Schneider in his genetic speculations conceived

⁹ It is to be noted that the most specific units of behavior, such as the infant's grasping reaction, are logically general in the sense that *any* object of the class defined by the stimulus-description will set them off. The difference between grasping and hunting or food-getting, between vocalization and sociability, etc., is not that the former is particular and the latter general, but that the latter (food-getting) unifies into one sequence a variety of units of behavior, subordinating these units both as means to an end and as the less general to the more general. This logical and teleological integration of behavior elements must certainly not be forthwith assumed to exist as a physiological integration.

the rest to be derived. But I was inclined to regard them as genuine biological entities rather because there appeared to be definite units of behavior belonging to each: — yawning, stretching, rubbing eyes, listening, stalking, as fragments of a process of passing from rest to action, — and corresponding postures and actions belonging to the transition from action to repose, sleep, and even death.

Since that time my attention has been called to certain studies of Szymanski¹⁰ describing readiness, alertness, rest, sleep, etc., as variations of attention: and attention in turn as a setting of the organism in respect to the reception of stimuli. This description of attention would make it a process regulative of instinct, but not itself an instinctive process. Szymanski proceeds, however, to distinguish positive and negative attention, sleep being a negative state of attention; and to point out that in the sleeping attitude each species protects its most important sense-organ, — insects, for instance, protecting their antennæ. Adjustments of this sort appear to be as definitely instinctive as any of the more noted units of behavior and the appetence toward rest or action is certainly as definite as the appetence of hunger: I am inclined, therefore, to regard these two tendencies as instincts highly general, and also reflexive, as having functions regulative of other instincts.

And while it must be, in each case, a question of fact which of our general categories are merely logical classifications and which are actual dispositions, the case in principle for the reality of the general instincts seems to me made out.

23. But thirdly, the same conditions which lead us to recognize the integration of units of behavior under various general instincts will lead us to recognize a further integration which (I will not say unifies, but) tends to unify the entire life of instinct.

Even from the view of the most mechanical conception of instinct, the simple enumeration of instincts in a list never tells the whole truth about them. Apart from the integrations and regulatory devices above discussed, it is a commonplace that in instinctive behavior an organism typically acts as a whole; and this means, physiologically, that the highest centers at any moment active are involved in the circuit of the instinctive process. In mature animals, the processes in these centers have achieved a momentum of their

¹⁰ Published in Pflüger's *Archiv*, 1918, under the title "Allgemeine Betrachtungen über das Verhalten der Tiere. (1) Körperstellungen als Ausdruck innerer Zustände der Tiere." Reviewed in *Psychological Bulletin*, June, 1920.

own, a trend of attention, so that the stimulus for any instinct has a certain resistance to overcome before it can gain right of way: the number of stimuli that secure no hearing at all is indefinitely greater than the number that gain the saddle. In the mature human being, this trend of attention has become a *dominant appetite*, exercising functions of 'selection' and 'consent' upon candidate-stimuli in much the same way as we found particular appetences exercising 'guidance.' This dominant appetite is an essential part of what is termed 'will': and conversely, wherever it is pertinent to use the term 'will,' there the instinctive behavior of the animal is subject throughout to the guidance of a dominant appetite, which resembles a *most general instinct*, — the persistent but unspecified craving, or ambition, or wish of the entire creature.

24. But what is the object of this elusive appetite or craving which strives toward a rough unity of instinct, and seems to gather definiteness and assurance with evolution and with individual growth? Can physiology give us instruction on this point?

We should be able to learn something about it from current theories of the *physiological basis of pleasure*. For quite apart from hedonistic assumptions, the connection between pleasure and successful instinct process is certainly close; and any one who would choose the term 'value' as a name for the common object of instinct on its mental side would be inclined to agree that the object of any most general instinct or appetite would be a most general value, qualitatively akin to pleasure.

Now it certainly cannot be said that there is any school-doctrine among behaviorists about the nature of pleasure. But we occasionally find it stated, and more often assumed, that a certain ease, or fluency, or facility of response is pleasurable, or is pleasure itself, — a behavioristic version of Aristotle's observation. "Pleasure," says Peterson in the monograph above referred to, "is a subjective indication that the response is along the line of least resistance." Pleasure is not an agent; it does nothing; it does not 'stamp in' the successful reaction after a series of unsuccessful trials: pleasure is simply the character or form of the successful act itself. A tendency toward the pleasurable would be a tendency toward a certain *mode of nervous process* in the centers, a particularly fluent or frictionless operation of the mechanism.

Now, there is nothing physiologically improbable in the view that nervous processes show a definite disposition to assume a specific form as the most favorable form for their action: in view of the physical

analogies of stream-flow, etc., it would be rather physically improbable that there should *not* be a disposition of that sort. It is clear, however, that the idea of a disposition which is due to the *nature of the nervous process itself*, and not to any canalizing of the path through which it must pass, threatens to provoke some radical change in our view of mental dispositions, and so of instinct. Just this is implied in the theory of pleasure here mentioned. A similar view is implied in Professor Woodworth's contention that all mechanisms have their own drive.

For while Woodworth seems to hold that the driving power lies in some peculiar concatenation of nervous elements which deserve the name of mechanisms, the real force of his argument appears to be that 'drive' is a character of the nervous excitation itself wherever found (which would certainly follow from the proposition that the nervous process is a flow of energy of some sort); and that mechanisms merely aid this excitation to take on certain auspicious forms rather than others.

This may be shown to advantage by considering the criticism which McDougall has made of Woodworth's theory in a recent issue of *Mind*.¹¹ It would follow from Woodworth's view that there could be a love of music, apart from any instinct for music, if there were mechanisms congenital or acquired favoring skill in music. McDougall is inclined to deny to the interest in music any such independent status, referring it rather to affiliations with the instinct-drives, with "ambition, vanity, the desire to excel, emulation, the desire to please parents or teachers, the desire to understand, the desire to fit themselves for a career, the desire to overcome difficulties, the vague desire to give expression to various emotions." He further points out that a talent for music is no single thing: but highly composite: "it implies superiority in such functions as tone-discrimination, appreciation of rhythm, of time, of tone-relations. . . . But can we suppose that such a function as tone-discrimination depends on a 'mechanism' that has an intrinsic drive? Do we ever find any one absorbed in the exercise of such a function for its own sake?" The questions are absolutely pertinent: the answers, I believe, can be made definite.

We certainly do find persons absorbed in such functions as tone-discrimination, for their own sake. Has McDougall forgotten those who choose to be piano-tuners? Certainly, there are few sources

¹¹ Vol. xxix, N. S., No. 115, pp. 278ff.

of enjoyment more general in the human family than this of making discriminations, — as also of drawing analogies, or applying general ideas and names to particular cases. But “can we suppose that such functions depend on mechanisms having intrinsic drives?” That is the damaging question for Woodworth’s theory, and it is quite as damaging for McDougall’s view: for it is equally hard to think that such functions and satisfactions depend on the instincts which McDougall has in mind.

Consider, for instance, that “appreciation of rhythm” which according to McDougall forms part of the talent for music. This is an appreciation, or value, so general in the human species as to lead some writers to ascribe it to a special instinct. But it is certainly not an instinct of the stimulus-response pattern; and it is not a disposition that can boast of extended animal ancestry. Studies of rhythmic behavior in animals render it doubtful whether any animal but man enjoys rhythm. The commonly observed rhythms in animal activity, as the swinging of birds on perches, the chirping of crickets, synchronous flapping of wings in flight in flocks, are more probably explained on other grounds.¹² And the presumption thus raised against the view that this interest in man can be referred to an inherited mechanism is strengthened by the fact that the interest seems rather waxing than waning in the race. But the facts fall naturally into place if we assume that the mode of central nervous action which accompanies the observing or executing of rhythm is *intrinsically satisfying*. If this value is to be referred to an instinct, it must be to a type of instinct whose stimulus and goal are alike central, one which would have to be described in terms of an unknown (but presumably propitious) type of nervous process.

And the same, I believe, would prove to be true of the other interests included in the ‘talent for music,’ as for most of the characteristic human interests. It will be found, I venture to predict, that Woodworth is right in dissociating their ‘drive’ from any primitive instincts, and that McDougall is equally right in his distrust of ‘mechanisms’ with intrinsic drives of their own. As physiological psychology reaches clearness in its accounts of the basis of valuation, it will turn its attention away from the now prevalent pictures of paths, synapses, connections, etc., toward pictures of the different forms which the nervous current is capable of assuming. The most general

¹² W. Craig, On the ability of animals to keep time with an external rhythm. *Journal of Animal Behavior*, Nov.-Dec., 1917.

appetence of the human being will appear as a disposition toward some special mode or form of the central flow.

25. But if this is the case, it may also be predicted that for our chief data regarding this region of instinct, and regarding the most important relations among the instincts, both we and physiological psychology itself will have to depend on introspection. Especially the great business of unifying the instincts into a more or less serviceable will requires the achievement of a dominant value-trend which we shall always understand better from the way it appears in consciousness than from the way in which physiology may explain it. The theory of values can never be made a corollary of the theory of instincts.

On the contrary: the theory of instincts cannot be finished until it becomes, in its major part, a corollary of the theory of values. In dealing with the unity and connections of instincts, the theory of instinct must change its base.

For the unity of instinct is primarily a condition of selfhood. Our chief item of certainty on this subject is that a man is not in a fully human position toward his own conduct until he is prepared to justify what he does. To justify what he does means to give a 'reason' for it: and this means, to refer it to a value. But to refer conduct to value — not alone in case of sporadic dashes for this and that good, but also in cases of conflicting impulses and of deliberate plans and policies — requires a standard of value, single, and more stable than the competing impulses themselves.

I certainly do not say that any one achieves conscious possession of a single and changeless value-standard. But I do say that human life implies growth in that direction, through the repeated process of referring particular conflicts to 'reasonable' solutions. A large part of life is left unrationalized by the avoidance of conflict and the evasion of thought: the day's program allows inconsistent goods to be pursued at different times, and the life of instinct remains pluralistic and experimental, — fortunately so. But however we evade or distrust the exercise of that most dreaded effort we call reason, there is no pair of goods which we would not submit to the comparing process if we had to. And so we live in partial pluralism, but on the assumption of a *discoverable unity* of all values, and so of all instincts. And a discoverable unity is, of course, an actual unity, though partly subconscious.

It is not however unrecognizable; and if some philosopher under-

takes to give it a name, we can reasonably discuss whether the name is a fit one: for that unity itself exists nowhere if not as a working-fact in our own active experience. If Schopenhauer calls it the will to live, or Nietzsche the will to power, or Freud one kind of libido and Jung another kind, we can estimate the justice and adequacy of those descriptions. For my own part, I believe that no description will be found wholly satisfactory. But I have elsewhere given my reasons for preferring 'the will to power' to either of the others mentioned. It is a phrase that has possibilities beyond those that Nietzsche found in it. There is a clearly ascertainable truth in the statements that in all our major instincts we show phases of a will to mastery, — in pugnacity, in curiosity, in sociability in all its forms — self-assertion, self-abasement, sex-love itself, — even in fear. And so far as life is occupied in finding out what it is that we want, that process may be described as a process of interpreting this will to power that is in us, getting rid of its crudity and barbarism, putting its competitive and physical elements into their place. This phrase tells enough truth about the nature of the unity of instinct to make it useful in the present stage of theory.

26. Admitting the 'will to power,' then, as a rough description for the common and uniting element of instinct, — always ready to yield to a better, — we may set up a working definition of instinct for human psychology in some such terms as these:

An instinct is any specific form of the will-to-power which reaches its end by the use of innate motor mechanisms, common to the species.

This is a hybrid definition. It imports elements of physiology to discriminate entities within the field of consciousness. It has that type of hybridism which distresses the radical behaviorist beyond measure. It falls fairly within the field of Perry's remark that "whenever (introspective) accounts of the motor-affective life preserve anything distinctive and peculiar, they incorporate something of the movement and action of the physical organism."¹³

But to this remark, which is intended to be critical, our first reply is a challenge to avoid hybridism and keep usefulness in your conception if you can. Our entire discussion has been an argument to the effect that this cannot be done by the behaviorist any more than by the introspectionist.

Secondly, however, the hybridism which we adopt if we begin

¹³ *The Journal of Philosophy*, Feb. 17, 1921, p. 89.

with consciousness is only apparent, whereas the hybridism to which we are forced if we begin with physiology is both real and misleading.

In spite of all efforts at theoretical purism, the behaviorist is obliged to patch up the elements of his mechanisms with mental cohesives. Future reference, selection, memory, hesitation, effort, are never successfully reduced to — though they may be symbolized by — the characteristics of nervous interplay with the world.

But if we begin with conscious experience, the facts of physiology are not ultimately alien entities: on purely mental grounds we should require the experience of nature, and all the bodily machinery that action within a world of nature signifies. In other words, we can derive the whole set of behavior phenomena in principle from the demands of consciousness: but we cannot in turn derive the fact, nor the need, of conscious life from the principles of the bodily organism and its world.

We have, then, in our conception of instinct to make a choice between two positions, one of which is consistent in the midst of its apparent hybridism, the other of which is either in the presence of an ultimate and confessed mystery or else presents us with a helpless and unfinishable torso of a man.

THE RÔLE OF PERSONALITY DEVELOPMENT IN THE RECONSTRUCTION OF THE DELINQUENT¹

BY EDITH R. SPAULDING, M. D.

SINCE its organization, the members of this association have been engaged in intensive and extensive studies of delinquents in accordance with the standard tests of medicine, psychology, sociology and psychiatry. Surveys have been made of large groups to discover the incidence of factors of heredity, physical conditions, intellectual capacity, environmental conditions, training, both educational and industrial, and mental status. As valuable as have been the results obtained and the information gained there has always remained an important part of the delinquent population that has not been represented in the positive findings of these surveys, and an important part of each individual that has frequently been neglected. For what do we know of those members of the prison population that are not mentally defective, have not had inherited or environmental handicaps and are not insane or psychopathic? And even though in a given case these factors are all positive there may be another element that must still be reckoned with, perhaps one that represents the results of the combination of all the other factors. This element, which has so often been neglected in the studies that have been made up to the present time, is that of personality development and especially its relation to possibilities of social reconstruction.

Personality offers such a limitless field for investigation and the approaches to the field are so many and so ill-defined that it is not surprising perhaps that investigators have not entered it with enthusiasm. It is true that medicine has already contributed much in discovering physical defects and diseases which have influenced personality in a way that has resulted in social inefficiency and anti-social behavior. In looking over the population of our penal institutions we are struck by the oddity of their appearance in general. When the peculiar physical characteristics that they exhibit are studied more closely, it will be discovered that many point to symptoms of disturbance of the glands of internal secretion. This brings us to a new field that is promising satisfying results in social reconstruction through the correction of

¹ President's Address read before the Association of Clinical Criminology at the Prison Congress held at Columbus, Ohio, October 14, 1920.

physical conditions. But when we find ourselves face to face with the facts, we realize that although a good physical condition may contribute much in the reconstruction of any individual, there is a part of him that even this does not reach. Even in the cases in which endocrinology has been of much help there is a social aspect to the case, that must be attacked from the mental rather than from the physical point of view. For it is quite as necessary to help the patient to overcome the anti-social habits that have been formed as it is to correct any disturbance that originally may have been the most important factor in their causation.

Intensive sociological investigation has unearthed unfavorable environmental conditions, that in certain cases to a marked degree and in many cases to a slight degree, have been the cause of social deviation. In considering the cases in which environmental factors have played a prominent rôle, the most important condition is again one of character formation, which has been developed as the result of injudicious training and undesirable companionship.

Psychology, through the aid of psychometric tests, has discovered the frequency of mental defect among delinquents, and has helped us in estimating the prognosis of cases studied. In the consideration of mental defect, we are now being told by experts in the field of feeble mindedness that there are a great number of "good feeble minded" in the world who are capable of filling fairly important positions in the industrial situation of the present day and of being good citizens. So that even though the factor of mental defect may make more unfavorable the prognosis of the delinquent individual, still mental defect in itself is considered of less significance than formerly as a primary cause of anti-social behavior and again the personality of the individual and its possibilities of development appear in greater relief.

Psychiatry has applied classifications of mental disease as far as it is possible to the field of delinquency. But again there is found a vast field in the realm of personality that cannot be included in any of the psychiatric classifications. It is then, it seems to us, the study of personality that offers the most productive field for scientific study at the present time. It should be approached, however, from the various vantage points of the specialties already mentioned; first, that of medicine, including special consideration of the glands of internal secretion; second, that of psychology with its psychometric tests and study of aptitudes and disabilities; third, that of psychiatry with the

aid of which we can first ascertain the mental status of the individual, and then apply to his conduct disorder the various theories which, in the last few decades, have helped us better to understand human behavior and the expression of our instinctive and emotional lives; and, fourth, the systematic study of traits of character and of social attitudes and reactions.

The study of personality per se offers unending opportunities for endeavor since there are so many possibilities of individual deviation in character development, and because each individual is the product of the thousands upon thousands of reactions that have followed each other at least since birth. Because of its general unwieldiness it has been difficult to know at which angle to begin, and its very indefiniteness has been a source of discouragement to those who strive for scientific precision in their work.

An essential part of the study of personality has seemed to us, during the years in which we have been engaged in the study of delinquency, the determination of individual traits of character. There are three different opportunities for acquiring such information in the study of the delinquent who passes through our penal institutions.

The first opportunity is during the mental test when many traits are noted more or less consciously by the examiner, but are seldom made note of or kept in the form of a permanent record. The second opportunity is when the social worker obtains from the family the past history and early development of the individual that is being studied; such as, the early traits of character that were manifested, his reactions in general to situations that arose during his childhood and, in particular, any unusual experiences that may have definitely caused inhibition or deviation in the normal emotional expression of his later life. The third opportunity is during the period of observation in the institution, where the matrons and nurses who watch the daily progress of the individual are in a position to describe his social characteristics.

A scheme for recording judgments in connection with standard psychometric scales has already been formulated by Dr. Buford Johnson and myself, but not yet published. A chart to be used by the social worker in obtaining the home history is still in embryonic form. To fill the third need a form was made out and used with the forty patients who were in our care at the Psychopathic Hospital² at Bedford

² The Psychopathic Hospital of the Laboratory of Social Hygiene in connection with the New York State Reformatory for Women at Bedford Hills, New York.

Hills. This form was based on the work done by Dr. Johnson and myself in the previous scheme and I am greatly indebted to her for permission to publish this chart before the other has appeared. In order to prove whether or not this record would yield a picture of the individual's personality the charts were given to a psychologist, who without having known any of the patients, has assembled the opinions of the five judges interrogated. Pictures have been drawn in this way of the forty patients which it has been possible to evaluate through comparison with illustrative material from their social histories and the more intimate knowledge of their mental make-up that we have at our disposal.

The personality traits that have been used have been drawn from such studies as the Hoch-Amsden Guide ³ to the Study of Personality, the study of traits made by Dr. Charles P. Davenport ⁴ at the Eugenics Laboratory at Cold Springs Harbor, by Dr. F. W. Wells ⁵ at the McLean Hospital at Waverley as well as from several other sources.

The following range of possibilities could be recorded in the estimates of the judges:— double plus, single plus, plus over minus, minus, double minus, question mark, and zero —

- + + signifies that the characteristic is present in marked degree.
- + signifies that the trait is present to a moderate degree.
- ± signifies that the trait although present is a negligible quantity.
- signifies that the absence of the trait is somewhat noticeable.
- = signifies that its absence is very conspicuous.
- ? signifies that the judge is doubtful regarding the decision.
- o signifies that the judge has no decision to record.

Variability in any given characteristic is expressed by two judgments, the one written in the upper part of the square expressing the more frequent manifestation of the trait and the one in the lower part the less frequent. For instance, a patient who is for the most part very co-operative but who at times cannot be induced to do anything suggested, would have the symbol plus plus over minus minus to express the variability.

Five judges were asked to give opinions. These were two nurses,

³ Hoch, August and Amsden, George S.: A Guide to the Descriptive Study of the Personality, State Hospital Bulletin, Nov., 1913.

⁴ Davenport, Chas. P.: Trait Book, Eugenics Record Office, Bulletin No. 6.

⁵ Wells, F. L.: The Systematic Observation of the Personality in its Relation to the Hygiene of Mind. Psychological Review, Vol. xxi, No. 4, July, 1914.

two matrons and a teacher. Each characteristic was discussed with all the judges in detail so that they might agree as nearly as possible in their interpretations of the terms. It was necessary further to describe the various personalities of the judges and the work they supervised to the psychologist in order that she might evaluate the judgments made and know what work or individual called forth favorable or unfavorable reactions.

The following are the charts of two patients who were under supervision at the Hospital. Both patients were committed to the institution because of petit larceny, neither having had any sexual irregularity in their history. The intelligence of both placed them in the superior adult class according to the Terman Revision of the Binet Simon Scale. Both were exceedingly unstable and were considered two of the most difficult girls in the institution. Both are now free in the community and in spite of the fact that they were friends while in the institution, one girl has continued her anti-social conduct, stealing and being generally destructive while the second girl who was thought by most of the matrons in the institution to be of no more value socially than the first has made herself in the year that she has been out, a valuable member of society. For the first time in her life she has tried to control her temper and has gained much satisfaction from devoting herself to other people in a way that never before was possible. While one of these girls was undoubtedly more unstable than the other, the big factor was the difference in personality. It was never possible for any one to reach the first girl through any appeal, except perhaps to her vanity and that was not lasting in its effect. In the life of the second, however, an emotional experience of childhood was unearthed with the result that the world has been made a different place for her and for those in her immediate environment. A matron who recently visited her was thunderstruck when she saw what responsibility she could assume, and frankly said — "I can't get over it. You know we thought there was nothing to her at the reformatory." When the patient heard this she said, "I knew they thought that and so I lived up to their expectations and made it just as hard for them as I could — and I can be mean."

Jennie, the first patient, had none too good an heredity and also had unfortunate environmental conditions during childhood. Her mother was found asphyxiated in a hotel where she had been living with a man not her husband.

Jennie was cared for alternately by her grandmother and by

several aunts. In some of their homes she had had unfortunate training such as being taught to steal coal and ice from freight cars. In going from one home to another she had escaped all the responsibilities that the other children had been obliged to assume and grew up a headstrong, irresponsible girl who felt she must gratify every whim and who never hesitated to use violence when she was resisted.

After leaving school at the age of sixteen, Jennie went to work in a factory where an aunt had held a responsible position for many years. Resenting any supervision by a member of the family at her work, she gave up the position for less remunerative ones which she changed frequently. She was apprehended for shop-lifting and after being tried unsuccessfully on probation she was sent to a private institution where she tried to throw herself out of a window when one of the girls accused her of being immoral. She was observed at a mental hospital and was found not insane. Subsequently she was committed to Bedford where from the first she was a tremendous problem.

When she was admitted to the Psychopathic Hospital she was given an opportunity to choose the kind of occupation she preferred. Soon after entering the occupational room, she returned to her room storming against the teacher. She was then tried with the outdoor group but in half an hour had refused to co-operate in any way and had upset their equilibrium. Again she stormed into her room, talking loudly and swearing about everything and everybody. She was next tried among the workers of the hospital who were a more stable group than the patients but with the same result. This explosive behavior continued for a week, during which period every effort was made to win Jennie's confidence and her co-operation. No restrictions or punishment of any kind were imposed no matter how obstreperous she became. At the end of a week she attacked a colored girl from the rear quite viciously and without provocation while they were at breakfast. The cause was the colored girl's popularity with a white girl whom Jennie wished to pay greater homage to herself. Following this episode Jennie received her meals in her room for a week and was kept from the main group. While this helped her to get control of herself she continued to be a great problem during her entire stay at the hospital, going to pieces at the slightest provocation and lying and stealing almost incessantly.

Later when she was in the institution she was frequently in trouble as a result of her lawlessness and truly vicious behavior. Among other things, when tried out of doors with a farm group, she with the aid of

another girl nearly succeeded in throwing a matron down a spiral staircase because they were refused permission to go down into the lower part of the engine house where the men were working. The two girls after being prevented from throwing the matron down the stairs kicked her and struck her, being controlled with great difficulty by several men who came to the rescue and who also received their share of injuries from being bitten, etc.

The alienists who examined Jennie after this final episode found her not to be insane. She was returned to the court, and before long she was at large in the community, in the meantime having been instrumental in causing much havoc in the administration of the institution. Since being free she has continued her shoplifting. She has recently married, not telling her husband of her reformatory history. Finding herself to be pregnant she tells us that she swallowed some bichloride tablets. She was treated in a hospital where she was apparently very ill but because of her behavior was finally put out. She then returned to her aunt's home where she had been living since her marriage. When it was suggested by her aunt that her husband wished her to find a home for them both, she attacked the family, breaking a vase over her uncle's head, sending the children out into the street in a pouring rain storm, and proceeded to demolish the entire apartment and its furnishings in spite of the fact that the aunt was the best friend she had in the world.

Could any case present better than this the needs of the psychopathic delinquent woman and the protection from her anti-social conduct to which the public and her family are entitled?

The second patient, Martha by name, presented, while in the institution, a similar problem to that of the first. She was never to be relied on and resented restrictions of any kind. She, too, had been a spoiled child and had always carried out the whim of the moment, although she had never resorted to violence. It was evident, however, that she was suffering from great emotional repression which after some months of effort was relieved, by unearthing an emotional episode that had occurred in her childhood and around which there was centered an unnecessary feeling of guilt. There is still room for maturing, as is true of most of us, but during six months' time this patient has accomplished much in her development and she can hardly bear to think of the childish behavior that antedated her release from the institution.

In the personality chart of Jennie, variability was the most prom-

inent factor. It appeared in the differing opinions of the various judges and in the inconstancy of many of her traits as estimated by the individual judges.

Dr. Elizabeth Sullivan, to whom I am indebted for assembling the opinions of the five judges on these two patients, says in her final summary of Jennie, "This is an immature girl of good intelligence with some variability in special lines who is very unstable and has poor judgment. Her work varies much in quality and quantity of output; she frequently needs stimulation. She is over-active, quick-tempered, egotistic and egocentric and, at the same time, is easily offended and sensitive. She is generous, exceedingly jealous, very emotional and changeable, not at all conscientious and is lacking in ethical judgment. She is flippant, over-enthusiastic, defiant and aggressive. She is extremely excitable and has periods of depression.

"She lies and steals constantly; loses her temper if unable to satisfy the whim of the moment. She is resentful of authority or discipline and takes no responsibility. She blames others for what she herself is responsible and is capable of violent and assaultive behavior when angry. There seem to be few favorable traits besides good intelligence and kind heartedness and she has few serious interests on which to build."

The summary of the personality study of Martha, the patient who has since done well, is as follows:—"This girl is of the over-active type, intelligent, egocentric, introspective, seclusive, excitable and rather inclined to be depressed. She is impulsive, opinionated, sensitive and easily offended. She is a fair worker but she is so variable in effort, accuracy, attention, deliberation and skill that her work cannot be depended on for either quality or quantity of production. She reasons abstract questions rather well, but cannot apply her reasoning ability to her own conduct.

"There is suggested as a cause of her inconsistent and contradictory behavior a great fear of emotional things which points to unusual emotional repression that should be investigated. Her resentment of authority and discipline and her variability in taking responsibility imply much immaturity of development. Her sense of inferiority because of her educational and social limitations offers in part an explanation for her sensitiveness and her being easily offended. On the other hand she appears to be ambitious and is interested in type-writing which at least suggests some occupation on which to build."

Experience has shown from the cases studied that, in the recon-

struction of the mental or social life of any individual, the first step of importance is to ascertain the level of development that his character has attained at the time of the examination. Without such a knowledge of personality level and even with knowledge of factors of environmental training, physical condition, or native intellectual ability, the reconstructor is working in the dark and cannot build intelligently. Having discovered what the foundation is on which one may build, every available resource must be utilized to discover what factors, mental, emotional or physical are responsible for his retardation in character development and have prevented constructive outlets for energy in the past. The process of unearthing such factors may in itself require months of patient work, but it is only on such a foundation that a real reconstruction can be effected, and the defects in character formation be corrected.

In looking over the cases in which a successful reconstruction has taken place one factor stands out with great prominence. This is the feeling of confidence and loyalty and even affection that the patient feels toward the reconstructor, no matter whether he be psychologist, physician, reformer or merely friend. It is this factor that is of such importance in directing the energy that oftentimes has been scattered in its expression, into a single satisfying constructive channel away from the patient's self and his own egotism. While this fact has been recognized for years as a social element of great value, it is only more recently that its real significance has begun to be appreciated in what is known technically as the transference. From the psychiatric standpoint the management of the devotion that is felt for the reconstructor is one which needs extreme care and skill and the aim should always be, while accepting it temporarily as a necessary therapeutic measure, gradually to divert the same energy to more impersonal lines of emotional activity. In order to accomplish this, to help correct anti-social attitudes and to socialize the patient's egocentricity, it is necessary to find outlets for his energy that are constructive and chosen with a knowledge of his past experiences and present needs.

SUMMARY

This Association since its beginning has stood for intensive methods in the application of psychology and psychiatry to sociological problems. We should like to emphasize the importance during the next decade of special investigation of the development of personality

in the same exhaustive manner. The study itself might best be termed a social one, since it represents the expression of the instinctive life of the individual in his social relationships. But the field is not a circumscribed one and must include studies of physical make-up, taking into consideration the condition of the glands of internal secretions; it must include a study of intellectual limitations and special abilities; and any abnormalities of mental make-up that point to the presence or development of mental disease. Above all it must include the patient's traits of character, his attitude toward society in general and his own responsibilities in particular, together with an intelligent understanding of his development and retardations. When the level of development that he has reached has been ascertained he must be helped to advance to a higher level of grown-up-ness and to find the balance in his character that he has either lost or more frequently never attained.

In such an effort at reconstruction in institutional life, every social resource must be utilized that will stimulate his development. This will include any educational or industrial interests that strongly appeal to him and any social organization, whether it be a modified self-government, or honor or credit system, that will help to maintain his morale at its highest possible level. The study of personality is not unworthy of the highest standards of scientific endeavor, and it is felt that there is no field of human inquiry that will yield more remunerative results.

CHART FOR RECORDING*
 TRAITS OF PERSONALITY

as observed during residence in Institution

Date — October 1, 1921
 Name — Jennie Richards
 Birthplace — Brooklyn, New York
 Race — White
 Nationality — American
 Locality lived in — New York
 Occupation — Factory worker

Age — 25
 Civil condition — Single

Examiners	Position held
A. Miss J.	Nurse
B. Miss R.	Nurse
C. Miss T.	Matron
D. Miss F.	Matron
E. Miss H.	Matron

KEY TO CHART

- ++ Trait present in marked degree
- + Trait present in moderate degree
- ± Trait present but a negligible quantity
- Absence of trait is somewhat noticeable
- = Absence of trait is very conspicuous
- ? Decision doubtful
- No decision
- ↙ Variability; more frequent manifestation of trait above line and less frequent below
- See special note

*This chart is presented tentatively; before publishing it in a permanent form, it is hoped that it may be utilized by different examiners with various groups of individuals. Suggestions from any who are interested to work with it will be welcomed.

Study of Personality

I. INTELLIGENCE as shown in	J	R	T	F	H	TRAITS (Continued)	J	R	T	F	H
1 Aesthetic appreciation	+	+	++	++	++	35 Overactive	++	+	+	++	++
2 Definiteness of purpose	0	+	-	+	+	36 Underactive	-	+	-	-	-
3 Ethical judgment	-	=	-	+	+	37 Irregularity	+	+	-	-	+
4 Imagination	+	++	++	+	++	38 Timid	-	=	+	-	-
5 Judgment	-	=	-	+	+	39 Daring	+	++	-	+	+
6 Language ability	++	++	++	++	++	40 Taciturn	+	-	-	-	-
7 Learning ability	++	++	++	++	++	41 Loquacious	+	++	+	++	+
8 Memory	0	+	+	+	+	42 Social	+	++	+	++	++
9 Mental agility	+	+	-	+	+	43 Unsocial	-	=	-	=	=
10 Motor coordination	+	+	+	+	-	44 Independent	+	++	+	++	++
11 Originality	+	+	-	+	+	45 Dependent	-	-	-	-	-
12 Planfulness	+	+	+	+	+						
13 Reasoning ability	-	+	+	+	+	IV. TYPE					
14 Suggestibility	+	+	++	+	-	1 Childish	+	++	+	++	++
						2 Adolescent	-	-	-	-	-
II. WORK RECORD						3 Adult	-	-	-	-	-
1 Absent-minded	0	-	-	-	-	4 Follower	-	+	-	+	+
2 Accurate	+	+	+	+	+	5 Leader	+	-	+	+	-
3 Automatic	-	-	+	-	-						
4 Clumsy	++	-	-	-	-	V. ATTITUDE					
5 Deliberate	-	-	-	-	0	1 Changeable	+	++	+	+	++
6 Distractible	0	++	+	+	+	2 Conscientious	=	=	-	+	+
7 Having endurance	+	-	+	-	+	3 Cooperative	-	+	-	+	+
8 Learning by experience	-	+	+	++	+	4 Easily discouraged	+	-	+	+	++
9 Persistent	+	+	+	++	++	5 Responsive	-	+	+	+	+
10 Having concentration	+	+	+	+	+	6 Self-assertive	+	++	-	+	++
11 Responding to stimulation	+	+	++	+	+	7 Self-deprecatie	-	-	-	-	-
12 Showing effort	-	±	-	+	-	8 Showing interest in					
13 Skillful	+	+	+	+	+	a. Emotional things	++	+	++	++	+
14 Needing stimulation	-	++	-	+	+	b. Intellectual things	+	+	-	+	+
15 Variable	++	+	+	++	+	c. Mechanical things	+	+	+	-	-
						9 Suspicious	+	-	+	+	++
III. TRAITS											
1 Adaptable	-	-	+	+	+	VI. MANNER					
2 Ambitious	-	+	+	+	+	1 Affected	+	++	-	+	+
3 Cleanly	+	++	+	++	++	2 Aggressive	+	++	+	++	+
4 Confidential	±	+	+	+	+	3 Apathetic	-	±	-	-	-
5 Consistent	-	-	-	-	-	4 Assaultive	+	++	+	++	+
6 Dishonest (Stealing)	+	+	±	±	±	5 Boastful	+	+	±	+	+
7 Easily offended	+	++	+	++	+	6 Bodily attitude					
8 Egocentric	+	++	+	++	+	a. Awkward	-	-	-	-	-
9 Exhibitionistic	-	-	-	-	-	b. Graceful	+	+	+	+	+
10 Fault-finding	+	++	+	++	+	c. Dignified	-	+	+	+	+
11 Generous	+	±	+	-	-	d. Showing abandon	-	+	-	+	+
12 Hypochondriacal	-	-	-	-	-	7 Combative	+	++	+	++	++
13 Impulsive	+	++	++	++	++	8 Defiant	++	+	+	++	++
14 Introspective	-	-	-	-	-	9 Demonstrative	-	-	-	++	++
15 Jealous	+	++	+	++	+	10 Enthusiastic	++	+	+	++	++
16 Kindhearted	+	+	+	-	+	11 Flippant	+	++	-	+	+
17 Melodramatic	+	++	+	++	++	12 Forceful	+	++	+	+	+
18 Neat	±	+	±	+	+	13 Frank	-	-	+	±	±
19 Obscene	-	-	-	-	-	14 Having mannerisms	-	+	-	+	+
20 Opinionated	+	+	+	++	++	15 Ingratating	+	+	-	+	-
21 Optimistic	-	-	+	+	+	16 Irritable	+	=	-	+	+
22 Profane	+	-	±	+	+	17 Loud voiced	+	++	++	++	++
23 Resourceful	+	+	±	+	+	18 Patient	-	-	-	-	-
24 Seclusive	-	-	-	-	-	19 Petulant	++	+	++	++	++
25 Having sense of humor	+	+	++	++	++	20 Pleasant	+	+	+	+	+
26 Sensitive	-	++	+	+	=	21 Having poise	-	±	-	±	-
27 Self-justifying	+	++	+	++	++	22 Sarcastic	-	+	-	+	++
28 Self-pitying	+	++	+	+	++	23 Self-conscious	+	=	-	±	±
29 Self-sufficient	+	++	-	+	-	24 Self-controlled	-	=	-	±	±
30 Taking responsibility	-	=	=	=	=	25 Serious	+	-	-	-	-
31 Tale bearing	+	±	+	±	±	26 Soft-voiced	-	=	-	-	-
32 Unreliable	=	=	=	=	=	27 Sullen	+	+	-	+	+
33 Untruthful	+	++	++	++	++	28 Violent	+	++	+	+	++
34 Vain	+	++	++	++	+						

VII. EMOTIONAL TONE	J	R	T	F	H	VIII STREAM OF TALK	J	R	T	F	H	
1 Cheerful	+	+	-	-	±	+	1 Circumstantial	+	+	+	-	++
2 Cries often	+	-	+	±	+		2 Incessant	+	+	-	+	+
3 Depressed	-	-	+	-	+		3 Making repetitions	-	-	-	-	-
4 Excitable	+	++	++	++	++		4 Moderate	-	+	+	+	+
5 Laughs often	+	+	++	++	+		5 Raconteur type	+	+	+	+	+
6 Quick tempered	++	++	++	+	++		6 Rapid	++	+	+	-	-
7 Remorseful	○	-	○	-	*		7 Relevant	-	+	+	±	-
8 Repressed	-	-	-	-	-		8 Reticent	-	+	-	-	-
							9 Slow	-	-	-	-	+
							10 Tendency to unburden	+	+	+	+	+

IX. *Special Abilities.*

Knitting, embroidering, basketry, great love of play.

X. *Special causes of emotional reactions.* Being discovered in lying or stealing. Loses temper if unable to satisfy whim of moment. Inability to obtain personal adornments.

XI. *Special propensities, not already noted.*

a. *Any manifestation of sex?*

Great excitement if immorality was implied.

b. *Fears?*

None noted.

c. *Evidences of feeling of inferiority?*

None noted.

d. *Tendency to blame others for what patient herself is responsible?*

Yes. Very marked.

e. *Getting pleasure through aggressive action such as cruelty or violence?*

Not noted.

f. *Getting pleasure through submissive action such as suffering physical pain or through being forgiven?*

Not noted.

g. *Attitude toward authority and discipline?*

Very resentful.

h. *Attitude toward responsibility?*

Takes none.

XII. *Habits.*

a. *Of activity?*

Loud talking, irritability and loss of temper. Emotional explosions common with violence and assaultive behavior.

b. *Of thought?*

Continual effort to gain personal favors and material things for self.

c. *Of sex?*

None.

REMARKS

1.2 (J) *Planfulness*; some ability but wrongly applied.

1.4 (F) *Imagination* very marked; accuses people of saying things about herself and others for which there is no foundation.

11.7 (H) *Remorseful*; after committing a wrong will express sorrow for having done so, but will repeat the offense almost immediately.

1.14 (T) *Reasoning ability* poor as applied to own behavior, but fair in abstract situations.

11.10 (F) *Concentration* good when making baskets.

11.14 (F) *Stimulus necessary*; a great deal needed for things she did not want to do.

11.19 (J) *Persistent*; very, in wrong doing.

SUMMARY

- I. *Intelligence* as it is shown in learning ability, imagination, and language ability is very good. Memory, mental agility and æsthetic appreciation are fair. Planfulness is on the whole fair with slight variability; definiteness of purpose, motor co-ordination and originality vary, the last named being less marked than the others. She is fairly suggestible, shows very poor judgment, especially in questions of ethics, and rather poor reasoning ability.
- II. *Work*. Her power of concentration is good, especially in kinds of work which please her, but at the same time she is distractible, and the quantity and quality of the output of work varies markedly. Stimulation is necessary and her response to stimulation is usually very good with occasional exceptions. She is usually persistent, is rather skillful and fairly accurate. Is never absent-minded, clumsy or automatic. She is not at all deliberate and has no endurance. She learns fairly well by experience although there is some variation here.
- III. *Traits*. She is overactive and is usually daring. She has a good sense of humor and varies in being optimistic. She is very vain, cleanly and fairly neat. She varies in adaptability, ambition, and habit of introspection. She is very loquacious, social, independent, egocentric, self-justifying and self-pitying and is also very impulsive and opinionated, at the same time varying in self-sufficiency. With these very positive traits she is rather sensitive and is extremely easily offended. She is generous, usually kindhearted, exceedingly jealous, melodramatic and fault-finding. She is neither seclusive nor introspective. She is rather resourceful but very unreliable and takes no responsibility. She is not exhibitionistic or obscene, but at times is very profane.
- IV. *Type*. She is distinctly of the childish type and is capable of being both a leader and a follower.
- V. *Attitude*. In attitude she is fairly responsive and co-operative, showing some variability. She shows great interest in emotional things, some interest in intellectual things and rather less in mechanical things. She is self-assertive, not at all self-depreciative, is rather suspicious and very changeable. She is easily discouraged, and not at all conscientious.
- VI. *Manner*. She is pleasant with much variability and not frank, except perhaps unpleasantly so. She is usually very enthusiastic, demonstrative with some, very defiant, boastful, aggressive and combative, and even violent and assaultive. She is self-conscious, loud voiced, shows poor self-control, is rarely serious and never patient. She is, on the whole, sullen, petulant, rather affected, sarcastic, very flippant and ingratiating and is inclined to have mannerisms. She is graceful and occasionally dignified.
- VII. *Emotional Tone*. She is very excitable, very quick tempered, laughs much, is very often depressed but never repressed. Is often remorseful for misdeeds but will soon repeat the same offense.
- VIII. *Stream of Talk*. She is of the raconteur type and circumstantial, but usually relevant. She varies greatly in rapidity of speech and is moderately talkative. She is not reticent but has a tendency to unburden.

GENERAL SUMMARY I TO XII

This is an immature girl of good intelligence with some variability in special lines, who is very unstable and has poor judgment. Her work varies much in quality and quantity of output; she frequently needs stimulation. She is over-active, quick tempered, egotistic and egocentric, and, at the same time, is easily offended and sensitive. She is generous, exceedingly jealous, very emotional and changeable, not at all conscientious and is lacking in ethical judgment. She is flippant, over-enthusiastic, defiant and aggressive. She is extremely excitable and has periods of depression.

She lies and steals constantly; loses her temper if unable to satisfy the whim of the moment. She is resentful of authority or discipline and takes no responsibility. She blames others for what she herself is responsible and is capable of violent and assaultive behavior when angry. There seem to be few favorable traits besides good intelligence and kind heartedness and she has few serious interests on which to build.

CHART FOR RECORDING
TRAITS OF PERSONALITY
as observed during residence in Institution

Date — October 1, 1920

Age — 25

Name — Martha Saunderson

Civil condition — Single

Birthplace — Brooklyn, New York

Race — White

Nationality — American

Locality lived in — New York

Occupation — Salesgirl

Examiners

Position held

A. Miss J.

Nurse

B. Miss R.

Nurse

C. Miss T.

Matron

D. Miss F.

Matron

E. Miss H.

Matron

KEY TO CHART

++ Trait present in marked degree

+ Trait present in moderate degree

± Trait present but a negligible quantity

- Absence of trait is somewhat noticeable

- Absence of trait is very conspicuous

? Decision doubtful

○ No decision

/ Variability; more frequent manifestation of trait above line
and less frequent below

• See special note

Study of Personality

I. INTELLIGENCE as shown in	J	R	T	F	H	TRAITS (continued)	J	R	T	F	H
1 Aesthetic appreciation	+	+	+	++	+	35 Overactive	++	++	++	++	++
2 Definiteness of purpose	+	+	-	+/	?	36 Underactive	-	-	-	-	-
3 Ethical judgment	+	+	-	+	+	37 Irregularity	-	?	+	?	+
4 Imagination	?	+	+	++	+	38 Timid	+	+	++	*	-
5 Judgment	+	+	+	+	+	39 Daring	-	-	=	?	+
6 Language ability	++	++	+	++	+	40 Taciturn	-	-	+	+	++
7 Learning ability	+	++	++	++	+	41 Loquacious	+	+	+	++	-
8 Memory	+	+	+	++	+	42 Social	+	+	+	++	+
9 Mental agility	++	++	+	++	+	43 Unsocial	-	-	+	+	+
10 Motor coordination	++	+	+	+	+/	44 Independent	+	++	++	+	++
11 Originality	?	+	-	+	+/	45 Dependent	+/	+	+	+	++
12 Planfulness	++	++	++	++	+						
13 Suggestibility	-	+	+	+	+	IV. TYPE					
14 Reasoning ability	+	+	+	+	+	1 Childish	+	?	++	-	+
						2 Adolescent	0	+	0	?	0
II. WORK RECORD						3 Adult	-	0	+	-	+
1 Absent-minded	-	+	-	-	+	4 Follower	+	-	-	*	-
2 Accurate	+	+	-	+	-	5 Leader	-	+	++	+	+/
3 Automatic	-	-	-	-	+						
4 Clumsy	++	+	-	-	-	V. ATTITUDE					
5 Deliberate	+	+	-	+	+	1 Changeable	+	+	++	+	+/
6 Distractable	-	+	+	-	+	2 Conscientious	+	+/	+	-	-
7 Having endurance	+	+	+	-	=	3 Cooperative	-	++	+	+	+
8 Learning by experience	+	++	-	+	0	4 Easily discouraged	+	-	+	++	+
9 Persistent	-	+	-	-	++	5 Responsive	+	++	+	+	+
10 Having concentration	+	+	-	+	+/	6 Self-assertive	+	++	++	+	+
11 Responding to stimulation	+	+	+	+/	-	7 Self-deprecative	-	?	-	-	-
12 Showing effort	+	+	0	++	+	8 Showing interest in					
13 Skillful	+	+	-	+	+	a. Emotional things	+	?	++	+	++
14 Needing stimulation	+	+/	++	+/	+	b. Intellectual things	+	++	-	+	+
15 Variable	+	+	+	+	++	c. Mechanical things	-	+/	?	-	-
III. TRAITS						9 Suspicious	+	-	-	+	++
1 Adaptable	-	+	-	+	+	VI. MANNER					
2 Ambitious	+	*	+	++	-	1 Affected	-	+	+	+	+
3 Cleanly	+	+	+	+/	-	2 Aggressive	-	+	-	-	+
4 Confidential	-	+	-	+	-	3 Apathetic	-	-	-	-	-
5 Consistent	+	+	-	+/	+/	4 Assaultive	-	-	-	-	-
6 Dishonest (Stealing)	-	-	-	-	*	5 Boastful	-	+	-	-	++
7 Easily offended	+	++	+	++	++	6 Bodily attitude					
8 Egocentric	+	+	++	+	++	a. Awkward	-	-	-	-	-
9 Exhibitionistic	=	=	=	=	=	b. Graceful	+	+/	+	+	+
10 Fault-finding	++	+	+	++	+	c. Dignified	+	+/	+	+	+
11 Generous	+	+	±	-	-	d. Showing abandon	+	+	-	+/	+/
12 Hypochondriacal	-	-	-	-	-	7 Combative	-	+	-	-	+/
13 Impulsive	+	++	++	++	+	8 Defiant	-	+/	+	-	+/
14 Introspective	+	±	+	-	+	9 Demonstrative	-	-	-	+	±
15 Jealous	++	+	+	±	+	10 Enthusiastic	+	+	-	++	+/
16 Kindhearted	+	++	+	±	±	11 Flippant	-	-	-	+/	+/
17 Melodramatic	+	-	±	-	+	12 Forceful	+	+/	+/	+	+/
18 Neat	+	+	+	+	-	13 Frank	+	+/	+/	?	-
19 Obscene	-	=	=	=	=	14 Having mannerisms	-	-	-	+	+
20 Opinionated	+	++	+	+	+	15 Ingratiating	-	+	-	+	+/
21 Optimistic	+	+/	0	+/	-	16 Irritable	-	+	-	+/	+/
22 Profane	-	=	=	=	=	17 Loud-voiced	-	-	+/	-	+/
23 Resourceful	+	±	+	-	+	18 Patient	+	-	+	-	+
24 Seclusive	+	+	+/	-	-	19 Petulant	+	++	+	+/	+/
25 Having sense of humor	+	+	+/	++	+	20 Pleasant	+/	+/	+/	+/	+/
26 Sensitive	+	++	++	++	++	21 Having poise	-	?	-	-	-
27 Self-justifying	-	+	-	+	++	22 Sarcastic	±	+	+	+	++
28 Self-pitying	+	+	-	++	++	23 Self-conscious	±	=	-	+	+
29 Self-sufficient	-	++	+	+	+	24 Self-controlled	±	=	-	+/	+/
30 Taking responsibility	+/	-	±	-	+	25 Serious	-	+	+	+	+
31 Tale bearing	-	-	-	-	+/	26 Soft-voiced	+	+	+/	+	+
32 Unreliable	+	++	+/	+	+/	27 Sullen	-	+	-	-	+
33 Untruthful	-	*	-	-	++	28 Violent	-	-	-	-	-
34 Vain	+	+	+	-	+						

VII. EMOTIONAL TONE						VIII STREAM OF TALK					
	J	R	T	F	H		J	R	T	F	H
1 Cheerful	+/-	+/-	-	+	+/-	1 Circumstantial	-	-	-	-	+
2 Cries often	-	+	-	+	++	2 Incessant	-	-	-	-	±
3 Depressed	+	+	-	+	+	3 Making repetitions	-	-	-	+	0
4 Excitable	+	+	++	-	+	4 Moderate	-	+	+	+	+
5 Laughs often	±	+	-	+	++	5 Raconteur type	-	?	-	-	-
6 Quick tempered	+	++	+	++	+	6 Rapid	+	+	-	-	±
7 Remorseful	+	++	-	+	++	7 Relevant	-	+	+	+	+
8 Repressed	+	+	-	+	+	8 Reticent	+	+/-	+	+/-	+
						9 Slow	-	-	-	-	+
						10 Tendency to unburden	-	+	-	+	-

IX. *Special abilities.*

Dancing, knitting, athletics.

Can do typewriting and thinks she may have special ability in this.

X. *Special causes of emotional reactions.*

Any treatment of a physical nature, such as dentistry, atropine dropped in the eyes, and physical examinations in general.

Restriction or discipline in any form.

Sympathy for friends who were in difficulty.

XI. *Special propensities not already noted.*a. *Any manifestation of sex?*

Aversion to anything sexual in nature, either in conversation or actions, to an abnormal degree, even including necessary physiological information.

b. *Fears?*

Terror at any approach to physical realm as above.

c. *Evidences of feeling of inferiority?*

Feels educational and social limitations.

d. *Tendency to blame others for what patient herself is responsible?*

Yes.

e. *Getting pleasure through aggressive action such as cruelty or violence?*

No.

f. *Getting pleasure through submissive action such as suffering physical pain or through being forgiven?*

No.

g. *Attitude toward authority and discipline?*

Very resentful of both.

h. *Attitude toward responsibility?*

Variable.

XII. *Habits.*a. *Of activity?*

She was always running up and down stairs and along corridors and accomplished very little work.

b. *Of thoughts?*

Tendency to brood and be seclusive.

c. *Of sex?*

None.

REMARKS

- I 14 H *Reasoning ability* in abstract situations rather good but poor in concrete situations.
- III 38 F She is *timid* in things concerning herself physically.
- III 2 R *Ambitious*, good student.
- III 31 J Indulges in gossip that leads to quarrels.
- III 33 R Was very *untruthful* when she entered hospital but apparently improved much before going away.
- IV 4-5 T Although not a *follower* in general, inclined to follow people whom she admires.
- VII 6 T Shows *temper* if asked to do work that is distasteful.

SUMMARY

- I. *Intelligence.* Of good intelligence, as shown in learning ability, memory, imagination, planfulness, mental agility, language ability and æsthetic appreciation. Shows rather good judgment and ethical discrimination. Is only slightly suggestible, shows some definiteness of purpose, good motor co-ordination and little originality. Her reasoning ability is good in abstract situations, poor in concrete ones.
- II. *Work.* In her work she shows fair power of concentration, needing stimulation very much but responding well to it. Is variable in output of work, rather distractible and not very persistent. She is rather absent-minded but shows a fair amount of effort and varies in accuracy. She is fairly deliberate and skilful, is usually not automatic but is thought by two of the five judges to be clumsy. She varies in endurance and in ability to learn by experience.
- III. *Traits.* She is of the over-active type and is rather timid. She is very loquacious, varies in sociability, is independent, egocentric, inclined to be self-pitying and self-justifying. Is very impulsive and opinionated but sensitive and easily offended. She is self-sufficient, varies in adaptability and is rather ambitious. She has a good sense of humor but is rather pessimistic. She does not seem to be a tale bearer, has not been known to steal while in the hospital and has only occasionally lied. She is always neat and cleanly. She is rather vain, extremely jealous, tends to be melodramatic, is fault-finding, and inclined to introspection and seclusiveness. She is kind-hearted, resourceful, but unreliable and shows great variability in taking responsibility. She is not hypochondriacal, has never shown any exhibitionistic tendencies, and is never profane nor obscene.
- IV. *Type.* All but one of the judges consider her childish in type. She is a leader rather than a follower.
- V. *Attitude.* In attitude she is responsive, and co-operative, and shows much interest in mechanical things. She is changeable, easily discouraged, rather conscientious, inclined to suspiciousness, never self-depreciative but usually self-assertive.
- VI. *Manner.* In manner she is rather serious, affected, enthusiastic, occasionally boastful, rather forceful in an unconstructive way and at times very defiant. She varies much in pleasantness and frankness; is not very demonstrative, aggressive, or combative and never violent or assaultive. She is inclined to self-consciousness, varies in self-control and patience. She is sometimes sullen and petulant and at times very irritable; she is never apathetic, often ingratiating, but never flippant. She is sarcastic, and has few mannerisms. In bodily attitude she is not awkward but rather graceful and dignified, has considerable poise and occasionally shows abandon.
- VII. *Emotional Tone.* She is very excitable, very quick tempered, rather more inclined to be depressed than cheerful, is repressed to a considerable degree and shows a tendency to be remorseful. She laughs and cries frequently.
- VIII. *Stream of Talk.* Moderate; sometimes repeats but to correct errors; is relevant but rather reticent, showing only a slight tendency to unburden or to be confidential.

GENERAL SUMMARY

This girl is of the over-active type, intelligent, egocentric, introspective, seclusive, excitable and rather inclined to be depressed. She is impulsive, opinionated, sensitive and easily offended. She is a fair worker but she is so variable in effort, accuracy, attention, deliberation and skill that her work cannot be depended on for either quality or quantity of production. She reasons abstract questions rather well, but cannot apply her reasoning ability to her own conduct.

There is suggested as a cause of her inconsistent and contradictory behavior a great fear of emotional things which points to unusual emotional repression that should be investigated. Her resentment of authority and discipline and her variability in taking responsibility imply much immaturity of development. Her sense of inferiority because of her educational and social limitations offers in part an explanation for her sensitiveness and her being easily offended. On the other hand she appears to be ambitious and is interested in typewriting which at least suggests some occupation on which to build.

A SURVEY OF THE PHYSIOLOGY OF CEREBRATION

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AS frequently stated, the study of consciousness resolves itself into a study of experience. This subject was first approached from the subjective side, and many essential facts were worked out in this way long before anything definite was known of the microscopic anatomy or the physiology of the different parts of the nervous system. In recent times numerous investigators have established a myriad of important facts in the latter fields, and clinico-pathology has contributed much to our knowledge of the subject.

It seems true beyond contradiction that a real understanding of the physiology of cerebration will require the correlation of the essential findings of investigators in psychology, neurology, physiology and clinico-pathology. That is what this paper attempts in a limited way. Our purpose requires a consideration of some of the most elementary facts of nervous physiology and psychology.

Owing to the ease of control of stimuli and measurement of response obtained, the study of nerve-muscle preparations long occupied a pre-eminent place in nervous physiology. As these studies have given the most unequivocal results, activity of the central nervous system has been largely interpreted by activity as revealed in peripheral nerves. In recent times, however, more and more attention has been given to the study of the physiology of the central nervous system proper. The long conduction tracts of parallel fibres in the central system are most easily available for direct study. These have been found to be essentially similar in function to peripheral nerves. In both cases the function seems to be the conduction of the excitation wave in unchanged intensity to a relatively great distance in the shortest possible time, according to Cajal's laws of economy of space, of time and of substance. (Cajal-Histologie du Systeme Nerveux-Fr. ed. Vol. I, P. 138.)

The observation of spinal animals (an animal in which the spinal cord has been severed from the higher centers) has been very profitable as a means of study of the activity of the central nervous system and Sherrington established a great many facts in this way. (The Integrative Action of the Nervous System.) He gives the following points of

difference between conduction in nerve trunks and reflex arcs: As compared to nerve trunks, reflex arcs exhibit: (1) Slower speed, especially with strong stimuli. (2) Marked after discharge, especially with strong stimuli. (3) Less close correspondence between rhythm of stimulation and rhythm of end effect. (4) Less close correspondence between grading of intensity of stimulus and end effect. (5) Summation of stimuli — considerable resistance to the passage of a single impulse but a resistance easily forced by a succession of impulses. (6) Irreversibility of direction. (7) Fatigability in contrast with the relative infatigability of nerve trunks. (8) Much greater variability in threshold value of stimulus. (9) Refractory period, "bahnung," inhibition and shock in degrees unknown in nerve trunks. (10) Much greater dependance on blood circulation and oxygen. (11) Much greater susceptibility to various drugs.

These differences show that factors are present in central activity which are not revealed by a study of peripheral activity: not even a hint of some of these properties being found in nerve trunk conduction. The microscopic structure of the grey matter (where the distinguishing features of central activity are known to be acquired) is so complicated that definite linking of structure and function is not yet possible. Sherrington believes the seat of differences between central and peripheral activity lies in the synapses and presents much evidence to support the belief. These distinguishing features of reflex arcs are more like what is found in other forms of protoplasmic activity than is nerve trunk conduction. They correspond to what we would expect if the potential energy of the cells were being converted into kinetic energy as one step in the process. So we may imagine that when an excitation wave is conducted to the synapses of a neurone it institutes physico-chemical changes, which carried far enough, result in sufficient conversion of potential energy into kinetic energy (oxydative disintegration of Verworn) to generate an excitation wave or series of waves in the axis cylinder process. In other words, according to this conception the excitation wave reaching a synapse is not conducted across unchanged, as electricity across a splice in a wire, but it acts as a stimulus to the next neurone: just as light and other forms of energy act as stimuli to the special peripheral receptors. This stimulus may be supraliminal (i. e., sufficient to generate an excitation wave in that neurone) or it may be subliminal, that is, insufficient to produce an excitation wave in the second neurone. One might suppose that different neurones would show variations in

many of those features which distinguish reflex arc from nerve trunk conduction. That individual differences do exist in many of these respects is shown by a variety of evidence. Sherrington, working on spinal animals, established a number of facts in this regard, as follows:

The after discharge varies with different centers. That from the scratch reflex is usually not so prolonged as that from a flexion reflex produced by a stimulus of like length and intensity. The after discharge of the crossed extension reflex provoked with more than a certain intensity may persist, gradually declining, for ten to fifteen seconds. Nobody will deny that the different neurones show a difference in neurone threshold. There are variations in fatigability. In the spinal dog, the scratch reflex tires much more rapidly than the flexion reflex. It is only by assuming that there are individual differences in refractory phases of certain of the neurones concerned that we can explain the marked difference in refractory phase of different reflexes using the same muscles. In spinal shock the nociceptive reflexes suffer relatively little. That the different neurones show variations in their susceptibility to drugs is indicated by the selective action of morphine, strychnine and others. Thus it is evident that the neurones in the central nervous system do show variations in a number of ways, and the individual neurones exhibit a variable degree of irritability under different circumstances. Necessarily the degree of irritability affects the spread of excitation processes. We can only speak in a general way but if it were possible to measure these, we might use, as indicators of the degree of irritability, the neurone threshold and the ratio of intensity of stimulus to intensity of response, which we will call the *stimulus* response ratio; and it seems likely that the neurone threshold would be found to be different at different synapses of the same neurone.

This leads us to the consideration of summation or reinforcement of different stimuli. Adrian and Lucas found that in a peripheral nerve summation of subliminal stimuli occurs to a limited extent. If a second subliminal stimulus follows the first after about .0008 second, a nerve impulse results (Bayliss-Principles of General Physiology Second Ed. P. 391). This only occurs at the point of stimulation. In other words the disturbance produced by the subliminal stimulus is not propagated. In central activity however, the stimuli may be applied at different points. Exner showed that gentle stimuli applied to the skin of a limb reinforce closely following stimuli applied to the limb region of the cortex or underlying white

matter; that sound conveyed to the ear of a chloralized rabbit increases the amplitude of the reflex movement of the foot induced by a stimulus applied to the foot a moment later. Sherrington studied the subject extensively on spinal animals and what follows is taken from his work. He found that the scratch reflex cannot be elicited by a single induction shock and not by two unless they are very strong and less than .6 second apart. Very feeble shocks produce a reflex however, when repeated sufficiently. In some cases forty double shocks are required at intervals of 11.3 per second and forty-four at eighteen per second. In other experiments a fair shock is without effect but a second shock of the same strength even 1.4 seconds later produces a reflex (P. 36). Sherrington further proved that the effect he observed with stimuli applied at separate points was not due to a spread of the stimulus on the skin. A subliminal stimulus applied at a point A will render a subliminal stimulus, applied at a point B near A, supraliminal if the second stimulus follows within a short time, e. g., .5 second. The space of receptive surface across which this can be demonstrated in the scratch reflex amounts to 5-6 cm. The summation time in certain cases is as much as 1.5 sec. Thus summation occurs from separated areas. Cajal and others have demonstrated that, in many cases at least, the different axones connecting with the same neurone make contact at different points. For example, in the Purkinje cells, which are most easily studied, the cell body is enclosed in the terminal filaments of one axone, the dendritic trunks are in contact with the terminations of another, and the distal portions of the dendrites with another (Cajal Vol. I, P. 93). In regard to the motor cells of the anterior horn, Cajal says (Vol. I, P. 360) that unfortunately we do not know exactly how the protoplasmic apparatus enters into contact with the sensory collaterals of the first and second order, but he gives the following scheme as most probable. The voluntary or cerebral excitation is received mostly by the body of the motor cell. The indirect sensory or the sensory paths of the second order reach the motor neurone especially through the internal, anterior and external dendrites, in contact with which are found particularly the terminations of fibres from the antero-lateral tract. He thinks that the body is also concerned here. The crossed sensory excitations reach the motor neurones in two ways: by the dendrites which go to form the protoplasmic commissure and which may be in contact with the collaterals spread through the anterior horn of the opposite side, as well as by the crossed collaterals of the anterior commissure, coming

in contact with the cell body and internal dendrites. Thus it would appear that subliminal stimuli coming from different neurones do not reach a neurone at the same point, but nevertheless they reinforce one another if they fall within summation time. Of course we are here speaking of microscopic distances, so it is not surprising that such should be the case. It is evident, when one considers the histology of the grey matter of the central nervous system and especially the cerebral cortex, that summation of subliminal stimuli from different neurones must play a very important rôle in the spread of excitation processes.

The following from T. Graham Brown is a striking instance of cortical facilitation. After stimulation of the precentral gyrus, facilitation occurs so that stimulation of the post central gyrus produces a motor response, while without this facilitation even strong stimulation of the post-central gyrus evokes no motor response. This is not produced by a spread of the current, as freezing shows: nor does it occur when the connection between the post central gyrus and the precentral is severed. (*Quart. Jour. Exp. Physiol.* 10.) Urbantschitsch, Tanner and Anderson found the perception of weak colors rendered more acute with another stimulus added. McDougal found visual perceptions to be reinforced by stimuli coming from the ocular muscles.

The resistance offered by the different efferent synapses of a neurone would seem likely to affect the spread of the excitation process over the different collaterals of the axis cylinder. Many believe that during activity of a neurone the afferent synapses are rendered more permeable. Others would apply the "all or none law" to the central nervous system, according to which when a neurone is activated, all the collaterals of the axis cylinder would be activated at a maximum. In this regard Sherrington says (P. 76): "That in spinal reflexes increase of the intensity of the exciting stimulus causes increase in the number of motor neurones excited is clearly shown by the wider field of musculature seen to be engaged as the reflex irradiates under intenser stimulation. . . Even the irradiation which suggests extension to new units itself gives evidence of the welding of the units into functional unit groups possessing solidarity. When in the flexion-reflex the response spreads from the knee to the hip, the spread is not gradual but the hip flexion suddenly comes in marking a sharp steplike rise on the record. It is not as though the irradiation gradually reached the motor elements of the hip flexion center cell by cell:

the irradiation on involving that center forthwith evokes discharge from it, which, judging from its powerful effect, represents discharge from the center practically as a whole. The reaction as it irradiates treats the center as a whole.

“The great prolongation of the reflex discharge produced by intensifying the external stimulus is also against the increase of discharge being explicable merely or chiefly by implication of a greater number of motor elements. In the flexion-reflex the period of discharge may be lengthened ten-fold by increasing simply the intensity of the stimulus without lengthening it. In the ‘crossed extension reflex’ I have seen the period of discharge lengthened more than twenty fold. This argues that the grading of the motor discharge in these reflexes is in important measure due to graded intensities of discharge from the unit elements themselves, of which the reflex centers are compounded.” So the “all or none law” does not seem to hold in the central nervous system.

It is thus evident that central activity is not the stereotyped process which it would be if it were governed by the laws of peripheral activity. The effect of a stimulus in central activity not only depends on the nature and strength of the stimulus and point of application but also on what other stimuli have just operated at that point or are operating or have just operated at other points. This is further shown by the phenomena of inhibition. Bianchi says (*Text Book of Psychiatry Eng. Ed.*, P. 170): “It seems to me absolutely impossible to consider the inhibitory power as a specific function which may be exercised by certain organs on certain others. Such a conception is bound to disappear from the physiology of the nerve centers. I go upon the principle founded on observation of facts, that every nerve organ, particularly of the cerebral mantle, can in its turn be a center of inhibition and an inhibited organ, at different times and under different circumstances.

“The experience of every one at all times competently supports this theory. If one of the perceptive centers is hyperfunctionating under the influence of adequate stimuli, it becomes by the very fact a center of inhibition of the others with which it may be in anatomical relation. The sight of a picture which takes us by surprise, of a scene which pleases us, or the reading of a page which interests us, puts in hyperfunctionating tension one or more of the cerebral provinces, let us suppose the visual zones and the frontal lobes. If during the work of the visual region, a slight noise such as would

have been remarked in a state of repose is made, under these circumstances it passes unnoticed, or, even if noticed does not become a perception. The auditory center in such a case is inhibited by the hyperfunctionating visual center, and it is then unable to transform into perceptions the acoustic waves which arrive there, or, to transmit the products of its function to other provinces for further psychic combination. If, however, the auditory stimulus is very intense, it determines a hyperfunctionating state in the organ of hearing, and then, under the altered condition the noise is rendered perceptible but at the same time in which this happens the auditory center exercises an inhibition upon the visual center. . . .

“If, while walking, one is overwhelmed by a thought which involves great mental activity, unconsciously the pace is slackened: this is an inhibition of walking. If, on the contrary, one is bent on arriving somewhere, and the object of the walk is vividly represented, the pace will be brisk in proportion, nothing else crossing the threshold of consciousness, be it external or internal, will exercise a power of arrest on the walking unless it be substituted for the object of the walk. Then only has an extraneous thought the power of slowing the pace and even the consciousness of the object of the walk may in given cases succeed in slowing or arresting thought.”

The experiments of Sherrington and others on spinal animals have produced many examples of this same form of inhibition. McDougal's theory of inhibition supposes that during activity of a neurone its afferent synapses are more permeable and this is sometimes called the drainage theory. Such a theory certainly explains most of the known facts of central inhibition.

We may imagine that during activity of a neurone the resistance of its afferent synapses is lowered. We may imagine also that the resistance of the different efferent synapses of a neurone affects the spread of the excitation wave over the different collaterals of the axis cylinder; it going in greatest degree to the synapses with the lower resistance. We may imagine further that a high resistance of the efferent synapses interferes with activity in a short neurone while a low resistance in those synapses facilitates activity.

It is readily imaginable that the last condition could be true of short neurones whose axones terminate at a short distance from the cell body, while conditions are different in the neurones with long axones forming conduction tracts and peripheral nerves. As stated previously the sole function of conduction tracts and peripheral nerves

seems to be the conduction of the excitation wave in unchanged intensity to a relatively great distance in the shortest possible time and consequently their form of activity is not a true criterion of activity in the grey matter.

Central inhibition is readily explained on the above basis as the following will show. We may imagine certain combinations of motor and sensory cortical neurones being highly active as the result of the action of certain external stimuli (not only the sensory representatives of the external stimuli being affected but also many other combinations which are activated by associative neurones) as for example, the sensory representatives stimulated by the picture which takes us by surprise, at a time when another and weaker foreign stimulus is received (the slight noise in Bianchi's example). As a result of this high degree of activity of certain combinations a lowering of resistance in their afferent synapses occurs. At the same time reinforcement is occurring among the highly active combinations. While certain elements of the combination of cortical sensory representatives representing the weak foreign stimulus may have been associated, as constituents of other combinations, with some scattered elements of the highly active combinations, there will not be any great amount of aberrant conduction to these foreign elements as they are only slightly activated. This slight degree of activity does not facilitate activity in aberrant associative neurones in any degree comparable to the facilitation produced in the associative neurones leading to the highly active combinations.

Consequently the synapses connecting with the associative neurones leading to the other highly active combinations offer less resistance than those connecting with associative neurones leading to the foreign combination. Owing to the degree of activity of the neurones of the highly active combinations and their overwhelming numbers, those which are connected by efficient associative neurones leading from elements of the foreign combinations will receive aberrant stimulation which they would not receive were they inactive. This is because the high degree of activity facilitates activity in those associative neurones and thus lowers the resistance of their afferent synapses. The elements of other foreign combinations, representing stimuli associated by experience with the foreign stimulus, will thus be deprived of stimulation which they would otherwise receive. So the formation of perceptions and ideas by the foreign stimulus will be prevented. The same state of affairs would determine inhibition or

reinforcement in the spinal cord, though here inherited structural connections would be the prevailing factors instead of the presence of associative neurones whose efficiency depends on the frequency of previous activity.

It must be admitted that any so called drainage theory of inhibition does not of itself offer a ready explanation of the conditions exhibited following interruption of the pyramidal tract, but Cajal's interpretation of these phenomena is not opposed to the drainage theory (Vol. I, P. 552).

It is appropriate to consider here the question of specific differences in the excitation process in different neurones. In peripheral nerves and in the long tracts in the spinal cord, physiologists have not found evidence of any difference in the excitation waves in different nerves or tracts.

It is not necessary to believe that there is a specific difference in the activity of the different cortical neurones, but it would seem more probable that the difference is simply in their connections, so that they represent different external stimuli on the sensory side, through their connection with the special receptors, or different movements on the motor side, through their connection with different muscle cells.

External stimuli activate certain peripheral sensory elements depending on the physical or chemical nature of the stimuli, the site of contact with the organism and the special selective sensitivity of the different sensory end-organs. The activation of a certain combination of peripheral terminations of sensory neurones will activate a certain combination of cortical sensory neurones. When it is said that a certain combination of cortical sensory neurones is activated, we do not mean to imply that the same number of cortical and peripheral neurones are activated, or that the arrangement of the cortical neurones is a counterpart of the arrangement of the peripheral terminations of sensory neurones, or that identical external stimuli always activate identically the same combinations of cortical sensory neurones. There is evidence that such is not the case. Nevertheless we would believe that stimulation of a certain combination of peripheral elements will activate certain cortical sensory neurones, depending on the strength of the stimulus and the degree of irritability of the different elements at the periphery and the neurones connected with them in the central nervous system. The relation between the peripheral elements and cortical sensory neurones seems quite comparable to that of the motor system. In the latter case we know that

the arrangement of the cortical motor neurones and the muscle cells activated by them is different, yet stimulation of a certain point of the motor cortex produces a definite muscular response. The arrangement of a telephone switchboard is different from the arrangement of the instruments themselves though each instrument is represented. The arrangement of neurones undoubtedly can largely be explained by Cajal's laws. (Vol. I, P. 138.) So according to this conception, which is held by a number of neurologists, the excitation process is essentially the same everywhere but neurones differ in their connections, neurone threshold and other characteristics previously mentioned and it would appear as already mentioned that in certain features of activity, short neurones differ from long neurones.

The influence of use and disuse is manifested in many forms of protoplasmic activity. Often the effect is very pronounced and leads to marked structural changes. We see examples of this influence in the atrophy of disuse of muscles and other tissues and in the compensatory hypertrophy of different structures. While these changes occurring in the higher animals are intimately associated with changes in the blood supply of the affected structures, it is almost generally agreed that we also have to deal with a more general physiological adaption, such as Hering calls the internal self regulation of metabolism. In many instances we see a change in functional capability, as a result of this influence, without demonstrable structural changes; as for example, in learning to perform some delicate act of coordination. It is not to be doubted however, that material changes of some sort always occur. It seems to be a general rule of living tissue, that within certain limits, an increased stimulation of a particular activity results in an increased capability of activity in that direction. Similarly the converse of this seems true, lack of stimulation of a particular activity results in a decreased capability of activity in that direction. In other words we would say that within certain limits functional activity promotes functional efficiency, remembering that activity implies a stimulus of one kind or another. In the majority of the tissues of the body the stimuli which activate the cells appear to be chemical bodies, which as yet are little known, so they are beyond experimental control. Nevertheless the compensatory changes which occur in many of these tissues as a result of the gradual removal or destruction of portions of them would indicate that this principle applies to them. In such cases the remaining tissue probably receives most of the stimulation previously affecting the whole.

On the other hand, in the muscular and glandular tissues which receive their stimuli from the nervous system, the activity is more directly under experimental control and the degree of activity is easily measured. Here the influence of activity on functional efficiency is well known, as exemplified in the relation of exercise to muscular strength. The corresponding structural changes are so marked that many were led to believe in the existence of special trophic fibres going directly to the muscle cells, but this has been disproved.

If we turn to the nervous system it is apparent that this principle applies there with particular force. Witness the effects of practice on delicate co-ordinated movements. The influence of practice on delicate perceptions is equally marked as shown by the trained "eye" of the artists, etc. While in many of these instances there is undoubtedly an unusual degree of native ability in a particular field, the effect of practice is no less marked. The acuteness of tactile perceptions was experimentally studied by Volkman, Vierordt, Dresslar and others (Bianchi P. 183) and found to increase rapidly with practice, while it decreased again after cessation of practice. The influence of use or practice in all conscious activities is so potent and so apparent as to require no more than mention. The terms education, study, practice and training all imply development of function by use, and the degree of development possible in these directions in human beings seems unlimited compared to that found in muscular and other tissues. The general rule stated above is thus seen to be especially applicable to nervous tissue in general, but to incomparably the greatest degree to the human cerebrum. As there is practically no increase in the number of neurones after childhood, we cannot attribute the increased efficiency produced by activity in adult life to the multiplication of neurones, nor is there evidence of marked changes in blood supply, so we must attribute the change in functional capability to changes in the individual neurones which are activated. This would mean in terms of general function an increased irritability: i. e. a lowered neurone threshold and *stimulus* response ratio. It thus would seem that following activity, through what Hering calls the internal self regulation of metabolism in the individual neurones, the irritability is restored to a somewhat higher level than before. Accordingly we would believe that stimuli of proper strength, under proper conditions, produce a two-fold effect in the neurones of the central nervous system. They not only cause momentary activity resulting in the production of excitation waves but also leave their imprints in the

shape of a comparatively lasting increased irritability. It does not seem unreasonable to believe that the change occurs in the synapses so that synapses connecting neurones which have been frequently active, are more irritable than those connecting neurones which have not been active and consequently such neurones have a lower neurone threshold. Disuse apparently results in a gradual loss of the increased irritability, but experience shows that it is easier to revive what has been forgotten than learn the new, so there would seem to be some permanent change. One sees here and there in the literature an idea of this kind expressed in various ways, but the majority of writers hardly mention what would seem to be a fundamental characteristic of neurones.

The neurones of the different regions of the central nervous system manifestly do not all show the same rapidity of change in functional capability as a result of activity. In the spinal cord this property would seem to be comparatively slightly developed. On the other hand considering how rapidly associations may be formed, it would seem that this general property of protoplasm has been developed by evolution to a marvellous degree in the human cortical neurones; if, as brought out later, the development of associations is due to a lowering of the neurone threshold of those neurones by activity.

In one way, coincidences seem to contribute most to learning by experience. All of the varied stimuli constituting one's experience with the outer world may be considered as a chain of coincidences so far as the individual's nervous system is concerned. Physiologically experience consists of various stimuli of different physical or chemical nature operating on special sensory end-organs and a number of different stimuli are always acting simultaneously. The word coincidence is used here in a broad sense and covers what is frequently called contiguity. In what we may call a coincidence of the first type, the experiences, if we analyze the peripheral stimuli constituting them, have nothing in common but a concurrence in time. In a coincidence of the second type, portions of the experiences which are indefinitely related in time coincide: that is to say some portions of the peripheral stimuli are identical, as the words telegraph and telephone. Resemblances are coincidences of the second type, in that two or more experiences, be they comparatively simple or very complicated, which resemble one another coincide in some particular. We have indirectly a time element in this type, as the common group of stimuli occurs with certain others forming the one experience:

and with others forming another. Furthermore by coincidence we do not mean to imply an exact concurrence in time, but an approximate one: a certain indefinite interval often elapsing between the "coincident" stimuli. So we would say in all experience there is the frequent coincident stimulation of certain combinations of cortical sensory neurones at one time and another: tactile, visual, auditory, etc. While it is often convenient to classify associations in numerous groups, nevertheless it would seem that all might be traced back to a coincidence of stimuli. In the adult past experience, in the shape of all the external stimuli which have played on the peripheral receptors, is so extensive that we are not apt to recognize this factor in every instance. So we say an association is due to resemblance, contrast or other factor, which in the light of experience may be traced back to a complicated series of coincidences of stimuli. The subject of association has been studied extensively from the subjective standpoint. The results obtained by psychologists employing this method have been very definite, and details too numerous to mention have been worked out.

Pavlov's conditional reflexes in dogs are established by concurrent stimuli. He used the salivary secretion chiefly as the object of study, making a salivary fistula, so the secretion could be measured. A fundamental condition for the formation of the conditional reflex is that, whatever indifferent stimulus is chosen for the purpose of the reflex which it is desired to build up, it is given at the same time that the food or acid is introduced into the mouth. After a few sittings it will be found that this formerly indifferent stimulus alone is now capable of calling forth a secretion of saliva. The stimulus for the conditional reflex must not follow the feeding reflex and is most efficient when it slightly precedes the introduction of food or acid. (*British Med. Jour.* Oct. 18, 1913.) In an animal from which the cerebral hemispheres have been completely removed it is impossible to form any conditional reflexes.

Some of the properties of the conditional (or associative) reflexes are worthy of notice. The rapidity with which they are formed varies with the stimulus used. In the dog, olfactory conditional reflexes are formed more rapidly than visual or auditory, and with disagreeable more rapidly than with agreeable odors and conditional reflexes are formed with interrupted more rapidly than with continuous sounds. The amount of saliva produced at first is only one or two drops, but later it increases up to seven or eight and may con-

tinue at that quantity for several months. The reflexes may be formed from stimuli exactly coincident or the artificial stimulus may precede the natural stimulus by thirty seconds or a minute. In the latter case when the conditional reflex is established, the secretion of saliva follows after the same interval which has been previously employed.

The conditional reflexes are gradually abolished if they are repeated frequently without being accompanied now and then with the non-conditional excitant with which they have been formed. Inhibition in relation to conditional reflexes has been extensively studied. Wasiliev demonstrated three phases in inhibition. He added foreign stimuli to the conditional reflex formed with the scratch stimulus—light or the sound of a metronome, without reinforcing them with the non-conditional excitant. In the first phase, depending on its strength the foreign stimulus inhibits the conditional reflex more or less. If it is strong enough it may completely inhibit it. If the combination is repeated the inhibited conditional reflex gradually resumes its original magnitude; the second phase. Here the inhibition stimulus is without effect. However, if the combination is repeated without adding the non-conditional stimulus the third stage is reached in which the reflex will diminish more and more until it ceases. Zovadzke demonstrated inhibition of inhibition. In adding a foreign stimulus to the conditional stimulus during the latent period of salivary secretion he observed the appearance of the reflex, while previously this foreign stimulus had not produced the reflex. This was notably the case in the retarded reflexes. This inhibition of inhibition was only obtained with stimuli of proper strength. Too weak stimuli failed to produce this effect and too strong stimuli inhibited the reflex altogether. Other phenomena noted in conditional reflexes are irradiation and concentration of excitation processes. (Pavlov.)

If a conditional reflex is prepared with a certain sound, and that reflex has been prepared according to the principles set forth, that is to say that sound has been repeatedly accompanied with feeding or putting acid in the mouth, the corresponding reflex and desired secretion will have been obtained. Say the reflex has been established with a sound of eight hundred vibrations per second and that sound regularly gives the conditional reflex. Then try another sound. That sound will then act even when there is quite a difference in pitch (as 100–200 or 20000–30000 vibrations). We have associated the alimentary center with a single excitant and the excitant has become

generalized. That permits us to speak of irradiation, for the excitation arriving in a given cell of the cerebral hemisphere does not remain there alone, but irradiates to the neighboring cells. However, if the experiment is continued, repeating the reflex with the eight hundred vibrations, it becomes more and more specialized so that finally the reflex will be obtained with eight hundred vibrations but not eight hundred and twelve. At the beginning the excitation irradiates: after frequent repetitions of the same stimulus the excitation becomes concentrated. The conditional reflexes demonstrate further that the spread of excitation processes is determined by the potency of the centers which act upon one another. The center of nourishment is physiologically very powerful. The center of movements of defense is weaker. Erafieva used strong electric shocks which he applied to the skin of the animal. These caused the animal to make all possible movements of defense. But, associating food with these nocuous stimuli, after a certain time he no longer succeeded in obtaining movements of defense but the animal looked towards the place where his food was brought and salivation was produced. This cannot be done with the acid reflex as this is a weaker center. Bechterew and his pupils established what he calls associative reflexes in human beings, employing motor responses. They found practically the same characteristics as those cited. (Issailovitsch-Duscian: *Reflexes Conditionnels ou Associatifs* Pp. 27-49.)

Considering the studies of association by psychologists and the studies of conditional reflexes, we cannot escape from the conclusion that when special combinations of cortical sensory or motor neurones are frequently concurrently stimulated an intimate association is formed between them, so that they stimulate one another with great facility. The development of associations between special combinations of cortical neurones would most naturally be thought to be due to an increased irritability of the synapses connecting them so that certain sensory or motor neurones more readily activate certain other sensory or motor neurones by way of the neurones connecting them. This changed condition of the synapses might, according to our rule that functional activity promotes functional efficiency, be attributed to previous functional activity. It would then appear, other conditions being the same, that synapses of neurones forming pathways between coincidentally active cortical neurones are activated to a greater degree than synapses in other directions, which communicate with inactive neurones. Otherwise there would not be the special

direction of development of associations. Here then is a condition which is in no way hinted at in the study of nerve trunk conduction. However, it may be explained on the same basis as central inhibition. The fact that the same characteristics which we presumed neurones possess in explaining inhibition will also explain the development of associations by experience makes it more probable that those characteristics actually exist.

As stated above, we supposed that during activity of a neurone the resistance of its afferent synapses is lowered. Also the resistance of the different efferent synapses of a neurone affects the spread of the excitation wave over the different collaterals of the axis cylinder; it going in greatest degree to the synapses with the lower resistance. Furthermore a lowered resistance of the efferent synapses facilitates activity in a short neurone.

There is considerable evidence showing that when one cortical center is activated through projection fibres the excitation process is irradiated to numerous other cortical areas. We may imagine that the axones of the neurones which effect the above irradiation connect with short neurones each of which connects with a number of neurones of the nearby center. We may imagine further that the synapses between these short neurones and the neurones of the nearby center, unless previously active, offer considerable resistance so that the excitation is arrested without activating the neurones of these other centers (excepting pathways concerned in reflex and instinctive actions). In other words while the excitation process is irradiated it does not always excite other centers to activity.

However if certain of the neurones of the nearby center are active, the resistance of their afferent synapses is lowered and the activity of the connecting short neurones is facilitated.

If we imagine further that the property discussed earlier (by which activity leaves its imprint in the shape of a comparatively lasting increased irritability) is developed to an extreme degree in these synapses, it is apparent that after a few repetitions of concurrent activity, the excitation coming from certain special neurones of the distant center will suffice alone to activate certain special neurones of this center and we will have an association developed.

In accordance with these ideas, after a number of repetitions of coincident stimulation of special combinations of cortical sensory neurones, there would be a complicated series of pathways with highly irritable synapses developed between them. Stimulation of one

combination of sensory neurones would then stimulate the rest by way of these associative pathways. It is undoubtedly true that after the individual had passed through varied experiences, some of the elements of certain combinations, having been elements of other combinations, would stimulate irritable synapses in other directions. We would believe that during activity some such aberrant excitations are always present. They would account for the occurrence of ideas without obvious connection and would seem to be important factors in diseased conditions. On the other hand, the individual elements of a given combination representing a given external stimulus which had often acted on a special peripheral receptor, having been frequently coincidentally active, would be interconnected by pathways of irritable synapses. This would not be the case with the scattered elements which receive aberrant stimuli through efficient associative neurones, by virtue of having, at one time and another been coincidentally active with certain elements of the highly active combinations in question, when these elements were constituents of other combinations at present inactive. This is because there are not pathways of irritable synapses between those scattered elements, as the periods of stimulation through projection fibres will not have coincided. Thus there would not be the mutual reinforcement among the elements stimulated by aberrant impulses, which we may suppose occurs among the constituents of combinations which have been frequently active. It is probable, too, that inhibition comes into play here.

To briefly review, we would believe that the functional unit of the nervous system is the neurone and the fundamental function of the neurone is to react to stimulation by the production of excitation waves in the axis cylinder process: that the spread of activity is determined by the neurone threshold and *stimulus* response ratio of the different neurones, which depends on the irritability of the different synapses. Further that the irritability of cortical synapses is rapidly increased by repeated activity (producing a lower neurone threshold and *stimulus* response ratio) and finally that activity in neurones lowers the resistance of their afferent synapses and the resistance of the different efferent synapses influences the spread of the excitation wave over the different collaterals of neurones and a lowered resistance of the efferent synapses facilitates activity in short neurones. On this uniform basis we shall briefly attempt to explain the development of experience.

The emotional representatives seem to play an especially impor-

tant rôle in the development of experience. Their intimate relation to the process of attention is indicated by the persistency with which objects or events having strong emotional value remain and recur in consciousness. General observation shows that only those stimuli which in one way or another are of interest attract and hold the attention, i. e. those which directly stimulate or have been associated by experience with emotional representatives. The importance of this emotional factor in attention has been emphasized by Maudsley, Carpenter, Ribot and others. (Bianchi P. 227.)

It has long been believed that there is a motor adjustment occurring in attention, favoring the reception of certain external stimuli to the exclusion of others, or in more ideational moments tending to diminish the reception of all external stimuli. It would seem that the emotional representatives are in as intimate relation with this motor adjustment as with other motor activities.

While we do not know the exact location or distribution of the emotional representatives, there seem to be good grounds for believing that excitation processes resulting from strong stimulation of these neurones are more intense than those from other sensory representatives; that is, the potential intensity of response of these neurones is greater than others. At least the influence of feelings and emotions on conduct and thought is everywhere apparent and their potency seems responsible for most of the vagaries of human thought and action. The fact that periods of strong feeling tone are generally periods of wakefulness would also favor this view. Under such circumstances the emotional representatives seem to keep the higher centers active in spite of fatigue. Crile and Cannon have shown that the ductless glands and vegetative nervous system play an important rôle in these conditions. To quote Sherrington again (P. 231): "It would seem a general rule that reflexes arising in species of receptors which considered as sense organs produce strongly affective sensations *cæteris paribus* prevail over reflexes of other species when in competition with them for the use of the final common path." If we suppose that the somesthetic neurones are capable of producing stronger excitations than cells of other sensory functions we can explain many aspects of thought and action. These stronger excitations would reinforce particular combinations with which the somesthetic representatives had been associated, and as a result of this increased activity other combinations not included in the particular chain of associations would be inhibited. Thus we may think of the emotional representatives

having a double relation to attention, through their close connection with the motor adjustments and by the inhibition of foreign combinations produced by the increased activity of neurones stimulated by them.

Observation of new-born infants indicates that their earliest definite manifestations of consciousness come from stimuli affecting somesthetic neurones (stimuli related to nutrition and to reactions which if conscious would indicate pain or discomfort). Certain combinations of visual, tactile or other cortical sensory neurones are coincidentally stimulated with certain combinations of cortical somesthetic neurones. According to the above considerations we would expect a reinforcement of the special sense representatives by the somesthetic neurones, resulting in associations between the particular combinations coincidentally active.

Hand in hand with the development of sensory functions there would be a development of motor functions by a similar process. During and as a result of movements there would be coincident stimulation of particular combinations of motor and kinesthetic cortical neurones and in many instances of sensory representatives of external stimuli of a changed environment produced by the movement, be the movement one involving the whole body or but a single part. As a result the individual neurones of these combinations would become more efficient and as a result of coincident activity associative pathways would be formed between the different combinations of cortical neurones.

Such a process would account for the development of voluntary movements. Many of these first movements appear to be haphazard reflexes with little evidence of purpose. These reflexes however establish, by coincident stimulation, associations between particular groups of cortical sensory, motor and kinesthetic neurones: thus laying the foundation for voluntary co-ordinated movements. At times some of the movements which have no conscious purpose may effect such changed environment as regards external stimuli, that somesthetic stimuli are received which produce definite reflexes which we call instinctive reactions. If we try to consider the different combinations which are coincidentally stimulated during such an experience, we see that there will tend to be developed, many associative pathways. We have coincident activity of the special sensory representatives of the external environment and of the motor and kinesthetic representatives of the movement which produces the changed

environment. Then the somesthetic reflex adds coincidentally stimulation of somesthetic representatives, the motor neurones activated by them and the kinesthetic neurones representing the movement. If the stimuli from the emotional representatives are very strong, as often seems to happen with nocuous stimuli, such efficient associative pathways may be developed by a single experience that on a later occasion the somesthetic reflex may be produced by association from the original stimulus, with a consequent inhibition of the first reflex and this in the absence of the nocuous stimuli.

Thus motor experience would be developed in conjunction with sensory experience: actions of greater complexity and resulting both from more numerous and more selected stimuli, being developed as a result of the formation of associations, from combinations of comparatively simple reflexes which depend on the general physical or chemical nature of the stimuli and the point of contact with the organism.

As an example of the conjoined development of sensory and motor functions we may take the complicated process of learning to talk. The sounds produced early in life appear to be reflex and mostly from somesthetic stimuli. When sounds are uttered, there is the coincident activity of particular combinations of cortical motor neurones, of kinesthetic neurones and of auditory neurones, as well as the particular combinations of sensory neurones representing the stimuli which prompt the utterance. So by frequent repetition associative pathways will be formed between all those combinations. The auditory neurones representing sounds which at first are produced reflexly come to be associated with the motor neurones representing the movements involved. On account of these associations sounds later are produced not only reflexly by somesthetic stimuli but also by auditory stimuli, when we have imitation.

Thus we would believe when a sound is first uttered it is a comparatively simple reflex. The associations formed by its production, between the cortical motor and kinesthetic, auditory or other neurones permit of its reproduction by auditory or other stimuli. So the development of speech would be due not alone to the development of the motor speech area but to the concomitant development of the different sensory areas as well and of associative pathways between all.

The same sort of complicated development would be thought to occur in all motor activities. It is self evident how these ideas lend themselves to explain the formation of habits through frequent repetition of given movements.

So while the principles here suggested as underlying the development of experience seem to be comparatively simple the details of the process appear fully as complicated as cerebral histology would lead one to expect.

The marvelous complexity of abstract concepts according to these views is apparent when we take such a simple example as "chair" and consider it from the standpoint of vision. A chair of given size and shape will stimulate a different combination of cortical visual neurones for every appreciably different position it may occupy in the visual field in any of the three dimensions of space. Those different combinations are associated with all the different combinations of other cortical neurones representing the word "chair" as a result of experience. When we consider the variety of shapes of chairs, we see what an endless number of visual combinations are associated with all the other combinations of cortical sensory neurones entering into the formation of the abstract concept chair.

In the ordinary adult there must be millions of special combinations of efficient cortical neurones connected by efficient associative neurones. The sensory representatives then activated by given external stimuli might be connected by efficient associative pathways with any number of combinations of sensory and motor representatives, which at one time and another had been coincidentally active with the combinations in question. The particular combinations stimulated supraliminally by associative neurones would seem to be determined by the resultant of a number of factors, such as frequency of coincident activity, efficiency of associative pathways with combinations of emotional representatives, recency of activity or other conditions influencing irritability and the concurrent activity of other combinations as related to the facilitation of associative neurones.

The objection may be made that the distinction between the conscious and the unconscious has not been preserved in this paper and that is true enough. No attempt has been made to cover the whole subject of cerebration, but only to discover if possible a coherent theory of the physiological basis of experience. In this connection it may be said, that, given an animal with a nervous system structurally like one of the higher animals, with neurones responding to stimulation by the production of excitation waves, with receptors responding to specific stimuli, and with the neurones of the cerebrum having the characteristics which we have attributed to them: then such an animal would necessarily show evidences of learning by experience

and memory. This too without being forced to believe that the excitation process is essentially different in one neurone from another, no matter what the location.

So to explain learning by experience we add to the facts established by experiment and observation these surmises based on theoretical considerations:

(1) Stimuli of proper strength under proper conditions, not only cause momentary activity in cortical neurones but also leave their imprints in the shape of a comparatively lasting increased irritability as a result of the increased irritability of the afferent synapses.

(2) The momentary activity in cortical sensory and motor neurones not only results in the production of excitation waves in their efferent processes, which conduct them to distant neurones, but also during this period lowers the resistance of their afferent synapses.

(3) The resistance offered by the different efferent synapses of a neurone influences the spread of the excitation wave over the different collaterals of the axis cylinder.

(4) A lowered resistance of the efferent synapses of a short neurone facilitates activity in that neurone.

A STUDY OF THE METHODS OF REVIVALISTS

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THE investigation which it is the purpose of this paper to report was conducted to ascertain the various methods employed by ministers and professional evangelists in conducting revivals. In particular the aim was to discover the factors of religious and social psychology involved in evangelistic methods. The information was obtained from ten ministers who conducted their own revivals, ten professional evangelists, and observations of the methods of five additional evangelists. The ministers and evangelists studied were selected by reason of their many years of experience, some of them being of international fame. They represent the Methodist, Presbyterian, Baptist, Christian, and other protestant denominations. With the ten ministers and ten evangelists the questionnaire method was employed. A more satisfactory result could have been obtained had a "cross-examination" been possible. This of course was not practicable since it was necessary to conduct the study by correspondence. In the cases of the latter five evangelists, the writer made a direct observation of their methods. One of these evangelists was questioned as well as observed in his work. The questionnaire read as follows:

1. Tell what methods you rely upon to obtain results in revivals?
2. What are the most effective methods you employ?
3. Do you advertise? In what manner?
4. Do you make meetings attractive by music, etc.?
5. Do you appeal to fear of hell, death, etc.?
6. Do you appeal to any other feelings? Which?
7. Do you appeal to hope of reward?
8. Do you use suggestion or hypnotism to any extent?
9. Do you organize your work?
10. To what do you attribute results?
11. To what do you attribute results principally?
12. Do you believe that mass psychology aids you?
13. Do mannerisms aid you?
14. Do striking phrases aid you?

15. Do you think revival converts remain in the church? To what extent?
16. What is the most frequent age of conversion in men and women?
17. What objections do you meet? The most common?

In response to *question 1* various answers were received. One minister said that he was always afraid of the so-called revival, and never had held one in the sense we here use the term. He believed in keeping the church always in state of spiritual life. He refers to the Billy Sunday Campaigns as a type of undesirable revivals. Nineteen placed a strong emphasis upon the fact that nothing surpasses the simple, earnest, faithful preaching of the gospel, accompanied by the power of the Holy Spirit, obtained by believing prayer and humble, implicit obedience to God's will. One man said that he was only the instrument to be used to obtain results; the Holy Spirit did the work. It was not his business whether the revival was a success or not so long as he allowed the Holy Spirit to use him. Several rely upon cottage prayer meetings preceding the revival, and several upon personal workers. One employs card signing.

Question 2. Nearly all answered the first two questions as one. All emphasized the plain preaching of the word as found in the scriptures, the influence of the Holy Spirit, prayers, and personal work. One mentioned card signing as effective. Two emphasized the fact that personal work should be done inside and outside the meeting. One mentioned home visitation, and one the testimony meeting.

Question 3. In regard to advertising, one replied that "you cannot advertise too much. The world uses it, why not the church?" One does not believe in it at all except through the people, and another advertises very little. One man says he advertises through printers' ink, but best through a sentiment aroused by preparation. One says he has never practiced advertising much. The remainder all replied that they used various means to attract the attention of the people: the press, the bill board, cards to be used personally, "catchy subjects," etc.

Question 4. "Make the music attractive if possible, but by all means make it spiritual," was reported by one. Another said that nothing, except preaching, contributed more to the success of a meeting than good music, vocal and instrumental. Still another answered that there is power in music that will reach many a soul that nothing else can. One said that music is always helpful; but it must be gospel

music. One, who believes in the Divine call of music, said nothing will stir people so much as music. To one music is "two-thirds of a revival meeting." Another said that it is a means of getting persons not interested in the gospel out to the meetings. All believe in music, some to a greater and some to a lesser degree.

Question 5. "Do you appeal to the fears of Hell, death, etc.?" brought out a great many different answers, some of which we quote verbatim. One man replied, "If it were possible to frighten a man into heaven, he would get out as soon as the scare was over. If a man loves God, etc., he won't fear death, and he will not care whether there is a hell or not — and if he would go to hell he would take heaven with him."

Other answers read as follows: "Jesus Himself always appealed to man's fears as motives of purity." "People frightened into profession soon fall away." "Only as the message of God's word appeals to these fears." "Yes, when conditions demand it." "If there is a heaven to be saved for, there is a hell to be saved from." The others believe in it only as the Holy Spirit convicts men of such fears.

Question 6. Nearly all answered this question in the affirmative and gave, as the other feelings appealed to, the following: duty, responsibility (to self and children), and the desire to succeed. One said that nothing short of eternal life is success. Another said that the "Love" side of the gospel must be preached. Other feelings appealed to were gratitude, natural affection for kindred, shame, self respect, desire for happiness, conscience, "mother's prayers," and "any feelings that may move men in the right direction." Ten men said they appealed to love.

Question 7. As for the appeal to hope of reward, one acknowledged its use "only as a subordinate motive," and one replied "not to any great extent." Another said "Yes, but only as a consequence of conduct." One said "Sometimes," and another "Somewhat," but he preferred to appeal to the blessedness of service. The others all reported that they appeal to a hope of reward as it is taught in the bible; that such an appeal is perfectly legitimate, etc.

Question 8. One reply is that no one can discount the power of suggestion. Seventeen say they do not use suggestion at all or not consciously. Some think that it may enter into their work unconsciously. One says that suggestion is a great power; and hypnotism enters into work with some types of people. Another says he uses suggestion by others' actions.

Question 9. Fifteen say that they believe in organization in revivals. One man "does not organize in any systematic way." Another does not uphold the extreme use of organization, while another believes in very little. Most of them, however, believe in the organization of revival work and employ such organization.

Question 10. To this question again many different answers were received. Ten attribute results in revivals to the Holy Spirit, prayer, personal work of the Christian people, and music. One ascribes success to past teaching and training, and to the inborn feeling that every soul ought to return to God. Another mentions preparation of the church, consecrated workers, and the faithful presentation of the word.

Question 11. Nearly all answered this question similarly to the preceding one and placed the emphasis upon the power of the Holy Spirit, the preaching of the word, personality, and prayer.

THE ANSWERS TO THE IMPORTANT QUESTION

Question 12. "Do you believe that mass psychology aids you?" were not very satisfactory. Some said that they did not understand the question; others showed by their answers that they did not. One said that mass psychology does not appeal to him as to many others. Two answered the question in the negative, and one said "only in a limited degree." However, we may read between the lines of the answers that mass psychology does play a part in revivals. The direct observations, moreover, of the work of the five evangelists studied at first hand show it to be an important factor.

Question 13. Fifteen answered this question in the negative. One replied that mannerisms sometimes hinder, another that he hates studied mannerisms. A third responds that if they are not crude they are decidedly helpful. That they catch and hold the attention of a revival assemblage, most workers would doubtless admit.

Question 14. This question, with a very few exceptions, was answered in the same manner as the preceding one. All who say that striking phrases do help account for it by the fact that they arrest attention and thus afford an opportunity to teach valuable truths. One protests that he hates "put phrases." Another says that they are "clinchers of truth." This question and its answers tend to show that a great many ministers and evangelists do not know definitely just what they say certain things for, or why they say them in a certain way. The reason is perhaps because they are not students of their

work; also no doubt because they are more interested in the causes for their failure than for their success. As in the case of mannerisms, and as observation confirms, we may see that striking phrases tend to gain attention.

Question 15. All agree that revival converts remain in the church. Some say that it depends upon the nature of the revival. Others say that it depends upon the care they have after the revival is over. Still others maintain that every impulse the church has ever received came from a revival service or the effects of one. Some assert that a large portion of the present membership of the church became members under the influence of a revival, and that there are therefore a great many who remain faithful. One minister said: "The Apostolic church was built on revivals. The Methodist church was the outgrowth of a revival held by Wesley. Thousands of church members in Philadelphia, converted in Moody's meetings many years ago, gathered as a body a few weeks ago. Cities where Billy Sunday has been report that after two or three years 80% or more of the converts are still active in the church." Another man, however, replied that experience has taught him that only about 25% remain in the church. Still another said that they do not remain "if the bars have to be let down to allow them to get in." The twenty men answering the question are nearly unanimous that a large majority of converts remain in the church.

Question 16. We may remark, in regard to age of conversion, that there was no distinction made between men and women. Seven different answers were given to this question. Two think the most frequent ages of conversion to be between 15 and 22, nine think between the ages of 10 and 20, two between 25 and 30, one between 18 and 25, five between 30 and 40, and one between 18 and 21. The answers to this question lead one to believe that many of the correspondents were not sure and in order to answer something have merely guessed. Some admit this frankly, while the answers of others show it just as plainly. As a general result, the most frequent age indicated is about 17.

Question 17. A great many objections to going to church were named. For the most part these give the impression of persons excusing themselves for not yielding in revivals. Men seldom tell their real objections; those they give are often evasions. The following are some of the objections stated: "Wait for a more convenient season," "cannot hold out," "man can be saved by character," "cannot

understand the whole Bible," "I am not good enough," "I have not had a conviction yet," "too much excitement," "God could not be just and send one to Hell," etc. In answer to the second part of question 17, of the twenty, all are agreed that the most common objection is that there is hypocrisy in the church. We may also add that this was the answer given to the same question by 235 out of 250 personal workers at the Northfield Conference.

SUMMARY

In consideration of the experience, character, and number of revival workers studied in this research, we feel warranted in drawing the following definite conclusions. Those conclusions of course apply only to revivals among American protestants.

1. A strong emphasis was placed upon the fact that as a revival method nothing surpasses the plain earnest presentation of the word of God. This, accompanied by the Holy Spirit, obtained by believing prayer and obedience to God's will, and cottage prayer meetings just preceding the revival must bring about results.

2. A great many ministers and evangelists do things without knowing just why. Apparently, no distinction has been made by most of our subjects between methods and most effective methods.

3. All ministers believe in advertising, some to a greater and some to a lesser degree. Evangelists are all firm believers in advertising.

4. Music plays an important part in any church service; this is especially true of revivals. The music should be made attractive, but evangelists insist that it should also be spiritual.

5. All workers appeal to fear of hell and death, with various motives and in various ways. Some do this unconsciously.

6. Other feelings also, such as love, shame, self respect, happiness, conscience, "mother's prayers," etc., are appealed to.

7. Hope of reward is appealed to. But its importance is minimized.

8. The answers to the question regarding suggestion and hypnotism show a poor knowledge of psychology. There is no disputing the fact that suggestion is used by all ministers and especially by evangelists, even though in some instances it is used unconsciously. One cannot discount its power. Hypnotism is also more or less employed.

9. In every revival which is great from the numerical standpoint organized effort is important. Whether the results brought

about through organization are permanent, is of course another question.

10. Results are attributed by revivalists to the faithful presentation of the Gospel, the influence of the Holy Spirit, prayers, personal work, and service. All agree that no permanent result can be obtained except by the work of the Holy Spirit.

11. Preaching the gospel, prayer, Holy Spirit, and personal work are the principal agencies to which results are attributed.

12. Many evangelists and ministers are not students of their work. They are more interested in the reasons for failure than for their success, and many times do not know why men are converted. Some admit it, others show it plainly by their answers. Mass psychology, mannerisms, striking phrases, etc., play important parts in revivals. Many evangelists know that a great many men and women become converts, or come with the crowd, who would otherwise remain away. Perhaps if this were not true many would also remain in the church who drift away.

13. The agreement was nearly unanimous that most revival converts remain in the church. The number depends upon the character of the revival, the care received afterwards, and whether or not it was necessary to let down the bars to allow them to come in. Some hold that every impulse the church ever received came through the medium of a revival.

14. As to the most frequent age of conversion, no distinction was made between men and women. As a general result, the answers given are at the average age of about 17 years.

15. Men seldom tell their real objections to uniting with the church. Those which they give are mostly evasions.

16. The most common objections encountered are "there are too many hypocrites in the church," and "I can live as good a life outside as many do in the church."

THE PSYCHOANALYTICAL METHOD APPLIED TO THE STUDY OF REPRESSION

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IT is generally agreed among those who have studied the psychoneuroses with the psychoanalytical method, that the symptoms; in fact the disease itself, is caused by a conflict between two desires. The symptoms are found to be the resultant of two opposing forces; "compromise formations."

One of these opposed forces, the one repressed, has been shown to be a sexual desire or need. But this one force, no matter what its strength, cannot by itself produce a psychoneurosis. As Freud says: "The sexual need or privation is merely one of the factors playing a part in the mechanism of the neurosis, and if it alone existed the result would not be a disease but a dissipation. The other equally indispensable factor, which one is only too ready to forget, is the sexual repugnance of neurotics, their inability to love: it is that psychic feature which I have designated as 'repression.' It is only from the conflict between the *two* strivings that the neurotic malady originates." . . .

Such being the case it is obvious that for a complete understanding of the neuroses, both of these conflicting desires or forces should be thoroughly investigated.

But this apparently has not been done. It is true we have very widely studied one of these forces, the one repressed, but we have been "only too ready to forget" the other, the repressing force.

If a ballistic expert, in studying the flight of projectiles, should fail to consider the propelling force, except to acknowledge that there was such a force, we would not credit him with any thorough knowledge of trajectories; however thoroughly and extensively he had studied the force of gravity. Furthermore, we would be astounded at his oversight.

Is it not equally astonishing that the psychoanalyst, while making a very extensive study of the repressed affections, has shown no interest in the repression?

It is true we have been *told* that repression is due to: "finer feelings," "ethical principles," "better self," "fear morality," "herd

nstinct," and "conscious standards of morality and propriety." But these statements, as to the nature of repression, are not based on a psychoanalytical study of the subject; they are mere assumptions, rationalizations, phantasy formations.

Why have psychoanalysts avoided the study of repression? Could it be due to their own resistances?

Freud says: "It is not the discovery and counting and tabulating of complexes that is the object of psychoanalysis but the sole object of psychoanalysis is the overcoming of the patient's resistances."

But certainly we cannot effectually overcome the patient's resistance if we are totally ignorant of its nature and source. We cannot hope to fully understand "compromise formations" by studying but one of the two conflicting forces; nor can we claim more than a fragmentary knowledge of the psychoneuroses if totally ignorant of one of the two constituent parts.

I maintain that no analysis or treatment is finished, no recovery is complete when the repression and the resistances have not been analyzed by the so called free association method.

In the treatment of psychoneurotic patients I have found it necessary, before satisfactory results could be obtained in the most severe cases, to resort to an analysis of their repression. My observations have been not only astonishing, but of the utmost importance from the therapeutic standpoint.

It is the purpose of this paper to briefly recount these observations.

During the analysis the patient invariably discovers that the symptoms serve as a gratification of sexual desires which he keeps out of his conscious mind. After this has been demonstrated by the analysis, the patient is asked why he keeps these desires out of conscious mind. He promptly assures the analyst that he does so because such desires are wrong and naturally disgusting or perhaps that they are unacceptable to his "conscious standards of morality and propriety; that they are too horrible to think about."

But when he is induced to hold the question in mind; "why do I keep these desires out of mind" and to passively observe all the thoughts that occur to him, it usually happens that some incident of early childhood comes to his mind, when he pleurably performed some childish sexual act and was made to feel that he displeased some one by so doing. Often this is but a secondary event but similar in several ways to the original efficacious moment, and constitutes a secondary cause of repression.

As the analysis is continued, however, it eventually appears that quite early in childhood the patient pleurably performed some sexual act for which the beloved parent showed displeasure.

The nature of this pleurably performed sexual act varies with different patients; but the desire gratified is always one of those designated by Freud as "polymorphous perverse." In more than one instance I was astonished to find that this pleurably performed sexual act of the primary trauma was taking the mother's nipple in the mouth. The mother's method of weaning the child actually starting the repression as she shamed, punished and showed displeasure for the child's desire to nurse. Upon analysis it has been regularly found that in these instances, nursing was a sexual pleasure and consequently the child gained the impression that the mother did not want it to have sexual desires or pleasures.

On further analysis it appeared that *to please the mother*, the child wished to have no such desire. *Keeping the desire out of mind (repressing) was to the child tantamount to having no desire.* In other words the child repressed to please the parent towards whom it had a polymorphous perverse sexual desire.

When the patient is asked to think why he wishes to please the parent and to passively observe the thoughts that come to him he discovers that *he gets a pleasure out of doing so.*

It is now apparent that the patient keeps sexual desires out of his mind (represses) to please the parent and thereby secure a pleasure. The process of repression is thus shown to be pleasurable which not only explains its persistence but makes the phenomena of resistance quite intelligible as efforts to retain the pleasure he gets from repressing.

It remains to analyze this pleasure; to discover what desire is thus gratified. When this has been done it has invariably been found that *it is a sexual desire towards the parent that is gratified in thus keeping sexual desires out of mind. In other words repression is a sexual act and gratifies a sexual desire towards one or both parents; usually the mother.*

It has further been found that repression is not one single act occurring in childhood but that this putting-out-of-mind, this not-realizing, occurs repeatedly throughout the life of the neurotic; each time he subconsciously feels that he is pleasing the parent and hence obtains a sexual gratification thereby.

To be sure the tendency to repress is strengthened by many other influences occurring throughout the life of the patient. Among

these we may mention certain religious teachings and evidences of disgust for sexual actions shown by the parent or by other persons towards whom the patient has a positive transference. But these are secondary causes.

From analyses and observations made on normal or nearly normal persons I have found that a desire-to-please-the-parent is invariably present in their childhood, and that they, as well as the neurotic, obtained sexual pleasure from the gratification of this desire. Consequently I conclude that this is a normal component of the infantile sexual constitution and doubtless should be included with those designated by Freud as polymorphous perverse. In the case of normal persons, however, the parent did very little or nothing to give the child the impression that doing no sexual act or having no sexual desire would win parental approval and esteem; consequently the normal child gratified its sexual desire to please the parent by being obedient and by adopting other parental emotional attitudes; not by repressing.

From these observations I conclude that repression is a specific and harmful way of gratifying one of the normal, infantile sexual desires.

On account of the great amount of space which would be required it is impracticable for me to include in this paper one of the ten complete analyses from which my observations and conclusions have been made. Instead I give, verbatim, a written account of the origin of his repression which was recently handed to me by one of my patients. It should be borne in mind that the insight and realization shown in this account *was made possible only by much analysis*.

"While it seemed improbable that my association with my mother had anything to do with the beginning of repression I have found that it was the complete origin of it all. The active element is the sexual desire which very early was directed towards my mother, pleasure and gratification being derived by being petted and fondled by her and in doing things which gave her pleasure and raised me in her esteem. These desires I can identify as being sexual. There is nothing about that condition so far to cause conflict however. Where the conflict comes in is at the point that my mother gave me evidence that she disapproved of my gratifying a sexual desire (such as the desire to nurse, to play with my sexual organs, etc.), or having such a desire. This was the first opposition and the result was, not an abatement of the desire, but an attempt to abate the desire. By my mother's actions I was led to think that she would not tolerate evidence that I was gratifying a sexual desire, and my sexual desire was to please her, therefore in order to gratify my desire to please her I felt that I must try not to have

any sexual desires. The result of this trying not to have any sexual desire (its own motive, however, being sexual desire) was of course not a cessation of the desire but my refusal to recognize its existence, the result being its conversion into such forms and activities as would conceal its identity.

"The thing of importance discovered is that the thing actively back of the repression and acting as its driving force is the (sexual) desire not to have sexual desires, and that just as I would derive pleasure and sexual gratification out of being gallant to my mother and gaining her approbation by doing something which would please her and hence win me favor in her eyes, so did I gain pleasure and gratification out of trying not to have any sexual desires. The sine qua non circumstance was of course that my mother had repression which caused her to indicate to me that it would be pleasing to her for me to repress sexual desires. This is the same desire which is causing the trouble now, that is, I am still trying, so to speak, to please my mother by repressing and getting my gratification in that way, and you may be sure I am anxious to exchange it for another kind.

"The prohibition of the censor was imposed through my early method of gratifying my desire, that is, in pleasing (supposedly) my mother by repressing. I must admit that the nature of the censorship is better understood than formerly, I censored because it gave me pleasure and gratification to censor under the circumstances. In fact the gratification consisted of putting the desire out of consciousness as a result of my effort not to have any sexual desire. This is rather awkwardly put but I believe that you will be able to get me.

"This last analysis which I worked on most of the time yesterday, had the effect of being somewhat discouraging, making me realize that I have been all the time addicted to the same form of childish gratification that I practised as a result of the wrong conclusion I formed very early. It seems that my repression had been keeping me from realizing that fact. I will follow it up with more work and correlation."

As a summary I offer the following formulæ:

- (1) Repression serves as a gratification of a sexual desire towards the parent and represents a part of the sexual life of the individual.
- (2) Repression gratifies the sexual desire to please the parent.
- (3) The desire to please the parent is a normal component of the infantile sexual constitution.
- (4) Repression is a specific, pathogenic method of gratifying a normal infantile sexual desire.
- (5) Resistance is an effort to retain the sexual pleasure derived from repressing.
- (6) The psychoneurotic symptom results as a compromise between two conflicting sexual desires and gratifies both.

As patients invariably show great resistance towards the realization that repression is a sexual gratification; as such realization is possible only near the completion of an analysis; I anticipate that my observations and conclusions will give offence to some psychopathologists. That psychoanalysts have so persistently avoided the study of repression is inexplicable to me unless it is largely due to their own resistance. Consequently the usual phenomena of resistance, viz.: theoretical objections based on subconscious feelings, criticism of the analyst (writer) or the method used, and a tendency to minimize the importance of the observations are to be expected from those who get pleasure out of not realizing.

I hope, however, that the presentation of these observations will induce further investigation of repression by *the free association method* whereby enough data may be obtained to determine if my findings, in ten consecutive cases, are exceptional, or if, as I strongly suspect, they are universally present and constitute the invariable mechanisms of repression.

THE FEAR OF ACTION¹

BY PIERRE JANET

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MR. PRESIDENT, MY DEAR COLLEAGUES:
Nothing could be more agreeable and more profitable for an author than to expound his own ideas before colleagues who are at once foreigners and friends. The different viewpoints in which one places himself in different countries permit one to see facts under a new aspect and to understand them better. Unhappily, I do not speak the English language well and I understand it even less; so I must limit myself to indicating briefly the manner in which I propose to group and interpret a certain number of mental troubles which are observed often among neurotics. I hope to be able to study at leisure your critical comments when they shall have been published.

I

A well known fact of common occurrence in the course of neuroses consists in a fear which the subjects manifest concerning objects of great variety or attaching to divers situations. Very well known is the phobia of cutting tools or sharp objects, the phobia of churches, of religious objects such as fragments of the Host, the phobia of unclean objects, the phobia of public places, agora-phobia, erythro phobia or the fear of blushing before some one, etc. — One cannot exhaust these innumerable phobias. I have had occasion to show in my first studies that the localization of fear upon this or that object was purely apparent; it is only secondarily and by a sort of error that the patient imagines that he is afraid of the edged tool, or of the filthy object or the public place. If we begin with the very distinct group of professional phobias as in the fear of the razor which occurs in barbers, in the fear of scissors which occurs in seamstresses, in the fear of medical prescriptions which occurs among physicians, there is found at bottom the fear of having to perform one's trade or the fear of the professional act. In the phobia of bells, of church bells, of the altar, or of fragments of the Host there is the fear of having to perform religious acts.

¹ A paper read in French at the Atlantic City meeting of the American Psychopathological Society, June, 1921. Translated by Lydiard H. Horton.

In the phobias of filth, in all the phobias of contact there is the fear of an act of practical life, the fear to be obliged to keep house, to do cleaning, to take care of the sick. In the agora-phobias as in the erythro-phobias or in the phobias of deformities or of ridicule there is not precisely the fear of a situation. There is the fear of the act that one would feel called upon to perform in this situation. The fear of blushing like the fear of exhibiting deformity or a ridiculous aspect of oneself, are varieties of pathological timidity, of the fear to be obliged to show oneself, to speak to others, to expose oneself to social judgments; it is, as I used so often to say, a disturbance in the action of facing *social appraisal*.

Without unduly dwelling on one of my investigations which is already ancient, and which appears to me scarcely open to dispute, we can admit here that the phobias of diverse objects or divers situations are at bottom phobias of action which are provoked or called forth by these objects and these situations. In many cases the patient has insight into this fact himself and he designates this aspect of the phobias by saying that he has fear of eating, of speaking, of walking, or of working. In the most common phobias the fear of fatigue signalizes the appearance of the mental agitation at the beginning of the greater part of the actions in question and the patient knows very well that he is afraid of taking action. One of the difficulties which we meet in the study of mental derangements, sickness of the mind, is that the language of the patient carries us away in numerous directions of thought, while the mental processes which transpire in such a variety of ways prove to be at bottom about the same. Historically speaking, the symptoms of the various phobias, of the different manias or obsessions were at the start innumerable; but they reduced themselves little by little to a very small number of phenomena of which they constitute the varieties or combinations. There are a great number of other symptoms apparently differing from phobias which are nevertheless identical with these phenomena and which we must classify with the fear of action.

Nothing is more common than the discontent which patients experience with regard to their own behavior, than the criticisms that they make of their own actions; some claim they have lost all their initiative, that they have not enough will, that they are too much managed, too much under the suggestion of others. Others repeat that their action has lost its moral character, its elevation, that they are selfish, indifferent toward others or else that they have lost their

grace, their ease of manner, that they appear ridiculous, stiff as mannequins, that they have become un-aristocratic. In fine the greater part bewail the fact that their action is not to the point, not complete, that something is missing, that other people are too quick for them, that they would like to slow down the busy world in order not to be always behind hand.

All these sentiments of insufficiency regarding their own action serve to determine highly varied reactions. The patients who are ill-satisfied with their action watch themselves and by dint of observations, through anxiety about themselves, they fall into a sort of perpetual auto-analysis. They become psychologists; which is in its way a disease of the mind.

They devise precautions to be taken, as a means to perfect the insufficiency of their acts. They slow down activity, they render it interminable, complicating it by all sorts of formulas or formalities, and especially by beginning all over again, *ad infinitum*. How many a young girl considers all day long and all night the length of her undergarment or the proper position of her feet for fear of a lack of decorum? How many patients count pins for fear that some might have fallen into the soup, or verify the position of objects for fear of having misplaced them, lest they should fall on heads of passers-by? These subjects resist all counsels, all orders, even the simplest, in order to get to the point of acting on their own hook to give proof of initiative. Others on the contrary, do not wish to disturb themselves when alone and await minute directions for the least movement in order to avoid all share of responsibility in the acts which they think they are incapable of executing correctly.

Well, all these sentiments and all these reactions depend in sum upon one single phenomenon; it is that the act in question appears abnormal, that it has annexed to itself a difficulty and a particular peril. The patients who have these retardations, this meticulous habit of verification, of beginning over again when executing any action in particular, before long cease to perform the action in question and in the end they manifest fear for the objects or the situations which have relation to these activities. They may have started with manias for this or that kind of activity but they end up with phobias, for at bottom these are phenomena of the same stripe, involving fear in the domain of executive action. At most one might say that the fears of action manifested by the "manias of action" or of beginning over again, are a little bit less marked than those fears of action which enter

in the true phobias. It may be regarded as the inferior degree of fear of action, that is, the *anxiety* of action.

II

When we go one step beyond here we come upon a group of sentiments and obsessions which seem strange and varied and yet which are of the same category. The patient of whom I spoke in Boston at the Meeting of the American Medico-Psychological Association and whom I designated under the name of Sophie is not always in the state of grand delirium. She has moments of lucidity during which I am able to persuade her to walk in the garden and to talk somewhat reasonably. She hesitates in her actions, she stops short and wails instead of acting brusquely and rapidly as she did in the observed activities of her delirium. When she thus stops short she is upset by fears and remorse of the strangest kind. "No, I should not have done that, it is precisely these few steps in this alley-way which were forbidden to me by Heaven. I give you death if I walk with you. . . . I insult my mother if I eat as you desire. . . . I am causing my father to suffer in his grave if I look on his photograph. . . . I become a hideous monster if I speak to you. . . ." Each action that is planned in its correct form by the patient or undertaken with any self-consciousness or even a little reflection presents itself with an appearance so strange and so odious that it awakens a thought of the most forbidden actions even to the degree of sacrilege. Do not suppose that this behavior is rare.

I could present to you at least fifty cases quite analogous. I will recall to your mind only the observations of a man of 49 years of age whom I have often studied. This patient is interesting because he has full realization of the absurdity of such thoughts, and because he laughs at them and because he tries to explain them on his own hook.

"I cannot," says he, "perform a single new activity without representing to myself that it is going to entail diabolical consequences. If I buy new shirts it seems as if I were preparing for the assassination of my two children. If I rent an apartment it is only in order that I may place under the big entrance door the coffin of my wife where it will rest very nicely; I have selected this apartment (it would seem) only because of the convenience which this entrance way presents for the coffin of my wife. If I open this book it is with the idea that I am preparing a cataclysm which will involve the whole city of Paris. All this frightens me so that I take back my recent purchase of shirts

with the excuse that they do not fit; I give up the apartment, and I close the book."

A young man of thirty years of age who is a good musician is obliged to give up sometimes for six months, sometimes for a year the playing of his violin; for at such times he cannot touch the instrument without being overwhelmed by the conviction that he is playing in a manner to set Almighty God on edge.

A variant of this sentiment consists in replacing the sacrilegious character (as against God and religion) by characteristics of ugliness, of vulgarity, of uncleanness in conflict with artistic sensibility and good breeding. "Everything that I put my finger on is ugly and dirty; flowers become faded as soon as I look upon them. If I come to love a woman she becomes ugly and unclean, monstrous, and I am crushed by the very weight of this impression. . . . Any man whom I can care for becomes an untidy janitor reeking with alcohol. I cannot wish for anything but that it becomes repugnant to me at the same time." In the most common and pragmatically important form of such phenomena, that which gives rise to the common conceptions of scrupulosity, the degradation of the act in question is an ethical or moral one. Every activity which the subject is in the course of performing and which he is about to accomplish, or even to think of accomplishing presents itself in an aspect that is morally blameworthy or even criminal. "It seems that I am offending against ethics when I prepare the soup. . . . I am flaunting morality when I put on my dress. . . . I am always doing forbidden things. . . . This book must indeed be very immoral, since when I read it I always have the feeling that I am reading surreptitiously one of those books which I was forbidden to open at boarding school. Is it that I have not paid for my breakfast? For in eating it I have the impression of stealing something from poor people." As we can already comprehend from this last phrase, the patients feel obliged to have recourse to analogies and comparisons. They go over mentally all the crimes in the calendar seeking that one which in their fancy should arouse in the perpetrator a sense of repugnance, of culpability, of remorse, corresponding to what is experienced by themselves; thus we hear the victims of this sort of scrupulosity resorting perpetually to the following formula: "It is as if I were putting poison in the soup, pins in the bread, it is as if I were putting loaded bombs in the chimney to blow up the house, it is as if I were making signs to men to come up into my room."

It is always the proper and correct action which the patients wish to perform, but the action presents itself under a coloring which makes it appear sacrilegious, ugly, immoral, and thus the patients become afraid to perform an act which has painted itself in that manner. Things often complicate themselves even more. It is not long before we see the trouble evolve and the observed symptoms become even more peculiar and difficult to interpret. I wish to refer to the "reversal of sentiments," or the "false impulsions," of these victims of scrupulosity. These patients are not disgusted and frightened by the act which they are commencing in reality to perform, but they are made fearful and are slowed down in carrying out the first undertaking by reason of another and quite opposite compulsion toward which they find themselves irresistibly attracted. In a word, for the action which they wish to perform there is substituted an apparently irresistible impulse to do the opposite action. "I feel myself drawn toward the action that is the contrary of the one I desire. I feel as if I wanted to do the opposite of what I wished to do. I cannot make head or tail of it." For example, when in the act of praying, they have an impulsion toward blasphemy, and, like Bunyan of old, they take hold of their chin with both hands in order not to cry out horrible things against the Lord Almighty. A certain mother cannot undertake the toilet of her little child without an irresistible desire to cut him, to boil him in a kettle or drown him in the bath water. One of the most important among these "reversals of sentiment," is that which transforms love into hate. This reversal unless I am very much mistaken, plays a large part in the establishment of the ideas (*delire*) of persecution. In my last book dealing with Psychological Medicine, I cited several observations where the patients began by having manias and obsessions of love with respect to persons in their own family, and then had compulsions and obsessions of hatred toward that same person. This sort of reversal plays a great part in the supposedly sexual impulsions of this "scrupulous" group of patients.

An interesting patient whom I studied at length in this last particular, and of whom I will speak to you now, and whom I have described under the name of *Hermione*, is an unfortunate mother of a family sorely tried by the death of her two sons, killed in the war. In her grief she turns with more fervor than before to religion and to good works. She wishes to suppress the bagatelles and trifles of life and to renounce the joys of love which seem unfitting to her age and to

her mourning. She wishes no longer to interest herself so much in her relations with her husband, and forms the resolution of becoming less joyous, less amiable with other men. Puerile resolves, no doubt inspired by grief and entertained by her without suspicion of their danger. Now every time that she goes to a place where there are men, in the drawing room or simply in the tramway, she feels, to begin with, that her attitude is not decorous and she "understands" very soon why this is: because she experiences a violent sexual desire for one of these men. She knows not which. She wishes to provoke him, to touch him. She experiences the Orgasm even in her genitalia and she is horribly oppressed by these sensations and these temptations which she had never experienced before. These inverse impulses may give rise in certain cases (like that of Sophie of which I spoke to you in Boston) to the actual execution of the antithetical act. Sophie who had a mania of cleanliness ends up in her delirium by reaching the most extreme degree of uncleanness. In certain "deliria" of persecution the sentiment of hatred which replaces love can become dangerous, but from a practical standpoint the actual carrying out of this sort of impulsion is rare. In order to reach this extreme it is a first condition that the patient should have become deteriorated to a considerable degree of inferiority and that he should crystallize into some concrete form of resentment the obsessions which were developed — by whatsoever psychic mechanism — at the higher intellectual level. Most commonly then, these supposed impulses are in no way carried out; they remain simply obsessions which rise at every occasion as soon as the patient wishes to carry on some proper activity. Nevertheless, it is difficult to understand the genesis of this contrariness which, the patients contend, impels them to desire the action opposed to their real wish. Still, we can conceive of various mechanisms which are analogous to this transformation. When one is struggling valiantly against one's enemy, one considers him to be powerful according to the amount of effort one is expending against him. These patients, who are preparing heroic struggles against their concupiscence, not unnaturally imagine that they have, at the start, a marvelous degree of lust to overcome. To express the matter differently, the patient is in (exaggerated) fear of what he may do; he steps aside from the (innocent) act in question and recoils from it as far as possible — right over to the opposite extreme. In final analysis the patient has likened his own (proper) act to some crime. Then as he continues to desire the original act it follows that his

desire extends also to the crime. This still comes under the formula of the transformation of the act, or wish for it, under the influence of the fear of the act, whereby the harmless act takes on the most terrifying form, namely of the extreme opposite.

However that may be, these divers sentiments of sacrilege, of immorality, of temptation to conflict with each other, bring about defense reactions all the more violent as the fear becomes greater. Hence the patients impose upon themselves sanctions in the form of compacts, reparations, covenants. But a more serious symptom at this point, is the wish to suppress the activity which offers itself under an aspect so distasteful. This entails two species of outcome according as the patient wishes to suppress the first act which is the innocent one, or whether he wishes to express the second antithetical act toward which he feels himself so violently impelled. The patient struggles against either one or the other, he makes desperate resistance against those who seek to make him accomplish an action. Sometimes the situation is even more strange and the patient not only suppresses acts of his own, but wishes equally to oppose the activities of others. I have described in one instance a most unhappy family in which it was impossible to eat at meals anything but bread and cheese because the young girl forbade all cooking and lighting of the fire. The conduct of the patient may become more and more disturbed, not only by the growing constraint and incapacity for action, but also by active opposition and resistance to specific activities. The repression (*refoulement*) of action which plays a considerable rôle in these disturbances is not at all an expression of moral habits, nor is it the starting point of the trouble. It is itself a consequence of the disturbance in the power of action and a manifestation of what we have called the fear of action.

III

Can we not broadly survey these facts and seek to comprehend this fear, this repulsion in the presence of the tendency to perform an action, at the moment it begins to activate itself. Now this commencement of the activation of a tendency gives rise in the normal man to the sentiment which we call the desire of fulfillment. Why then should something else develop in the form of a fear in place of that desire? To understand this peculiarity we must remember that the alteration of the emotional tone of the given action, or the sentiment which accompanies the activity, depends upon the energy and

upon the psychological tension with which we accomplish the action.

In a normal activity the strength or energy mobilized to fulfill the tendency is sufficient and even superabundant; thus the action can be accomplished even under the most uneconomical use of one's superior powers and still there remain unexpended sources of energy which overflow into outside channels and enhance the sense of ultimate achievement. That is what we refer to as the sentiment of triumph and as the joy which accompanies well-performed action. This sentiment of satisfaction concerning the performance of an act exists from the very beginning of the act. For the first preparation of the tendency to action, which I have called the setting up of the tendency, takes a form that is enjoyable and which is in the nature of the state called interest. The commencement of the activation (which is the stage at which the action takes on a form sufficiently characteristic to be consciously recognized) is linked to an anticipation of the enjoyment which the act will procure; in other words this is a desire. Finally the elaboration of the act, even if it is difficult and demands an effort, brings about the hope of success and the assurance of accomplishment. At all these stages of the activity there is a favorable emotional tone. If the force which remains at the disposal of the tendency in question becomes lowered considerably, and is a residue only just sufficient to defray the costs of performance of the higher levels of behavior, but without superabundance, without advantageous outflow toward other tendencies, without bonuses, as it were, the act may still be normal in appearance; but there is no sense of triumph, no interest, no desire, and no passion of accomplishment. The performance of the act will be a drab and indifferent affair.

Suppose finally that the forces at the disposal of a given tendency be frankly insufficient; the activity will then be executed with parsimony with a sort of avarice and it will take on very distinctive features. The superior degrees of the activity will not be attained, nor will the patient reach any degree of reflectiveness or rationality; it will be necessary that the performance take the form of a simple act of will, without intermediaries possibly under the form of a mere perception or reflex action. Now it happens that an act of this character, in the case of a man accustomed to what I call the superior forms of activity, is as painful as to lie upon the bare ground when one is used to a good bed. An act which has completely lost the quality of reflectiveness loses the essential earmark of security to which we are accustomed.

It is as if we were required to walk on dangerous ground with the eyes closed. What is more, this act strains our resources, depletes the stock of resources allotted to the other tendencies and other activities, thus compelling us to restrict the sphere of activities which we otherwise could carry out in their superior form with a little reflection and reasoning. In other words an act of this sort which exceeds at a given moment the resources of our spirit, brings into prominence our poverty of mind, and exposes us to further miseries.

It is as if the mentality were required to possess a certain fortune. There are such things as psychic riches and mental wealth and both psychologists and physicians must know how to determine the assets of a mind. Well, in the case which we are now considering, the credit balance is very bad and the mind is up against bankruptcy. The mind is afraid of this bankruptcy more than of the loss of a material fortune; so an act of any sort which can precipitate our final bankruptcy provokes a movement of recoil and a reaction of defence.

Is it exact to say that the action in question presents itself under the aspect of danger and of pain? Not precisely, for the actions which are painful or dangerous are normal performances which we have sometimes accomplished successfully. It follows that the act under consideration is one which one would not, normally, have accomplished, inasmuch as one has not already gone through complete bankruptcy; thus the contemplated act is bereft of normality and seems strange and fearful, without, however, the patient being able to lay hold of any exact reason for so regarding it. It is at this moment that there arises the flood of comparisons, of metaphors that figures so largely in the expression of the sentiments aroused by the act, which has come to be extraordinarily odious, sacrilegious, vile, criminal, or contradictory, and which thereby gives birth to all the reactions of repulsion and to all the delirious interpretations.

In sum, I am disposed to believe that in all these curious disturbances we are always concerned with mere depressions of activity, more or less profound, either involving the mind as a whole, or bearing down upon some one tendency or group of tendencies. The energy of performance being diminished but more especially the tensional level being lowered, the process of activation can no longer attain to the superior forms of behavior. In order to give study to this interpretation it would be necessary to analyze more fully the individuals who present these fears of action; we should observe their sentiments with due regard to the accompanying signs of psychological depression.

We should take heed of the fact that the phobia of action does not make its appearance in the most inferior type of mental activation, as in the *délire psychasthénique*, but that such fears are manifested only when the subject is seeking to energize his performance under its higher form; thus, acting at a level of expenditure too costly for his budget of available resources. Likewise, we should ascertain the conditions under which these phobias of activity appear as a sequel of exhaustive states following that fatigue and those emotions which undermine one's psychological prosperity and depress the tensional level of the mind. A further step would be to gather all data as to whether the fear of activity and all the disturbances that flow therefrom can be made to disappear by means of repose, by hygienic measures, by all the stimulating procedures that aim to replenish the wealth of mental resources.

We here enter upon such protracted studies that it must suffice me to have indicated to you my own interpretation. This has the advantage of bringing into unity a number of scattered phenomena and of pointing out a path for fertile investigations.

SOME NOTES ON THE STAMMERING PROBLEM

BY RALPH REED, M. D.

CINCINNATI, O.

EARLY in my work in the field of psychoanalysis, I felt that if a few stammerers were studied intensively by the psychoanalytic method, the solution of the nature of this difficulty would be readily arrived at. I still believe that psychoanalysis will answer many questions with regard to stammering, but I do not believe that it solves the problem of this disorder in anything like the complete and clean-cut way in which it has succeeded in solving the problem of many of the other psychoneuroses.

I have now investigated in greater or less psychoanalytic detail, some twenty cases of stammering. The most striking thing that to me was elucidated, was the fact that a series of stammerers will eventually contradict almost every theory that has ever been set forth, with regard to the nature of this disease. I believe that there have been more absurd and illy digested theories of stammering set forth, than with respect to almost any other psychoneurotic disorder. I studied Bleumel's *Stammering and Cognate Defects of Speech*, very carefully years ago, and found nothing in it of any value to me whatever. I can say the same of practically every theory of this disease that has been since advanced, including the work of both Swift and Scripture. I am unable to find that stammerers invariably possess what has been described as the stammering monotone or that their auditory memory or power of visualization is defective or that they were born left-handed and had been trained to use the right, etc. The best summary of the stammering problem, I have yet seen, is Coriat's *Stammering as a Psychoneurosis* (*The Journal of Abnormal Psychology*, February-March, 1915).

Every stammerer certainly suffers in some degree or other from an inferiority complex, but to say this is not saying much. The mere discovery and confrontation of the patient with his inferiority complex will accomplish but little. Sometimes this seems to be the result of the stammering alone, or again it rests upon unconscious fixations that it is the duty of the psychoanalyst to unearth. Not every stammerer has been teased or made to feel humiliated by his defect; at least I have seen several who have insisted that they never suffered in this way.

A few other facts with regard to stammering that are infrequently, if ever mentioned, may be of some interest here. Stammering does not invariably begin after the age of five or six. I saw one case in a child of three who had stammered persistently ever since she began to talk. Stammering constantly tends toward spontaneous recovery;¹ one rarely sees a stammerer older than thirty or forty; it is essentially a disease of adolescence. I have never yet seen a stammerer who invariably stammered on a limited and definite number of consonants, or as some prefer, vowels. A stammerer may stammer on any word or at any time. As most every one knows, stammering varies greatly on different days, even from one hour to another, but I have noted the peculiar fact that there are often certain subjunctive clauses coming in the course of a stammerer's conversation, which are spoken easily and readily. The cause of this will be later commented upon. I have not even found that a stammerer will constantly speak worse to strangers and better to friends, worse away from home and better at home, or vice versa, yet the intensity of the stammering seems to vary in the most unusual and extraordinary ways. Another point may be of interest here, as having a bearing upon what I shall later say as to the causation of stammering, and that is; if at the time of speaking an effort is required of the stammerer in some other direction than speech, he will usually speak better. If, in reading, the attention can be partially directed away from the word or phrase immediately being read, he is much more likely to read it without stammering. This is one secret of the improvement secured by stammering schools that inculcate a change of voice tone or rhythm. The attention of the stammerer is merely diverted to some extent from the essence of speech, to some secondary factor.

Of course, most stammerers can sing and speak to rhythm. I have more than once, on the first interview, considerably impressed patients by asking them to talk with the rhythm of a metronome. Frequently this is a discovery to them, as they had not previously known this to be possible. But as some one has aptly put it; the stammerer cannot go about for the rest of his life, beating time to his conversation. I may say that I have tried various methods of correcting stammering by rhythm, change of modulation, etc., and nothing now remains except to condemn them one and all, absolutely and com-

¹ Individuals who have stammered will usually rationalize their recovery. They attribute it to one factor or another, sometimes their own "will power." I believe that actual attainment in other directions has the most important influence.

pletely. It may be well enough to remark here that in my opinion, the one thing to avoid in treating the stammerer, is the directing of his attention in any way whatever, to his speech per se.

After all, there does not seem to me to be any profound mystery in the stammering problem. Of course, as every one knows, the stammerer can speak as well as any one else, as is evidenced by the fact that very frequently he does speak with ease and fluency. Stammering is not essentially a speech defect at all, any more than writer's cramp constitutes an essential deficiency in the ability to write. The only reason that the stammerer does not recover with the same readiness that the victim of writer's cramp recovers, is because he cannot, as the patient with writer's cramp can, forego the effort to speak for a sufficiently long period of time to give him the opportunity of regaining his speech confidence. But this is not to say that stammering is alone a mere habit fear. It is very much that, to be sure, but it is also a true anxiety neurosis, dependent upon a complex group of unconscious factors.

The essential physical mechanism of stammering, I believe, is nothing more than an undue amount of energy overflowing into the muscles of speech. If I attempt to pick up my pen from the desk, it is obvious that if I do not put sufficient energy into the muscles of the fingers and hand the pen will fall from my grasp. It is equally obvious that if I put forth too much energy the hand will become cramped and something in the nature of a spasm be manifested. The exact amount of energy necessary to speech is much more subtly determined than in grasping an object. The same thing happens in writer's cramp. This also explains why the stammerer frequently can whisper, but cannot speak in an ordinary tone. He simply over-energizes his speech. This is why, if some of this energy can be diverted, he can speak with freedom; and why, with subordinate clauses or inconsequential remarks, he is much more likely to speak with ease; and again why, on talking over the telephone or giving his name, stammering is more pronounced. The more important the thought he desires to utter, naturally the more certain the speech defect manifests itself since he, because of anxiety, directs more energy toward the physical mechanism of speech.²

² Since writing the above a woman aged 48 has come under my care suffering from a complication of nervous symptoms. She has a marked winking tic. From the age of eight to eleven, her mother informs me, she was a bad stammerer. Her parents "broke" her of the habit. But immediately the tic developed and has remained with her ever since.

As has been previously noted, stammering seems to possess many features in common with writer's cramp, blushing neurosis and other situation phobias. The next related nervous state, to the former, is any excessive reaction in the presence of strangers, in the simplest form, ordinary bashfulness. This frequently is manifested in such an extreme degree as to constitute a true psychoneurosis. We thus see that we can trace a red line of relationship from stammering through several types of psychoneurosis, to the simple bashfulness so commonly observed in children.

Writer's cramp may be regarded as resting upon the same general basis, although I have no doubt that at times it may be traced to some specific inhibition to writing itself. In a recent case I analyzed, I found the following series of incidents that preceded an attack of telegrapher's cramp. I was not consulted for the relief of this condition, as it constituted a bit of ancient history in the case. This man remembered a very vivid dream that he had had during his adolescent years. It showed clearly a marked castration fantasy and after waking, it was some time before he could convince himself that this had not happened to him. Some years later, after an abdominal operation, when he came out from the anesthetic, he thought that his right hand had been amputated and insisted to the nurse that this was the case. She held his hand before his face and attempted to convince him that this was not so, but it was several hours after waking, before he could convince himself. Some time following this, while working as a telegrapher, he fell asleep late one night and had the following dream: He thought that a dog had bitten or scratched a hole clear through the palm of his right hand. He awoke with a marked feeling of anxiety. Thus it can hardly be doubted that the telegrapher's cramp which developed very soon after that, had for its origin a definite right hand association. Thus stammering; writer's cramp; telegrapher's cramp; piano-player's cramp, morbid blushing and even tic, would seem to be related.

However, I do not believe that all cases of writer's or telegrapher's cramp would admit of any such specific analysis, and I believe that we can easily concede that an habitual speech cramp or spasm might have an even more general origin, since speech constitutes a more nearly complete expression of one's whole personality.

Might not any factor tending to produce an inferiority complex or an introverted attitude, favor the production of the stammering psychoneurosis? I have investigated carefully, the ordinary early

possible associations and fixations one might naturally suppose would be productive of stammering and so far, I have been unable to trace any particular stammerer's difficulty to any special incident.

For instance, the chance that stammering represents an inhibition against the utterance of obscene words, or that stammerers as very young children might have been over-corrected on the occasion of an indulgence in obscene language, or have had their mouths washed out with soap and water, etc., — no such incidents have been found in any of my cases. Neither have I found any word association, such as the name of an individual member of the family, or childhood associate connected with sexual incidents productive of types of early neurotic fixation resulting in a tendency to stammer on the same letters with which these names began. But Coriat relates what seems to be a rather convincing case of this sort.

I believe it is difficult to note the continued improvement and cure of stammering, while the patient is under treatment. The simple reason for this seems to be that the treatment itself, because of the very fact that the patient knows that it is being taken for the cure of stammering, draws sufficient attention to speech itself to prevent a recovery.

Speech is largely emotional in origin and essentially automatic, and hence, like other automatic actions, is carried out with the greatest facility when the attention is distracted to something else. We talk best when we are thinking clearly and accurately of what we want to say, rather than when we are confronting ourselves with how it is being said. This is the stammerer's barrier. He can never forget, consciously or unconsciously, what he considers to be the necessity for speech effort. A million associations with speech failure have determined this. Now one or two observations on therapy.

There seems to be a general conspiracy to impress the stammerer with the seriousness of his disability. This, I believe, is a grave mistake. Compared to many other disabilities, even to other psychoneuroses, stammering does not constitute the serious disorder that stammerers are led, in many ways, to believe. One of the first steps in undertaking the treatment of a case of stammering, must therefore be the elimination, as far as this is possible, from the mind of the stammerer of all concern with regard to his speech defect. I usually spend one or two hours on this point alone, in beginning treatment. I always insist that he must not expect an early cure. This, I believe to be very important. If the stammerer is constantly looking for improvement,

to that degree his attention is being constantly directed toward his speech. I tell him that when the treatment is ended, there will probably be no special change whatever to be noted in his speech. It will be readily seen that this is a decided about-face from all so called therapeutic suggestion. In fact I go even further and attempt to assist the stammerer to a state of mind toward his disorder, wherein he becomes *utterly indifferent as to whether he ever recovers or not*. It took a number of failures and merely partial successes, in the treatment of stammering, to bring me radically to this point of view. I attempt to inculcate the idea with the stammerer that his stammering, after all, is of slight consequence, that it troubles him much more than it does any one else and that no matter what calling in life or ambitions he may have, he need not fear that the stammering will interfere in the slightest with their attainment. I cite incidents of men of marked prominence and success, whom I have known, who were stammerers. After a few interviews, my patient is usually able, with a fair degree of success, to accept this point of view and I may say that the attitude of confidence and freedom gained, constitutes in itself a marked relief of his previous feeling of inferiority and distrust of himself.

These preliminary steps having been taken, it next becomes necessary to point out to the patient that the stammering is probably nothing more than merely one symptom of a general neurotic and introverted personality, that should be corrected and that it is this, perhaps as much as the stammering in itself, that has held him back from the attainment of his ambitions. This prepares his mind for the general psychoanalytic investigation that should follow. When this is undertaken, it will actually be found that the stammerer often preserves many types of infantile reaction and that his relationship to some member of his family is not truly normal. I often find an older brother, or sister, or father, or mother who is still dominating the patient to an extreme degree and, therefore, he has never succeeded in attaining complete adult expression, but is still infantile in his feelings and reactions toward the other individual. This usually tends strongly to maintain his general inferiority complex.

With respect to the dominating individual, imitative factors may enter. For instance, in one of my cases, a girl of twenty-two had always been made to feel very inferior to an older, prettier and more socially successful sister. At the same time, all of her ambitions and longings for freedom were markedly restricted by a narrow and puritanical mother, who prevented all self assertion that the older sister

did not prevent, and did all she could to keep this girl a mere child, without initiative or will of her own. The mother had the most intense and rapid manner of speech that I think I have ever listened to.

Although this case had a very intensive analysis, she showed but little improvement until she acquired the strength of will to break, amicably but completely, with her family and accept a position in a city that was as far away as she could get, from the city in which her family resided.

The psychoanalysis having been concluded, the patient is dismissed without further reference to his speech and told to report in six months or a year. By this time, new adjustments should have been effected and a definite improvement is usually to be noted. The patient has ordinarily lost all interest in his speech disability and is not tempted to further efforts at cure, such as the patronizing of advertising stammering schools or other psychological quackery.

Thus the conclusion of the whole matter, to my mind, is simply that the problem of stammering will admit of no special solution, but must be worked out on the basis of each individual case; with special reference to the thought that all attention directed toward the speech mechanism in itself is definitely contra-indicated. This at least eliminates one hundred and one foolish and futile theories of stammering therapy.

THE MECHANISTIC FEATURES IN THE DREAM PROCESS*

BY LYDIARD H. HORTON

THE recent unusual increase in the literature of dreams suggests to me that it would be apposite to summarize the mechanistic theory of dreams contained in a series of my papers published in *THE JOURNAL OF ABNORMAL PSYCHOLOGY* from 1914 to 1920.

A glance at the history of psychotherapy in this country would explain somewhat the vogue of the *symbolological* explanations of the dream imported from central Europe.

The decade from 1910 to 1920 has witnessed the expansion of the Psychoanalytic Movement in America. It need hardly be said that this movement is essentially a therapeutic one and that it took up the functions in America which had hitherto been associated with the Emmanuel movement, with New Thought and more broadly speaking with Christian Science. Psychoanalysis differed from these other movements in the vast body of scientific doctrine, or (as some would have it) dogma, with which it surrounded the practical workings of the psychoanalytic method. As a matter of fact it has been felt by those who are familiar with the history of psychotherapy and the beginning of modern psychologic analysis (in connection with Charcot, Janet and Prince) that the scientific pretensions of psychoanalysts were alluring but that they could not stand up to logical criticism. Indeed it has been said of Psychoanalysis — in its trademarked sense — that it is essentially psychologic analysis with the logic left out. Certainly the nature of the movement as an art of healing did not favor a strict adherence to those principles of scientific experiment and demonstration which at present restrain the spirit of mere speculation in the psychological departments of our universities, and act as a wholesome repression upon the claims of mental healers to be called scientists.

Conversely, by the very fact of the universities frowning upon the offerings of psychoanalytic enthusiasts there was an actual halt in the effort of making truly scientific studies of the dream process; and I recall the time when it was thought that studies of any depth into the dream were premature, not to say somewhat *infra dignitate*.

It was under these circumstances that it occurred to me and to a

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number of my associates, that something like a standardization of the subject of dream investigation would be desirable. For this standardization we already had a certain background, not necessary to go into here.¹

The outcome was the formulation of the Dream Analysis Record, of which the first four pages were published in 1914. The use of these blank forms since 1911 has exceeded the expectations entertained at the start and has served to bring to light a number of mechanisms in dreams that had hitherto not been noticed by any writers, including the prolific psychoanalysts of the Vienna and Zurich schools.

It seems desirable to give in succinct and almost telegraphic form a statement on the nature of inventorial technique and to mention similarly some of the fruits which it has yielded in regard to a mechanistic conception of dreaming and of similar thought processes.

NATURE OF THE INVENTORIAL TECHNIQUE

The making of an inventory is a simple but careful process of carving up the dream narrative and re-forming it into convenient units. These are formed with a view to carrying on the familiar free association experiment. Fixed units so constituted are maintained throughout the experimental investigation of the dream and the success or lack of success in interpreting the dream is to be measured with due reference to the units originally set down as items to be accounted for. Thus, at the start, we have some indication as to what there is to be done, and some way of measuring what has been accomplished, by counting individual items of set number and character.

In a word, the dream inventory or the inventorial technique is nothing more than a systematic and clean-cut enumeration of the principal elements entering into a given dream phantasy. When we say that it is a clean-cut enumeration, it is relevant to explain that this quality is secured largely by making the inventory something more than a mere catalog. It is, in addition, a classification of the elements of the dream.²

¹ In the first place a psychological analysis of the mechanisms of wit and humor and other products exhibited in Lewis Carroll's immortal work "Alice in Wonderland"; and besides certain investigations of my own in the psychotechnical use of blank forms of report as a means of fortifying the exactitude of method in industrial management.

² Statements to this effect, as well as full illustrations as to method of making inventory, were published in *JOURNAL OF ABNORMAL PSYCHOLOGY* for February-March, 1914, pages 394-404.

FINDINGS OBTAINED BY INVENTORIAL TECHNIQUE

A result of an extensive use of this dream inventory was to show the untenability of the doctrine of symbolism, that is to say, the impossibility of regarding the dream as made up of expressions or utterances of "the Unconscious." There is no "language of dreams" in any true sense. For it was found there was no such constant one-to-one correspondence between latent content of a dream and the images made manifest in consciousness. On the contrary, it was found that there was every degree of variability as between meaning and alleged "symbol" that imagination could conceive. It was found also that psychoanalysts' acknowledgments of this state of affairs were highly inadequate. Far from there being any fast relation deserving to be characterized as symbolism, it was found that very seldom does a given dreamer evoke the same mental imagery in consciousness as an expression of the underlying thought. It was hopeless to attempt even a modification of the Freudian doctrines of Symbolism and Censorship. It was necessary, therefore, to proceed as if the psychoanalytic theories had never been formulated — save that unfortunately it is constantly necessary to pay one's respect, or lack of respect, to dogmatic assertions of psychoanalysts concerning the alleged constancy of certain "symbols" in dreams.

It was found that the Freudian theories were adequate for a limited class of dreams, in which there happened to be a trend of infantile reminiscence and disguised sexual phantasy. As stated in *THE JOURNAL OF ABNORMAL PSYCHOLOGY* (February-March, 1916), they fail to reveal the inner nature of other kinds of dreams or the *modus operandi* of dreaming as a process of thinking.

A new formulation of a mechanistic type was outlined at this time. It took a direction entirely different from that of Freud, as stated in his "Interpretation to Dreams."³

Our own development of the interpretation of dreams has been derived from an intensive study of the dreams themselves, and particularly the dreams of normal people. True, the psychoneuroses obtrude themselves into the course of any large collection of dreams, and similarly by mere force of circumstances, we have had to take into

³ His words may be quoted here in order to indicate the direction from which we have so widely diverged: "I also venture to foretell in what other directions later editions of 'Interpretations of Dreams' in case any should be demanded, will differ from the present one. They will have on the one hand to include selections from the rich material of poetry, myth, usage of language and on the other hand to treat more profoundly the relations of the dream to the neuroses and mental diseases."

account the lapses of speech. But yet, we have not imposed upon our study of dreams the conclusions we might have reached if we had studied merely abnormal cases, nor those conclusions we might so glibly have explained on the basis of selected lapses of everyday life — such as presented by the psychoanalysts.

We have turned away from Folk-lore and Philology to Biology as the only possible corrective of the vagaries of psychoanalytic interpretation.

NATURE OF THE TRIAL AND ERROR THEORY

In other words, we have formed a bio-psychological interpretation of dreams rather than an anthropological one, for we have felt that the foundations of anthropology are still open to reformulation through a more intensive study of the thought processes of Man, and that the dream presents the simplest means of investigating the intimate processes of thinking.

The biological concepts to which we have allied ourselves are those generally referred to in the broad term of Trial and Error, hence the so-called trial and error theory of dreams, which was stated in 1914 at Columbia University at a meeting in honor of Professor Cattell. To him I was indebted for a suggestion that the intensive study of a comparatively limited number of dreams ("the fewer the better") would be more productive and more valid experimentally than the extensive, excursive and discursive studies of psychoanalysts, carried on in connection with their clinical work.

THE TRIAL AND ERROR THEORY OF DREAMS

The trial and error theory is a formulation of principles which describes and accounts for the dream as a process by resorting to the terms familiarly employed in describing the so-called trial and error behavior of animals, now applicable to mental trials and errors, as recently recognized in psychology under the term "trial percepts."⁴ Relying upon these existing concepts for outlining the novelties we have observed in given dreams, our theory of trial and error enlarges upon the trial percepts and ad-perceptive errors. This rounding out of the formulation comprises a re-statement of the principle of apperception, a more definite recognition of the working of

⁴ Ladd & Woodworth, *Elements of Physiological Psychology*, page 594.

the "apperceptive mass," and an extension of the concept of time relations of mental processes to explain definite errors. Time inversion, so-called, is explained as due to ad-perceptive lag. Finally, we allow fully for the biologic principle of Varied Reaction as cutting into the process of apperception or recognition of the stimulus.

The absurdities of the dream are interpreted and explained by special methods which show the operation of the specific factors causing the semblance of trial and error. No preconceptions as to content or meaning or transcendental symbols are imported into this purely mechanistic interpretation which accounts for the dream by expanding the concept of trial and error as obtained from biological science. This tracing of the process in biological terms is known as the *reconstitutive method*, in contrast to the so-called reductive method of Freud and the so-called constructive method of Jung. A comparison of the three methods was presented at Columbia University, April, 1915.⁵

THE RECONSTITUTIVE METHOD

In the language of the paper above cited *the reconstitutive method brings into relief the trial and error character of the dream process*. The organism is shown to have attempted physiological resolutions of "persisting and unadjusted stimulus-ideas." Psychologically speaking, the images evoked in the dream are called trial percepts of the stimulus, or of the idea corresponding more or less closely to the latter. Such "stimulus-ideas" are formed by all possible thought links, not through analogy necessarily but through mere contiguity as the case may be.

This brings into view the aspect of "approximation," which we must in turn define.

APPROXIMATIONS

It is to be noted that in the case of dreams emanating from an external stimulus, there is a progressive approximation whereby the images in consciousness partake more and more of the characteristic features of the stimulus. This is tantamount to a progressive *recognition* of the stimulus-idea (correct-idea-of-the-stimulus), which is supposed to underlie the conscious operations, i. e., to be working

⁵ JOURNAL OF ABNORMAL PSYCHOLOGY, February-March, 1916, Scientific Method in Interpretation of Dreams, page 25.

subliminally as an integrated whole, while dimly adumbrated in consciousness and recognized in a partial way.⁶

Not only the "adumbrations" to a given stimulus, but even the more remote approximations, are taken into the trial and error theory as a new validation of the conception already broached by Galton, in psychology, under the name of Ante-chamber of Consciousness. It is to be supposed that the approximations in consciousness represent a gradual *rapprochement* to the configuration existing in the ante-chamber of consciousness. Biologically speaking, the correct memory pattern of the reaction is subliminally formed, but the corresponding supraliminal recognition-pattern is not formed except under limitations of *reaction time* and of *interference with recall*.⁷ In fine, the dreamer is very much in the position of some one trying to get at a memory that is just below the threshold of conscious recollection — a familiar experience.

The principle of approximations is a provisional one serving to hold in mind the hit-or-miss character of the dreaming consciousness as distinguished from the more accurate subliminal percepts that precede recognition and guide it. It is the most general principle observable in dreams unless we resort to detailed analysis. Its varieties are infinite, ranging from approximation by most exact steps at one extreme, to apparent vagueness or lack of recognition of the underlying stimulus.⁸

DEFLECTION OF STIMULUS

The word stimulus-idea has been employed for temporary expediency to indicate something that lies in the field of mentation or

⁶ An example of "adumbration" is the following: — In the so-called Scratch Reflex Dream a series of images is projected into consciousness under the influence of an actual stimulus, namely the scratching of a mouse's paw on the sleeper's ear. The precursory images (microscope and "slide" exhibiting a supposed "specimen") being dictated by remoter associations of the night previous bear an obvious relation to the stimulus; but it is not long before the dream image of the "specimen" becomes metamorphosed into a design that distinctly shadows forth (adumbrates) the characteristic features pertaining to (a) the scratching movements of a small mammal, as commonly diagrammed in the laboratory, and (b) the actual clawmarks or impressions that a mouse's paw would leave on the skin of the ear.

⁷ Ladd & Woodworth, *Elements of Physiological Psychology*; in the chapter on Memory and the Process of Learning, page 584, and paragraph 31, the case of the Subliminal is admirably stated so far as general psychology is concerned: "*A reproductive tendency may lie below the 'threshold of recall'; or, we may speak of some associations as being 'sub-liminal.' The existence of a subliminal association may be shown in several ways: sometimes by a partially correct recall, and sometimes by the feeling of 'being near' a name which is vainly sought for in memory.*"

⁸ In certain cases the erroneous apperceptions are observed to form a series of approximations to the correct apprehension of one of the stimulus ideas at a time. In other cases *ad-perceptual* errors may take the form of a blended reaction to two or more cues, more or less perfectly achieved.

unconscious cerebration — a thing waiting to be recognized or apprehended consciously. This is not a theoretical entity but appears to be a real neural pattern (active neurogram), and in any case has to be postulated as an aid in reconstituting the dream. Otherwise, it would be difficult to follow the process of *resolution by trial and error*. The biological definition of the stimulus-idea would be as follows: *It is a particular change of configuration in the contours of the neururgic levels (James) equivalent to mobilizations of particular sets of nerve paths, whereby particular groups of neurones are placed under static tension and prepared for conscious recognition.*

The physiological basis of stimulus ideas is of the order of reflex pathways and would be visible under the microscope except for the fact that such is the complexity of the higher neurone paths that it defies the ordinary methods of "localization" and can thus be "localized" in the brain only diagrammatically. Beyond that, however, we can localize the "experiential regions" very accurately. *Stimulus-idea* is a term that refers to an unquestionable operation in what is sometimes called the Subliminal Mind, the Secondary Self, but for which we prefer the term Automatic Self as indicating the mechanistic nature of the subliminal process in the formation of *stimulus ideas*.

PERCEPTS OF AUTOMATIC SELF

The reconstitutive method as applied to dreams, requiring as it does the tracing of waves of nervous excitation from their experiential source, has compelled the recognition on our part of the presence of the stimulus-idea, in a vast number of cases, under the form of a pre-existing reality to which the conscious recognition comes as a supplementary event after perceptual trials. We call these *ad-perceptual* reactions, signifying they are sequential to percepts. These perceptions have forced us to fall back on the assumption of Aristotle that an "idea" may exist in the back of the mind before it is recognized. This is demonstrated a hundred times over in the course of more than twice as many dreams.⁹

⁹ Lest this result of our investigation should appear to be a gratuitous assumption, we refer the reader to the statement of James touching upon the nature of the automatic self and its capacity for carrying on perception and reaction. "It is a familiar fact that certain subjects when told during a trance to perform an act or to experience a hallucination after waking, will when the time comes obey the command. How is the command registered? How is its performance so accurately timed? These problems were long a mystery, for the primary personality remembers nothing of the trance or the suggestion, and will often trump up an improvised pretext for yielding to the unaccountable impulse which possesses the man so suddenly and which he cannot resist. Edmund Gurney was first to discover by means of automatic writing that the secondary self is awake, keeping its attention constantly fixed on the command and watching for the signal of its execution." James Psychology, Vol. I, page 208. Henry Holt, N. Y.

The term *stimulus-idea* thus constitutes an acknowledgment of the fact that a certain automatic marshalling of ideas takes place beyond awareness, in the ante-chamber of consciousness, before they are admitted to what Galton calls the presence-chamber of the mind. The reconstitution of a dream is the description of the events that have led to the subconscious arousal of percepts and the tracing of subsequent reactions which lead to a conscious ad-perception. The term stimulus idea refers to a fact of gross observation rather than to a detailed mechanism.

This takes us to the "resolution of the unadjusted." A stimulus idea may be fully formed at the subconscious level of nervous excitation and persist as such in the ante-chamber of consciousness. At the time of going to sleep the general level of excitation may be lowered and what was in the ante-chamber may reveal itself in the presence-chamber. That is, the full mobilization of the stimulus-idea, namely to the point of not being merely an automatic percept but becoming a conscious ad-perception will take place in sleep as a result of a shift in neururgic levels, permitting the subconscious percept to emerge into consciousness.

Nerve channels for a given stimulus exist by reason of the previous formation of automatic percepts. Therefore the excitation from most stimuli passes on to a definite pattern (neurogram) already formed by the experience of the subject. In some cases, however, there would be no existing equivalent for the stimulus and no formation of an automatic percept, which would embarrass further the lagging process of recognition. This constitutes a slight exception to what we have said about ready-made percepts in the ante-chamber of consciousness.

READY-MADE FEATURES OF PERCEPTION

Qualifications concerning the process of the "resolution of the unadjusted" cannot be given here in full, owing to the absence of specific examples. But the Scratch Reflex dream illustrates the resolution of an unadjusted stimulus idea (scratch sensation), which no doubt was correctly formed in the ante-chamber of the dream consciousness, although only tentatively recognized in the development of the dream. There is great danger in attempting to theorize about resolution in the absence of specific cases. Suffice it to say here that the results of the reconstitutive method justify us in stating that *most dreams, if not all, represent a trial and error method of working out a*

reconciliation among more or less fully predetermined mental tendencies. It is as if the stimulus ideas fully or partly formed in the ante-chamber of consciousness were presented as a problem for solution by consciousness. The "resolution of the unadjusted" seems to require an operation of the nervous system similar to that of an accountant's calculating machine, in which the various stimuli set a mass of rods and tumblers in specific positions so that the final or closing act (of operating crank of the machine) completes the calculus and imprints the total, quotient, or product, as the case may be, upon the paper roll. There is a great similarity between these operations and those which we find in reconstituting dreams, and the time relations are analogous. Conscious recognition or correct ad-perception is thus only a terminal stage.

It takes time to raise into consciousness the image most closely related to the stimulus; this being no doubt due to the passive inertia in the neurograms corresponding to the stimulus-idea. Meantime, during the apperceptive delay, the energy spills over into less appropriate neurograms, albeit they are more quickly mobilized, with the result of evoking bizarre imagery — what we call trial apperceptions.

NEGATIVE RESOLUTIONS

In the case of a stimulus such as a bladder sensation, or a brief sound in the sleeping room, or some perseverating thought, it is quite obvious that positive resolutions are not always necessary and do not, as a matter of fact, show themselves in the majority of cases. That is, the resolution of the stimulus idea does not result in a positive recognition of the nature of the stimulus, as it did in the case of the Scratch Reflex Dream. On this point I said in the paper on Scientific Methods in Dream Interpretation, "the resolution of the unadjusted is complete so soon as the stimulus is drained off, redistributed and automatically absorbed as in the case of mechanical 'lost motion.' A useful and intelligent solution is by no means requisite; mere rambling often suffices."

DEFLECTION OF STIMULUS

The reconstitutive method brings into light our theory that every apperceptive error or trial apperception involves a definite and distinguishable diversion of the stimulus from the normal straight path of recognition. For instance, the recognition of the scratching sensa-

tion on a dreamer's ear is definitely deflected into other channels than the right one by reason of there being open canalizations of memory (or ad-perceptual mass) which attract the impulse to themselves in preference to the normal course of association. In hundreds of cases we have found that the so-called "symbols" of dreams can be explained experientially by reference to known stimuli and *facilitations*, and that these can be given definite expression in diagrammatic form, thus removing the question of "symbolism" from the realm of mystical faculties and transcendental memories.

It is as unnecessary to postulate a special symbolising faculty in the dreamer's mind as it would be to suppose that rays of light have a will of their own to be deflected when passing through a lens of a given shape. We have found in practice that a definite trajectory can be plotted for the rays of association and that the process of dynamic conveyance of excitation from one set of nerve canalizations to another can be brought out by diagrams in relation to the various stages or zones of neurographic operations.¹⁰ What is more, the cerebation in these zones can, in favorable cases, be observed and mapped out so as to lay bare the whole process of dreaming.

AD-PERCEPTUAL MASS

We will use the term ad-perceptual mass to represent the canalizations which come into play before the percept reaches consciousness. This replaces the term apperception which throws us back on older formulations. Our concept is not radically different from the older apperception, but it refers more particularly to those systems of canalizations in the nerve mass which deflect the stimulus from its normal course after the percept has been aroused in the perceptual centers. Anatomically, it suggests the nerve patterns connecting two well-known centers such as the visual area in the occipital lobe and the so-called visuo-psychic area with other more ramifying nerve tracts which pass to various centers of the brain. Experientially, the reconstitutive method brings to light delimitable and definitely assignable ad-perceptual masses so that the course of the stimulus from an inferred percept or experience can be diagrammed with surprising accuracy. *We can localize experiential regions.*

In view of the experience which we have had of this fact, year after year since 1909, it appeared reasonable to publish a hint of this

¹⁰ To wit: the stigmatic zone between the sense organs and the perceptual center. The perceptual zone where the percept is elaborated by formation of nervous patterns. The adperceptual zone where psychic elements of a conscious type are brought into play.

fact in 1916, in contradistinction to the notion that Professor Bergson had expressed (from a different point of view) to the effect that an act of recollection involves the whole memory. On the contrary, we found in dreams as well as in waking life that the ranging of the mind is not unlimited and that while the dream does ramble "about Robin Hood's barn," nevertheless it does tend to narrow to a real point of relevancy. Our experience led us to regard Professor Bergson's whole view of "mental effort" in association as a conception allowable only on the ground that it was a useful *façon de parler*. Although his essay was not written from the standpoint of experimental psychology, he nevertheless included in it some features which fit perfectly with our own thesis, that is, he recognized the principle of what Lewis Carroll called the *portmanteau word*, which is "two ideas in one word." For he cites experiments of Goldscheider and Mueller, and Munsterberg which foreshadow strongly the mechanisms which we have repeatedly found in actual dreams. Also Bergson develops a physiological notion of *facilitation*, speaking of the more or less tension and readiness of ideas in the brain to react. But, curiously enough, he is not one of those who have realized that *facilitation* also implies a disturbance in the *time-relations* of mental phenomena. And he has made nothing of the phenomenon of apparent *time-inversion* which stands out as a challenge to any thorough-going theory of dreams.

TIME RELATIONS

As early as 1910 we had occasion to remark in the seminar of Professor Cattell at Columbia University, that it was sometimes easier to tell a dream upside-down than to relate it from its natural beginning; and further, that this reversal seemed to cause no confusion in reaching an interpretation.

It was some years before the cause of this paradox dawned upon us. It would seem that the course of the average dream (say 75% of dreams, excluding hypnagogic hallucinations) represent a *rise* of tension in brain patterns which is progressive and is apt to be a sharp stepping up of the neururgic levels. Sometimes indeed the stepping up is very easily observed from internal evidence of the dream, which becomes divided into *acts* separated, as it were, by a drop of the curtain — meaning simply a moment of blankness. In such cases it is found that there is a progressive increase of relevancy to the underlying "determining tendencies" (Titchener) or stimulus-ideas. Examples of three-act dreams with two "breaks in the dream" (scene

shifting phenomena) cannot be given here, because such dreams are necessarily long, either in the narrative or in explanation thereof. But we can allude to our experience with such cases, making much more pointed than otherwise the statement that *one can definitely explain the gradual increase of relevancy*, almost as if a charade were being acted in the different sections of the dream. At first the answer is vaguely sketched, then more definitely so, and finally, (as if in despair of the audience's intelligence), the stage manager of the dream presents additional clues. Sometimes the last scene would stand on its own feet without assistance derived from first and second, but when one takes all three, the co-relations are extraordinarily suggestive. They are so suggestive as to amount almost to Euclidean demonstrations of the meaning-values underlying the dream.

Seeing the definiteness with which the succeeding sections of a dream may build up a meaning, we took advantage of this sort of Euclidean proposition for simplifying our dealings with dreamers, in cases where their modesty, or sense of delicacy, might be offended with too raw discussion of moot points, especially when we were not sure of being on the right track. To explain: the definiteness of the dream interrelations permitted us to draw corollaries from the main proposition and choose the topic of that corollary. For instance, take a typical Freudian dream, that of a Viennese Jew; there was a mass of ill-related images which indicated a sexual stimulus idea, mixed up in a comparison between the dreamer and his brother-in-law. There was a final scene of the brother-in-law pushing one of those tube-set chandeliers to the ceiling. We inferred an anxiety regarding birth control, so we simply said, "Your brother-in-law can afford to have children!" We secured an immediate hit, which then justified us in disclosing the main proposition from which we had inferred the economic prosperity and sexual freedom of the brother-in-law. It was found then that the dreamer's symptoms were all related to interruptions in the marital relations due to economic reasons. He could not go as far as his brother-in-law.

Numerous successes of this sort led us to attach importance to the signs of *progressive relevancy* in dreams and to study more sharply the principle of approximation. This is how we came upon the mechanism of time inversion.

MECHANISM OF TIME INVERSION

The internal evidence of dreams frequently shows that, at the

beginning, the dreamer's range of thought is excursive and that later it settles down to a more definite line, as indeed is the case in the Scratch Reflex Dream. The reason for this lies in the fact that the stimulus, whatever it may be, is attracted to the already facilitated portions of the nervous network. Thus the facilitated portions of the nerve web tend to be discharged first, although in the meantime the stimulus may have aroused the proper perceptual center.

We have to conceive of two types of sequence; the travel of the wave of excitation from point to point, from one island of memory to another, as it were, and, secondly, the excitement or mobilization of the inhabitants of those islands. To vary the metaphor, we could conceive of the matter in terms of Paul Revere's ride as he dashes from the Old North Church and rouses the people. Their excitement depends to be sure on his shouting the news but before they get under way to mobilize themselves Paul Revere has ridden on. Now in his course to Lexington and Concord he may encounter a group of citizens already prepared in a military sense, in other words *mobilized*. They will thus reach the field of action much more rapidly than the citizens who are taken unawares. This is essentially the basis of time inversion. The facilitated portions of the brain react first although they may be stimulated last. To cut a long story short, the fact that a dream represents a wave of brain change traveling from point to point and exciting particular patterns in the nerve web entails inevitably a paradoxical disturbance in the time relations, as regards the sequence in consciousness. That is, unless optimum adjustment of mental tension is maintained — which is not usually the case in sleep.

In analyzing a dream we can forget the question of spatial brain localization because it does not thrust itself into our view; but no careful student of the dream can pass by the evidence of shifts in *time relations*. And the more carefully we look at the dream the more fully will the phenomenon of apperceptive lag impress itself upon our judgment as perhaps the leading element in creating absurdities and seeming irrelevancy of the dream.

Now the principle in question is fully set forth in a somewhat condensed paper entitled "The Apparent Inversion of Time in Dreams."¹¹ To attempt any further elaboration of the topic here would make this discourse unduly fatiguing. As it is, we need a few illustrations to come to our rescue. Let me take one from the psychology of linotype operation.

¹¹ JOURNAL OF ABNORMAL PSYCHOLOGY, April-May, 1916.

FREAKISH ASPECT OF ERRORS

While engaged in writing this paper I read on the editorial page of the *New York Times*, July 12, 1921, the following: "I, William Howard Taft, do solemnly swear that I will . . . faithfully and impartially discharge and perform all the duties incumbent upon me as Chief Justice of the United States . . . and that I will well and faithfully discharge the duties of the office on which I am about to *tener*." (Italics mine.)

The intent of the word *tener* would seem to be plain. The average person would think he could guess the word that the linotyper should have managed to register. The victim of the psychologizing habit, however, is obliged to take a second thought. Is not *tener* an old-fashioned word suited to the formulas of ancient legal rites? Shall we go into philology and folk lore? Let us at least give the psychoanalytic type of thought the benefit of the doubt as long as possible. *Tener* according to Murray's Oxford English Dictionary is an obsolete form of the word *tenure*. Certainly this is a very apt word, considering that Mr. Taft is entering upon a new tenure of office. Shall we say that this lapse, or error, is an adumbration of the ancient meaning projected through the ages upon the mind of this linotype operator, whose remote ancestors in the British law courts may be thrilling with satisfaction over the tenure of the chief justiceship by William Howard Taft? Perhaps they are! One might like to so regard it, reminiscing along in the spirit of Rudyard Kipling's story of "Wireless" where the Apothecary is placed in touch with personages of the remote past. "Psychanalysis" is entirely reconciled to this sort of reminiscing. The archaic symbolisms of Freud, the archetypes of Jung, and various other sacred "arcs" or shifting conceptions which cannot occupy us here, all have something of this flavor of mysticism. It means dispensing with accurate analysis from the standpoint of the present day world.

But it is time to stop hitting the psychoanalysts. Let us rather illustrate the opposite of their distinctive methods. We turn to the mechanistic layout of the linotyper's operation. We note that he operates a keyboard with an arrangement of letters somewhat like that of the standard typewriter. In explaining the word *tener* we have only four keys to consider, the three consonants *T*, *N* and *R*, and the vowel *E*, which appears twice. Now we notice that the consonant *N* occupies a solitary position in the bottom row of keys.

E, *R*, and *T* are side by side in the order named in the left top row. A mix-up is very likely to occur under these circumstances since the reaction is not "spaced out" by need of deliberation in shifting the position of hand and fingers. Further we find internal evidence indicating that the finger operating the letter *T* has been facilitated by recent movements, whereas the right hand has been more or less resting. Therefore, when it comes to the word *enter* which is the stimulus idea, *T* gets ahead of the game. *N* slips in after the first *E* as it should, having formed a union at the start of the reaction. In the same way, we may regard the reaction as an inversion between syllable *EN* (represented by *E* alone in left hand) and *T*. Their positions are interverted by reason of the inertia of the letters *N* and *E* and owing to marked facilitation of the letter *T*. Thus the problem of time inversion is very well illustrated.

Examples without end of this sort of interverted reactions can be found in the newspaper, in the lapses of everyday speech, as well as in dreams.

TIME-SEQUENCES IN THE DREAM PROCESS

The value of recognizing the element of time inversion lies in the fact that it leads us to carve up a dream into *constituent reactions*.

We can realize that each constituent of the dream (like letters in the linotype slugs) is operated in sequence from some definite source of excitation or stimulus. The dream is thus a sort of shifting mosaic of elements combining and recombining in a manner suggesting an analogy to a kaleidoscope. But it is not sufficient to look upon such kaleidoscopic shiftings as peculiar to the dream. We ought to learn something from them as to the mechanism of thought.

We should be prepared by the consideration of such illustrations to recognize the influence of mere time relations in creating disturbances of thought. Such examples should warn us by their similarity to other examples in daily life, that it is very easy to imagine a transcendental reason for certain vagaries in a dream even when a simple mechanistic view would set us on the practical track. It is well to bear in mind that the parallel to the inversion of time in dreams is found in daily life under the name of Spoonerism, owing to the amusing interversions of words and syllables for which Dean Spooner of Oxford is famous.

Other mechanisms observable in dreams (but so far not described with anything like scientific definiteness) can fortunately also be allied with the productions of two well-known persons. We refer to Lewis Carroll, the whimsical inventor of portmanteau words, and to

another less literary mathematician, Pierre Vernier, who gave us the instrument known as the vernier scale. We shall invoke the names of Carrollism and Vernierism to indicate some of the effects of *coincidence in time* of two more or less irrelevant stimuli; for coincidence between irrelevant perceptions as well as lack of coincidence between relevant ideas produces equally an effect of irrelevancy and absurdity. Let us note at the start, however, that the special forms, like Spoonerisms, Carrollisms and Vernierisms often produce effects of the greatest degree of seeming aptness, thus masking to some extent the mechanism whereby distortion or shift from true relevancy is produced. For example, there is a well-known Spoonerism: "Excuse me, Sir, I think you are occupewing my pie. If you will come with me I will sew you to a sheet." Again there is the famous portmanteau word of "*frumious*" meaning *furious* and *fuming*. Lastly, for Vernierism we find it a little less easy to obtain illustrations. This is partly due to the fact that the principle of the vernier as a combination of two scales, is but little understood outside of engineering offices. The point is that each of the scales is graduated differently, one will have ten divisions to the inch, and the other will have nine. The result is that there will be *want of coincidence* within each space of one inch, nine divisions of one corresponding to ten divisions of the other. Suppose any two gradations placed opposite each other, then on one scale the ninth division beyond will coincide with the tenth division beyond on the other scale. This implies that the two scales which appear at first to show complete disparity and to be without common denominator, prove on closer analysis to be in coincidence at remote intervals in spite of lacking coincidence, proximately. Now this formula applies exactly to the mechanism of dreams which we call Oniric Vernierism.

ADVENTITIOUS CONCORDANCE AMONG STIMULI

It is found in dreams that when two stimuli are set for simultaneous action, as in the case of (a) hunger, and (b) a screeching sound, there will be a sort of mutual interplay even if the first stage of the resulting dream appears out of all relation to the stimuli.¹²

¹² In the so-called Pantry Cupboard Dream there was this apparent lack of correspondence between stimuli and reaction, and neither sound nor hunger were properly represented in the dream. But on careful study of the dream it turns out the initial irrelevancy of dream is mitigated and remedied in further course showing finally that the two stimuli in question have searched out remote points of connection and that the precursory images of the dream lead up to the mental evocation of images that have definite relevancy to both hunger and sound. What is more, the very first image proves to have had a peculiar relevancy to the appropriate stimulus-ideas. (JOURNAL OF ABNORMAL PSYCHOLOGY, "Irrelevancy of Dreams," August-September, 1916.)

One cannot explain the evident searching out of common points for a *rendezvous* of excitation from the two sources, unless one supposes the nervous system to be provided with a system of graduations in the neurone patterns that permit the finding of a common point, as exactly as in the Vernier. This observation is, in fact, the groundwork for what we shall call the doctrine of unit-concordance; meaning to say that the nervous system tends to take account of units of the stimuli, *not wholes*. To paraphrase an idea of Wundt, association is not between ideas as a whole but between their parts. This is a special doctrine coming within the purview of the doctrine of Relativity as Wundt and Ladd have explained it.

THE TWO UNIFYING DOCTRINES

In order to explain Spoonerisms, Carrollisms and Vernierisms, we have fixed upon two mechanistic formulations. I have personally had to take the responsibility of giving a name to the general results of our investigation of dreams and to connect somehow with theoretical psychology the observations upon dreams which we have so often verified. For on the one hand my associates are not all graduates of psychology but mostly intelligent subjects whom I have led (on various occasions) to observe in dreams what was plain to be seen, if only one approached the matter with plenty of time and gave it plenty of thought. On the other hand, a trained psychologist wants some classificatory guide rope before taking the submarine dive to the bed rock of dream psychology.

To connect up with the dry land of orthodox psychology of association, I called the doctrine that unifies the trial-and-error theory of dreams by the name of Co-relativity. This harks back not only to Wundt and Ladd, but to the general proposition of Herbert Spencer that "we think in relations." It may be summarized in the phrase that *the meaning of a dream image is its relation to other co-ordinated systems of memory and is not absolute in itself, but gauged by the concurrent operations of neurograms at the moment of dreaming*. This will help us to understand the idiosyncrasies of dreams and dreamers quite apart from that elaboration of the principle of the "personal equation," produced by Dr. Einstein under the name of "Relativity."

Further, lest the word relativity should augur an Einstein-like

complexity, I have put in the prefix *co* to indicate the compounding of associations that is revealed by our dream analysis.

CO-RELATIVITY — THE CONCORDANCE OF THOUGHTS WITH EXPERIENCE

In dreams there are countless illusions or hallucinations which can be understood in last analysis only by the doctrine that our perceptions and ad-perceptions are not absolute nor determined by a mystic bond between some vague Past and our present reaction, but are relative to definite elements of memory whose exact co-ordination is the one condition on which the correct and proper response in consciousness will be evoked. Every relevant response has its recipe or formula.

The nature of irrelevancy, therefore, can be explained in terms of Co-relativity by supposing a slight shifting in time relations whereby the co-operation of the component elements of the stimulus is abrogated. Thus we can see that immense departures from relevancy in dreams (although reaching the point of absurdity and nonsense) can be reduced by the principle of co-relativity to a slight shift in the points of coincidence or *rendezvous* in the nervous system. In sleep, this is determined by a *departure from formal arrangements* for (waking) attention to definite stimuli. This in turn we take into our theory in terms of *facilitations* and *apperceptual delay*, which are converse to each other. The principle of Co-relativity bears also upon the bizarre results of stimuli, that normally do not co-operate in a common sphere of influence.

To give examples in full would be to repeat what we have already written with considerable care in a paper on "Irrelevancy in Dreams."¹³ The ordinary doctrines of psychological relativity go no farther than to point out the philosophic importance and real presence in the nervous system of the delicate relationships of simultaneity and of succession that underlie a patent mental state. It is these relationships which we have been able to analyze in their most intimate co-operative or conjunctive aspects and have unified as a doctrine of co-relativity, which comprises a full explanation of the dream mechanisms that we call Time Inversion (Spoonerisms), Oniric Carrollisms, and Oniric Vernierisms.

¹³ JOURNAL OF ABNORMAL PSYCHOLOGY, August-September, 1916. This shows how a sound simultaneously with a feeling of hunger will produce a surprising fancy in the sleeper, of a little boy standing on a chair in front of a pantry cupboard, a situation which at the start seems quite irrelevant to either stimulus but proves to be adjusted with vernier-like accuracy to the demands which these coinciding stimuli make upon the nervous system.

Wundt furnishes an excellent general formula by which one may bridge any gap that there may still be between orthodox teaching about psychological relativity and our general doctrine of co-relativity in dreams. (Outlines of Psychology, pp. 232.)

In parentheses we insert references to our own views.

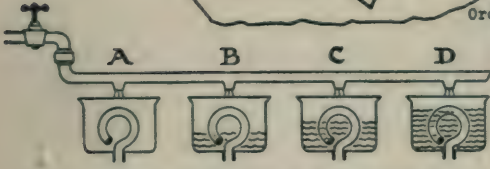
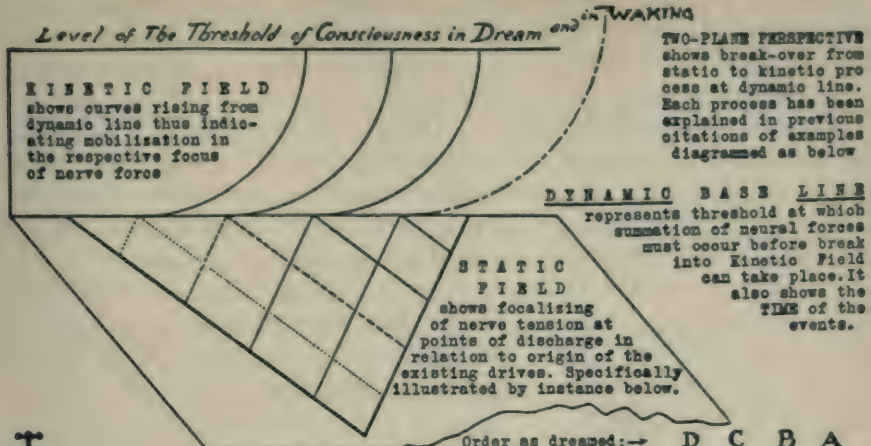
“The interconnection of psychic processes, which constitutes what we understand under the concept consciousness, is in part a simultaneous interconnection, in part a successive interconnection. The sum of all the processes at a given moment is always a unitary whole the parts of which are more or less closely united. This is what constitutes the simultaneous interconnection (Carollisms or portmanteau-words and Vernierisms or remote reconciliations of two stimuli touch this aspect). On the other hand, a present state is derived directly from that which immediately preceded it, in one of two ways. Either certain processes disappear and others change their course and still others arise, (as in the fading of images in a dream to give place literally to other figures) or else a state of unconsciousness intervenes and the new processes are brought into relation with those which were present before. (This fits the “break in the dream” and also a peculiar patching and filling which is clearly shown in dreams as a sequel of the irruption of irrelevant imagery into the dream consciousness; the latter function being a variety — hitherto not described — of disturbed time relations midway between Spoonerism and Vernierism.) These are what constitute successive interconnections. In all these cases the scope of the single combinations between preceding and following processes determines the state of consciousness.”

VALUE OF CO-RELATIVITY AS A DOCTRINE

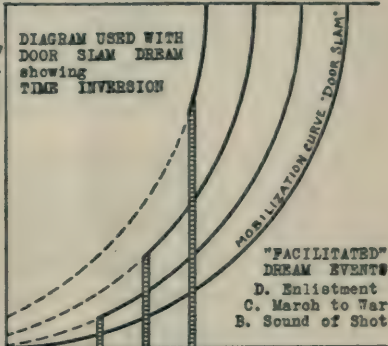
I quote these words only to show that orthodox psychology possesses formulas of relativity that are capable of helping to bring the doctrine of co-relativity, with its specific principles and mechanisms into the common ground of psychology. However, co-relativity concepts are founded, not on such all-too-general formulas as the above, but on highly specific experiences, through dream analysis, of the co-relation of specific points in given dream phantasies with definitely established frames of reference furnished by the life history of the individual dreamer, and a verification of his immediate mental and physical situation.

Thus, the Doctrine of Co-relativity is adequate to clothe with highly specific meanings at least two out of the three principles that Wundt characterizes as “fundamental and general principles of psychic phenomena. These are the principles of *psychical resultants*, of *psychical relations*, and of *psychical contrasts*.”

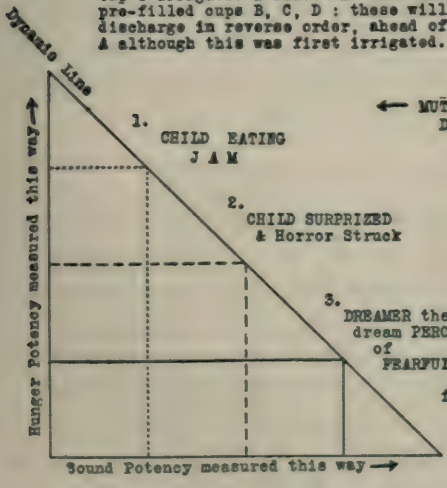
The principle of *psychical resultants* fits well into our scheme of co-relativity, destined to explain the resolution of physiological forces underlying “approximations” and such mechanisms as the blended response to



SIMPLE TAP AND RESERVOIR DIAGRAM FOR VISUALIZING TIME-INVERSION
Each unit A, B, C, D, is a so-called Tantalus Cup, which has the property of emptying suddenly when it is near the filling point. This is due to a siphon action of the Q-tube which is set off when liquid rises to its top. Pre-filling cup makes its siphon act the sooner. Now suppose flow from a tap T irrigates A first and then the pre-filled cups B, C, D: these will discharge in reverse order, ahead of A although this was first irrigated.



CURVES SHOW APPERCEPTIVE DELAY or LAG affecting each perceptual center in due proportion to its previous facilitation



← **MUTUAL REINFORCEMENT OF STIMULI AT DYNAMIC LINE**
Diagram shows shifting ratio of two conjoined sensory drives confluescing at three stages in Pantry Cupboard Dream shown by dotted, broken and full lines. It would seem that at start of dream odds were set 3 to 1 in favor of a HUNGER response; but as hunger is relatively less potent odds become even and imagery obeys both cues. Then odds turn one to three so favoring the response consonant with fear-quality of sound, ending with alarm and waking RECOGNITION

followed by
4. **WAKING RECOGNITION of Sound Stimulus**

Facilitation is supposed absent in this particular case and the mobilization curves are assumed to rise from dynamic base line.

two cues in obvious compound form (Carrollism) or in more recondite shape (Vernierism). Wundt's principle of psychic relations is essentially what co-relativity, as a doctrine aims to state more specifically, with due reference to concepts that figure large in Wundtian formulations, namely *apperceptive analysis* and *relative quantitative comparison* in the sense of Weber's law. But beyond this, in his principle of *psychical contrasts*, and in his involvement, therewith, of the six affective dimensions, we feel that we cannot follow (except at a distance) because he is really losing his way, owing to lack of definite orientation in the field of psychical operations.

The doctrine of Co-relativity attempts to supply such a definite orientation in the field of dream analysis by the study of suitable examples that there can be no excuse for vagueness or for wandering afield toward doctrines of transcendental symbolism, archaic language forms or other pseudo anthropological mystifications.

For example, finding the co-relativity of a given dream item is demonstrated in the plotting of the psychical relations and their co-ordinates in time and space, as was done in a geometrical diagram that schematized the Pantry Cupboard Dream (Vernierism) and the Door Slam Dream (Spoonerism).

Something more specific than the general doctrine of Co-relativity (involved as it is in philosophy and general psychology) is needed to attain a full conception of the trial and error process that makes the dream. In fact the trial and error theory comprises two doctrines. The general doctrine of co-relativity which establishes the position of the theory in relation to physiology, psychology and philosophy on the one hand, and a special doctrine which narrows down the former to an original formulation based on the findings of our dream investigation. This is called the doctrine of Unit Concordance.

THE DOCTRINE OF UNIT CONCORDANCE

This teaches that specific elements in the situation of a dreamer, including his external and internal drives, is co-related in a highly detailed manner with the state of component units of the situation and the functioning of highly subdivided portions of memory. These are called unit constituents and are specified and referred to as unit constituent of "whiteness," of "hastiness," of "multiplicity" and by those other terms which will be found illustrated in orderly fashion either as class relationships or as rough synonyms in Roget's "Thesaurus."⁴ The doctrine of unit concordance exhibits for the explanations of dreams a set of findings which makes the apparatus of memory

⁴ Roget's Thesaurus. Edition of 1888; London, Longmans, Green & Co.

understandable in its working, even as we would understand the working of a mechanical concordance to the Bible or Shakespeare.¹⁵

Instead of our spending time in working out artificial concordances through arbitrarily selected unit-constituents, as formed by lexicographers, we have chosen to make intensive study of similar co-relations and concordances in actual dreams and we have become better acquainted with that indexing machine, which the memory is, through listening to narratives of dreamers.

WHY MENTAL CONCORDANCES CAN BE GRAPHED

We have certainly fortified our confidence in the assertion by R. W. Emerson that: "There is no book like the memory, none with such a good index, and that of every kind, alphabetic, systematic, arranged by names of persons, by colors, tastes, smells, shapes, likeness, unlikeness, by all sorts of mysterious hooks and eyes to catch and hold, and contrivances for giving a hint."¹⁶

But in spite of this complexity we have found that the concordances in the operation of unit-constituents — forming a dream — can still be brought within the purview of a definite scheme. We find in most cases that stimuli behave in a very controlled fashion and there is stimulus-control in the dreaming process very much as there is controlled motion when a moving mechanism (such as the Stephenson valve-links of locomotives) demonstrate flexibility of displacement even though under control of absolutely rigid rocker arms and levers. In other words, definiteness of connections does not preclude variability of adaptation, a fact which we have tried to embody in the diagrams showing graphic analysis of dreams. These indicate in what way three more or less rigid elements of a situation

¹⁵ Similarly let Roget's "Thesaurus" stand for apparatus of memory and let us stimulate it with proper cues taken at random, say *desk* and *digging*. Leaving the index to guide us in further reactions, *desk* relates to *box* 191, *support* 215, *school* 542 and *pulpit* 1000. *Dig* is associated with *deepen* 208, *excavate* 252, *till* 371, etc. Page 191 takes me to *receptacle* as a black letter title and under it *shovel*, thus establishing instantly a connection with *dig*. *Shovel* is thus determined as a first reaction and constitutes my first definite mechanical concordance with *desk* and *dig* through unit constituent *receptacle*. So far, then, Roget's "Thesaurus" shows a given bond between *desk* as a *receptacle* and *shovel* as a special form of *receptacle* adapted to *digging*. This is Roget's "Thesaurus" adaptation rather than adaptation of my own memory which would have supplied more complex responses. For my mind is not able to react with such narrow selection of unit constituents, at least not when I am awake. Thus Roget's "Thesaurus" illustrates the simplicity of associative operations and thus literary work or the concordance to Shakespeare and the Bible could all be used to illustrate *ad infinitum* all the varieties of concordance of ideas through channels provided by particular unit constituents.

¹⁶ Emerson, R. W., Works, Vol. XII, p. 66, "Memory" Houghton, Mifflin & Co.

may co-operate in a dream and produce highly varied reactions. We refer to those elements which constitute the "frame of reference" in each case of dream analysis by the name of *principal cue*, *accessory cue* and *facilitations*. So far, we have not attempted to plot diagrammatically the influence of more than two of those elements at a time, simply in order that we might depict the movement of events by means of a one-plane diagram.

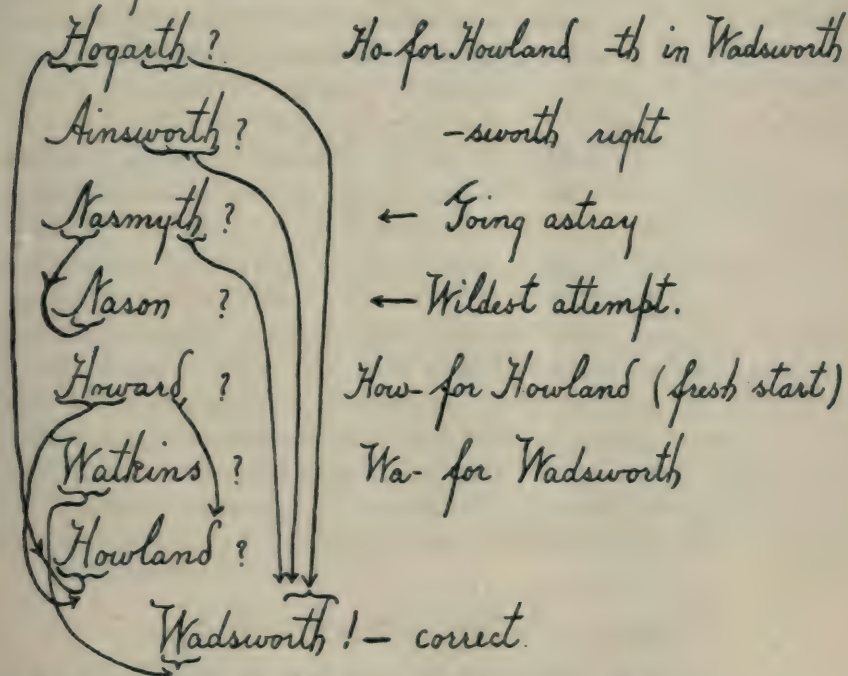
At the same time, a model could be very conveniently built which would represent the relations of all the elements in three planes. But far better than to elaborate on analogies of geometry would be to elaborate on actual dreams of actual subjects. For geometrical graphs cannot be anything but a convenient form of notation for recalling to mind interrelations of dream images and other inferred concomitants of the neural operations. We cannot expand the chapter of examples in this paper, but we can summarize the trial-and-error theory with its general doctrine of co-relativity and the special doctrine of unit-concordance by a rapid survey of one or two examples.

TRIAL AND ERROR IN RECOLLECTION

The first is of trial and error in recollection. The diagram speaks for itself. It was furnished to me by Dr. P. G. Stiles to whom I submitted my trial and error theory of dreams together with a large number of illustrations. We could match with examples from dreams each one of the reactions which he cites and which he has distinctly given by name. For instance Hogarth is a trial apperception of Wadsworth, in which the influence of a syncopated Howland is adumbrated. Thus at the beginning of the reaction Wadsworth-Howland is seen to be a determinate apperception mass, yet Howland does not appear until just before Wadsworth does. To match each trial percept in this diagram would require the relating of a long dream because reactions of this type usually extend through narratives of considerable length. Each dream narrative requires to be analyzed to bring out the true nature of the cues or of the unit constituents which determine the concordance, and then one has to lay out a scheme of co-relativity so that the trial and error process may be followed intelligently. To repeat, this Hogarth-Wadsworth series is a paradigm which embodies most of the essential interrelations of unit constituents of dreams. It shows the particulate character of reactions. It shows effects of similarity and contiguity associations. It shows sheer association by contiguity *in toto* as in Howland-Wadsworth, as well as the

Trual and Error in Recollection.

I wish to recall the name of a certain street along which I often pass. These names "come into my mind:"



Howland suggested Wadsworth because of the Wadsworth-Howland Company. Both names were foreshadowed in the series.

particulate reactions to the *TH* in Wadsworth; as shown in the Hogarth-Ainsworth series where also the particulate influence of the stimulus-idea Howland, (which is subjacently contiguous to Wadsworth), is represented by *HO* in Hogarth. Thus any one who applies successfully the doctrine of Co-relativity and unit-concordance when tracing out the creative process in dreams must bear in mind all these multiple relationships and must have classified already three principal types of co-relation. (1) He must know the confusing by-effects of mere accident or adventitious circumstances. He must discern probabilities in dream associations, namely, what stimuli shall have certain affinities, although coming in at random. For there may be material in the memory that would create puns by purely opportunistic reactions of mind insignificant as to motive or purpose. (This sort of thing is entirely misunderstood by the psychoanalytic school.)

(2) He must consider the nature of what the School of Pavlov and von Bechterew called the *analysors* of the brain, on which depend the unit constituents. An understanding of this will permit the dream interpreter to place himself in the attitude of the automatic self of the dreamer, in so far as he will conceive of objects *not as a whole* but analyze them into unit constituents just as the memory apparatus automatically does. Thus the dream interpreter will not expect the association *in toto* between objects to govern dreams but will always remember that association *in partibus* (e. g. Hogarth-Wadsworth) is the key to trial and error processes in dreams. This means tracing the concordance from the components of the stimulus or cue or situation *through the unit constituents* to the response which eventuates in the dream.

ENTELECHY — THE INTERPLAY OF DRIVES

The interpreter must learn to formulate in his mind a working conception of *entelechy* in the sense in which we could apply the word to the organism's attempt to realize a definite aim already prepared in the subconscious depths, as it were. This notion is definitely imposed upon us by such an example as the *Wadsworth* recollection of Dr. Stiles. In an obscure sense, because I have not yet been able to fit an appropriate word to it, Dr. Stiles had formed a correct idea of the stimulus *Wadsworth*. It is as if a definitely circumscribed region of his nervous system was holding the excitation which was destined to eventuate in the recognition of the correct street name. This is a situation absolutely analogous with that created by the

working of an algebraic formula in a mechanical system, as for instance when a locomotive leaves the track at a curve and pitches over an embankment. It describes a ballistic curve known to engineers by the equation

$$y^2 = 2\pi x$$

As a clever Frenchman has said, this formula of algebra contains within itself all the future developments of its curve and is the law that guides it. The entelechy of a dream, in this sense, is a reality and furnishes the refutation of the skepticism which denies existence to subconscious ideas. The implications of the "dream entelechy" in philosophy are tremendous and may lend themselves to extravagant interpretations. In our work, however, we do not assume the entelechy to be present as a basis of explanation. We simply observe it in operation while not including it in the premises on which our inferences are based; and our suggestion here, concerning the entelechy, is not intended to postulate it as a premise, but *prevent it from being excluded by hypothesis*. We would be just as much disturbed, on the other hand, to see any one assume, as psychoanalysts do, that there is always some definite wish guiding a phantasy.

In our studies of the working of external and internal drives we have found them truly comparable to the working of formulas of analytical geometry. That is, the compounding and combining of "drives" have been found to conform to definite laws possessing regularity and simplicity, and which are only in appearance abrogated by the complexity and variety of human memory. In the tracing of unit constituents we have found that order and not chaos reigns even in the most fanciful of dreams.

THE METHOD OF RETROSPECTIVE PROPHECY

The uncertainty that is alleged to surround interpretations of dreams comes only from the vast fields of combinations which memory affords. Yet in dream-study a survey of the unit-constituents that are open to detection soon shows that the play of memory is vastly reduced — as compared to waking operations. It is therefore possible to treat the dream as a "natural experiment" and to apply concrete experimental methods to strengthening or validating the conclusions drawn from it. The method that we have employed for testing the validity of our cases has been called the "Method of Zadig" by Thomas Huxley. This involves a simple use of "verified prediction." In the case of dreams, the predictions are necessarily

retroactive, and take the form of saying to the dreamer on investigation, "You will find that such and such events preceded this dream." Often the result is extremely startling to the dreamer and may even cause one to be mistaken for a mind reader.

Here is an example of this method:—"I dreamed that I was preparing some tobacco for my brother. I was stuffing it in a jar and mixing it up to send to him for his delectation. It was a light yellow tobacco and it occurred to me that I could improve it by adding something to it, so I put in some large raspberries just to make it taste good. Now why should I dream of that?" The retroactive prediction was made as follows without further questioning except to verify the fact that the dreamer was a non-smoker and his brother actually a smoker:

"I think that you had intestinal trouble last night. Did you have to get up after the dream to go to the closet in the night?" Answer "Yes." "Had you taken some raspberry shrub or something like that the night before?" Answer, "Well, not exactly, I had taken some acid phosphate and I sometimes mix it with loganberry juice because I like it better that way. I was sorry I didn't have any last night."

The dream stands interpreted as follows: The light yellow tobacco is an adumbration of stimuli from the bowels with possible influence from the bladder. The stuffing of the jar is hyperbolic magnification (auxesis) of sensations from the rectum and is a play upon the unit-constituent of *container* or *receptacle* (note coincidence with Roget's Thesaurus!) and with the idea of stuffing a pipe to keep the tobacco from spilling. The existence of these *rectal sensations* and the need of resolving the stimulus in obedience to the ideas of *spillability*, and of *continence of excreta*, required that a reconciliation of tendencies should be developed. What was the ulterior motive or accessory cue operative in the dreamer's mind? This ulterior motive was a desire for a flavor such as loganberry, which he had been unable to enjoy the night before in taking his acid phosphate. This drive, emanating from the thought of a berry, facilitated the reaction to certain other unit-constituents which were those that I based my first guess upon, namely likeness between a raspberry and the shape impressed upon the intestinal detritus by the impacts of intestinal walls. Thus, the unit-constituents of *yellow* and *raspberry contours* gave the clue, adumbrating the intestinal origin of the dream, and fixing the principal cue. Then the possible facilitations were worked out as due to

some experience involving fruit juice, as would be probable, and lastly the fact of the unsatisfied wish was brought out in consequence of the verification of the two other points in retroactive prediction. We could give hundreds of examples of this kind showing how two cues become involved, and how by inferring two elements in an experimental frame of reference, we can work back with great accuracy to elements that are unaccounted for.

THE INTERPRETER'S TRIALS AND SUCCESSES

We do not doubt that similar things are done constantly in psychoanalysis. As Aristotle says, "A plain dream can be interpreted by any one," and there are all degrees of plainness. But a danger of trying to work at dream analysis on the basis of unscientific theories, is that we fall into peculiar errors which Bacon alludes to when he says that "men count the hits but not the misses." For more than ten years, examining thousands of dreams and hundreds of life histories in detail, we have made it a business to be as much interested in the failures of our interpretations as in the successes. We have, in other words, applied the groping process of trial and error to our own investigation, and think we have finally worked out a technique which minimizes errors and leads more rapidly to "trial and success."

This summary would need to be supported by numerous examples of dreams. These, as stated, we could supply in a manner that would match each and every aspect of Dr. Stiles' excellent diagram; but there is no space in an article of this length. Such a selection of examples should be embodied in a book, where cross references are possible and repeated references to the same example can be carried through chapter after chapter.

SUMMARY AND CONCLUSION

In the meantime, pending the appearance of such a work we can only point out that the trial and error theory has been formulated here in general terms and supported by hints of its practical results. It has validity, in so far as it concords perfectly with accepted formulas of psychology, which we have embodied in our general theory of Co-relativity. And it is vindicated in actual practice by the method of retroactive predictions. This shows that the best way to reach sensible interpretations of dreams is to observe mechanistic rules that open one's eyes to the unit constituents. These operate in dreams to form concordances, through every sort of permutation and com-

bination, giving a vivid demonstration of the adaptability of the human mind, while still not throwing mechanistic analysis off the scent.

These doctrines (far from imposing the straitjacket of mechanical concepts on the human soul) reveal infinitely more resourcefulness and purposiveness in the structure of the human mind than has ever been successfully explained by the extravagant anthropology and philology of Freud and Jung. The doctrine of Co-relativity and of Unit-Concordance will serve especially to clarify those issues which have been unduly complicated by dogmas of symbolism and of censorship. The future of Psycho-neurology lies in recognizing the full power of these doctrines where certain explanations are still wanting in the psychoses and psychoneuroses. But the main contribution should be in giving a so far undreamt-of degree of precision to our knowledge of the mechanism of thought. Onirology shall yet furnish a proper doctrine of association and of human motive grounded in exact knowledge of *stimulus and response* in dreams.

ACKNOWLEDGMENTS. In order to formulate the doctrines of Experiential Co-relativity and of Unit Concordance, it was necessary to obtain considerable collaboration. The *extensive* investigations of dreamers' life-histories was made possible at the Boston Psychopathic Hospital with the kind concurrence of the late Dr. E. E. Southard, and President Henry Lefavour, of the Board of Trustees. Special assistance from the Massachusetts State Board of Insanity provided clerical help for the work at this time (1912-1914). Especially good subjects from the Hospital were studied during the period of After-Care, and for a number of years, with the co-operation of the Emmanuel Church Social Service. The dreams of normal subjects were furnished mainly by friends associated with the Cartesian Research Society of Philadelphia; whereby it was possible to follow the course of dream-processes over long periods of years, and to study intensively the parallel between dream-fancies and real life.

SLEEP AND DREAMS

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A SURVEY of the numerous physiological theories of sleep cannot fail to create the impression that so far as its ultimate causes are concerned, sleep is still a great mystery. Fortunately for empirical psychology, we may arrive at a considerable knowledge of the actual conditions of sleep without concerning ourselves with ultimate causes. An interesting and important body of empirical physiological facts have been obtained, aside from those observations whose results are questionable; and much psychological information is available.¹ It is possible to organize these bits of information into a significant general conception, using as a "physiological theory" only a general schematic formulation which represents the facts in a systematic way, and which need be adhered to only as a scheme, or diagram, of the psychological facts, like any other theory of "brain physiology" applied to mental phenomena.

The most general fact of the physiology of sleep is *lessened reactivity*. There is relaxation of muscular tonus; large decrease in activity of the striped muscles; similar, if not so great, decrease in activity of smooth and cardiac muscles; lessened glandular secretion; and (by inference, rather than demonstration), lessened activity of the neurons as a rule. With this lessened function may perhaps go increased chemical activity of certain sorts, during a part of sleep: specifically, increased anabolic activity: but this is conjectural.

Specific effects of lessened activity are found in reduced blood pressure, arterial and venous; slowed heart rate; slowed respiration; and changes in the form of the curves of respiration, heart beat, and probably of intestinal peristalsis. The relaxation of the muscles of the blood vessels is productive of change in distribution of the blood: the peripheral blood vessels are relaxed, and the quantity of blood in peripheral tissue increased, during the early part of normal sleep at least.

The *pressure* of blood in the cerebrum decreases, as elsewhere, as has been demonstrated in human subjects from whose skulls areas

¹ Detailed reference to the extensive literature on sleep cannot be introduced here. For admirable summaries see Howell's *Text Book of Physiology*, and Piéron's *Le problème physiologique du sommeil*.

of bone have been removed: whether this is accompanied by an increase or decrease, relative to the body, in blood *supply*, *i. e.*: a decrease in quantity of blood passing through the brain-tissue in a given period of time, does not seem to be made out. In general, all these changes are most profound in the early hours of normal nocturnal sleep, and conditions tend towards the waking type during the latter two thirds of the night.

Relaxation of striped muscles produces the closing of the eyelids, divergence and rolling upward of the eyes, heaviness of the limbs, snoring, and other familiar symptoms of drowsiness or slumber.

The existence of toxic substances of some sort, produced during waking hours and conducing to the evocation of the various sleep symptoms, has been demonstrated; although the primacy of these toxins as causes of sleep is not undisputed.

While body activities are in general lessened, there may be heightened functioning of certain organs during certain moments of profound sleep. The most conspicuous example is turgescence of the sex organs, frequently eventuating in the complete orgasm, in some cases disturbing the sleep, or even causing the awakening, but in other cases apparently not disturbing the general slumber. Although this sex activity during deep sleep is more common in the male, it occurs also in the female. It is conjectured that other organic activities — such as digestion — may also at times proceed during deep sleep as actively as in waking states; but the evidence on this point is less clear.

On the psychological side, the phenomena are abundant. In the period just preceding sleep, fatigue of specific muscle groups, especially of the eye mechanism and the voice mechanism, are characteristic, even when there is no general fatigue. On the other hand, there may be general fatigue of moderate or extreme degree, with no tendency to sleep. The “heaviness” of the limbs is usually perceptible in drowsiness; and in general, the “sleepy” feeling is more characteristically a feeling of relaxation than of fatigue.

The absence, or lessening of response to sensory stimuli during sleep is well known; and it has been proposed to measure the “depth” of sleep by the intensity of stimulus required to awaken a sleeper. Measurements of this kind have been carried out, principally with auditory and electrical stimuli; with results which are in agreement on the general fact that normal nocturnal sleep deepens more rapidly at first, reaching a maximum during the first or second hour, and then

decreasing very rapidly during the second and third hours, and slowly thereafter. Further than this, the results are not in complete agreement, and have only suggestive value. The difficulties in the way of adequate experimental determination are great, since, of course, each sleeper can be awakened but once in a single night, and hence the determination of the sleep curve for a single person with a single sort of stimulus must extend over fifteen or twenty nights, with consequent difficulty in obtaining constant conditions. Since the "depth" of sleep to one stimulus (such as sound) does not necessarily correspond to the "depth" for another sort of stimulus (such as touch, or electric shock), a complete experiment on one person is something which has not yet been attempted.

The most characteristic symptom of the disposition towards normal sleep is the *lowering of attention*, which exhibits here its two characteristic forms, one of which is lessened ability to sustain the attention to any given object or unified topic. This manifests itself in an increase in the height of the "peaks" of attention, relative to the dales or "slumps," which become more profound; and also in the increasing length of the dales as compared with the duration of the peaks. There is no evidence that the absolute height of the peaks is lessened; that is, that the degree of attention at its best moments is decreased; until the moment of actual sleep arrives. From analogy with certain toxic conditions, we may be reasonably certain that the peaks do reach normal height in spite of these lessened frequencies and durations. This applies, however, to normal sleep only, and not to all sleep-like conditions, nor necessarily to hypnotic sleep.

The second characteristic diminution of attention is a reduction of its *range*. The sleepy person can no longer "distribute" his attention over so many different series of events. If he has several concurrent series to watch, as in driving an automobile, he must neglect some while attending to others. In both of these respects the effects of sleepiness are very similar to those of alcoholization, and of insufficient oxygenation, in which conditions we have found that attention phenomena may be very usefully studied.²

Another important psychological symptom of sleepiness is an interruption of the normal process of association, both of "association of ideas," and of association in complex series of movements. Certain well mechanized associations may function almost perfectly.

² Important results on this point were obtained by the author in research in the Air Service, but have not yet been fully reported.

A violinist may play his part in an orchestra very well, when so sleepy (or so drunk), that he has a very confused notion of what is going on: provided, of course, the composition is very familiar, and played as he is accustomed to play it. Likewise, the associative recall of ideas is modified. Thoroughly mechanized associations may function: the ringing of the bell arouses the idea of dinner, and the "good night" of some one gives a clear idea that some one is taking leave. But the finer control is absent, and simple and erratic, rather than multiple, associations are aroused. Thus, the sleepy person tends either to agree with everything said to him or to resent and reject everything, rather than to have associated supporting and opposing ideas both aroused. This, again, is strikingly like mild alcoholism, and is the basic condition of hypnosis, which exhibits many of the psychological peculiarities of normal sleep, but in varying and partial combinations.

A third psychological characteristic of sleepiness is the abolition of the learning process. Momentary impressions may be made, and series of perceptions produced. Series of reactions may be gone through nearly as well as they would be, at an equivalent stage of practice, when fully wakeful: but they do not "stick": there is no improvement, and the material is not retained, the acts not made habitual.

These three manifestations of sleepiness become more marked as the condition of actual sleep is approached, and it is not unreasonable to conclude that the essential conditions on which they depend become still more marked in sleep itself. In fact, it is possible to show that these three are but phases of a single condition, which accounts for many of the phenomena of sleep, and which may most easily be related to the general theory of the "conscious" activity of the nervous system in which I have been especially interested: a theory which is, strictly speaking, not "physiological" at all, since it makes no assumption as to the nature of neural processes; but which merely summarizes the known psychological facts of habit formation on the scheme of a simple assumption in regard to the general mechanism of the nervous system to which, so far as I am able to determine, every neurologist agrees.³

This theory embodies four points: (1) that stimulation of receptors normally results in afferent "neural current" which reaches

³ For fuller details on the theory of conscious reactions, see the third part of the author's *Mysticism, Freudianism and Scientific Psychology* (Mosby, 1921), and the article on "The Biological Basis of the Association of Ideas," *Psychobiology*, Vol. II, No. 1, February, 1920.

the spinal cord or brain stem, may be shunted through the hemisphere or cerebellum, and finally results in efferent current directed to muscles and glands. (2) that there are, in the cord, brain-stem and brain, multiple synaptic connections of such nature that the "nerve current" entering over a given afferent route may be shunted on to any of a large number of efferent routes, and conversely, that "current" entering over any one of a large number of afferent routes may emerge over a given efferent route. (3) that the central nervous system works *integratively*: that instead of a number of afferent-efferent routes or *reaction-arcs*, functioning independently, the various reaction-arcs tend to become functionally connected, so that not only the simultaneously existing discharges, but even those occurring in succession, tend to form an integrated system. (4) that, therefore, we are not, in general, dealing with an isolated stimulus producing a reaction of an isolated muscle group, but with the total mass of stimuli as affecting the action-mechanism of the body generally, although in any given total reaction, a limited group of stimuli and the action of a limited group of muscle and gland elements may predominate.

These assumptions are inevitable, and furnish the full basis for the understanding of the process of habit formation, in which processes such as the formation of a new principal route of discharge, as exemplified in the so-called "conditioned reflex," are mere details.

Moreover, we should expect to find, as the integration falls apart, that certain parts of the system might continue to function with fair efficiency, as small systems, just as we do find the "vegetative" functions and certain mechanized reaction processes going on: and we are not surprised that these should show occasional "spurts" of high activity.

Sensory stimulation will not, in general, during sleep, produce its customary reactions, and hence not its customary consciousness. But detached effects are produced, and sometimes, if the stimulation is sufficiently intense, integrative results somewhat resembling the normal will be momentarily produced. Moreover, random, detached ideational processes must occur; for ideational process must inevitably be found to be a reaction process, just as is perceptual process. In short, on the basis established, without referring to experience at all, we could predict that *dreams* must be possible. It could be predicted that these dreams would vary all the way from the lowest degree of vividness (degree of attention), and the lowest degree of inconsequentiality, to a vividness and connectedness resembling the most attentive

and coherent waking thought processes and perceptions. In fact, odd as the statement may seem, if we had not this firm basis in sound theory, we would have real difficulty in establishing that dreams actually occur! For, it might be urged that all so-called dreams are really constructed in the first process of recalling them, since it is a demonstrable fact that a great deal of what we report as having been dreamt *is* constructed in the recalling. But we have the evidence for the reality of dreams in these facts: first, that on our empirically derived theory, dreaming is obviously possible; second, that the physiological functioning of sleepers is affected in the way it should be if, in accordance with the theory, dreams occurred; and third, that it has been experimentally shown that stimuli applied to sleepers produces on their alleged dreams precisely the effects it should produce on real dreams.

That dreams are often elaborated in the recalling is indicated by the fact that successive tellings of a dream at intervals of several hours, if the dreamer is unsuspecting, show progressive elaboration, in spite of the fact that the first telling should pretty well fix the story. Moreover, in the cases of stimuli which are worked into dreams (sounds, light, etc.), the inversions of order, often resulting in putting a considerable part of the dream before the stimulus, are too frequent to permit us to assume that the stimulus "just happened" to fit into a dream already in progress. Again; the cases, reported at least in good faith, in which a dream requiring many minutes for its telling, or even for its thinking through, is dreamed in a few moments, can be explained in no other way than that a few detached dream ideas have, in the "recalling" of them, been woven into a connected story by supplying material, through normal association processes, adequate to connect and interpret the fragments.

The proposal of the theory that two or three dreams may occur simultaneously, is without doubt due to the fact that in cases where a great many fragmentary ideas have occurred, it is easier, in recalling them, to organize them into several narrations than into one. By separating the fragments into two or more groups, less additional material for making them into connected narratives is also required.

Manifestly, the conditions for accurate memory of what is really dreamed are poorly supplied. Accurate memory for waking events requires a high degree of integration — a high degree of attention — at the moment when the original experiences occur. But the situation in dreaming is in general just the reverse. There is low attention,

low integration. Hence there is the greatest chance for complete forgetting of the dream, on the one hand; and for inaccurate, constructive recalling, where a few of the ideas are remembered. In some cases, the vividness and coherence of the dream ideas is high, approaching the conditions of the waking state. In such cases, the accuracy of recall is undoubtedly greater, and doubtless some detailed and coherent dreams were really dreamed in approximately the form as related.

The causes of particular dreams are difficult to trace. Without question, the laws of the association of ideas — that is, of habit formation — apply in cases of low integration as in high. Freud and his disciples have made much of their “discovery” that dreams, as well as mental processes in “every-day life” are causally determined: are not matters of chance or of the interference of supernatural powers. Since all psychologists for at least the last hundred years, if not for the last two thousand years, have assumed this, the “discovery” does not seem epoch-making. The discovery of the particular cause is another matter, and in regard to these, psychology and psychoanalysis differ sharply.

It has long been known — in fact, Aristotle remarked upon it — that in the decreased integration of sleep, the perceptual reactions originating in the visceral and somatic receptors suffer less reduction than do those of the “special senses.” We should expect, then, to find organic conditions very influential in the determination of dreams: and so they are: and so they have been admitted to be by a long line of dream investigators. Furthermore, if we should accept, even in part, the “James-Lange” theory of the emotions, we should expect to find an important emotional factor in the production of dreams, the emotional processes present in sleep having large sway in the determination of such associative processes as occur in the lowered integration of the nervous system. The facts again quite fit the expectation.

Now we come to the question as to the relation of consciousness (awareness) to this sort of neural activity, and we find that as a matter of fact, consciousness occurs only with these reactions; or perhaps, also with reactions which have become abortive. Since, moreover, no one has been able to discover any differences in function of the individual nerve cells, except in so far as receptor cells⁴ are specialized

⁴ Formerly, the results of operative work on “sensory centers” were interpreted as showing a special function of cells in these “centers.” It is now seen that such operations completely interrupted the discharge pathways from the sense organ to the effector system, and are equivalent therefore to severing all the afferent nerve fibers from that organ.

to respond to specific physical stimuli; and in so far as certain motor ganglion cells may perhaps be able to discharge periodically without external stimulation; it is necessary to conclude that the specific condition of consciousness is *integrative action* of the nervous system.

This final assumption, unlike the fourfold one before stated, may not be generally accepted; but I can see no alternative, and until an alternative is proposed, it has right of way.

We have now all the "theoretical" material needed: and in terms of "theories" of an iron-clad sort. Since there is demonstrably a series of degrees of integration, we should expect to find degrees of consciousness: and we do: and we conventionally call them degrees of attention. We should expect then, to find, when the integration of the nervous system falls to pieces, as it manifestly does during sleep, disturbances of attention of precisely the kind which we have described above, the beginnings of which are characteristic of the approach of sleep, or of need for sleep. We should expect to find the higher degrees of integration more and more separated by "slumps"; and we should expect to find the synthesis of several afferent processes into a total efferent process becoming increasingly difficult.

Learning, or habit formation, is essentially a process of integration or organization of reactions. This is true of all forms of learning, including the association of ideas, for ideas are, after all, forms of reactions. The lessening of the general integration tendency involves also the reduction in the specific form through which new reaction patterns are established as habits, for the experiment of Pavloff shows clearly that formation of new reaction patterns is due to the fundamental tendency of reaction-arcs simultaneously functioning to establish connections or "drainage" between them. The reduced learning capacity of drowsiness is clearly an aspect of reduced integration function.

Among the emotions determining dreams, *desire* has long been known to be important. On this point, psychoanalysis has told us nothing new. But that desire is the only determining emotion, as the psychoanalysts seem to think, is not a fact. Every emotion which is carried over into sleep, or which is aroused during sleep, as its mechanism comes into play, has its effect. Far from emphasizing the causal nature of the dream process, Freud, more than the psychologists, seems to have minimized it by assuming that a multitude of mental processes are without causal effect, and ascribing causal relation to a limited group. Of course, the dream-producing effect of different

emotions is different, and Freud may have meant no more than this trite fact. In general, the anticipatory emotions — desire, aversion, fear, dread, hope, anticipation (which may involve neither fear nor hope) and worry, with their tribes of variants, are the more efficacious emotions so far as dream production is concerned. We might make a shrewd guess at the reason for this, but prefer for the moment to let it go as an empirical fact. Perhaps the psychoanalysts will say that these emotions are all “desires”: if so, the case would illustrate very well the rule that when the novelties of the “newer psychology” are boiled down to sober fact in accurate terminology, there is nothing left but familiar “old” psychology.

Although the anticipatory emotions are the more influential, other emotions are demonstrably effective. A painful or pleasurable experience of the day, in the memory of which no anticipation or wish is involved, may either recur in a dream: or the emotion, recurring, may bring some other experience from the past, through association with the same emotion. In analysis of such cases, we must frankly admit the difficulty of determining the actual associations, and attempt above all to identify the real emotion, and the cause for its occurrence. The ideational factor connected with it in the dream may be one associated with it at some earlier time, and not the idea associated with it at the time which determines its occurrence during sleep.

In the low integration of sleep, a given perception, or a given idea, will not in general arouse in memory the associated idea which it would be most likely to arouse in waking life.⁵ The same laws apply in sleep as in waking, but the conditions of associative recall are always exceedingly complex, and any change in the condition must change the result, unless precisely balanced changes happen to occur. To assume that ideas are associated with each other, and with emotional factors, in simple one-to-one ways, is to miss entirely the facts of association. Undoubtedly, in cases where dreams are directed by stimulation of

⁵ In discussing the association of ideas and the “arousal” of ideas, we must bear in mind that there is no evidence for an idea as a *thing*, which passes out of the “mind,” and exists in some filing system of an “unconscious mind” until brought back into the “mind.” An idea is an act of awareness; the repetition of the idea, however “aroused,” is the repetition of the act, just as the repetition of a word is the repetition of an act. The idea (which in fact is a word in many cases) has no more existence during its “absence from consciousness” than has any word in the intervals between its being spoken. *Retention* for ideas, as for any acts, consists in a modification of the nervous system, through the integrative tendency, such that the proper stimulus will at some future time cause the same reaction. Serial association, by which one idea acquires the capacity to arouse another idea, is one case of the general association of reactions, in which the completion of one act is the stimulus for the initiation of a second act.

the external senses, as in the universal dream of nakedness, which in most cases is so clearly due to dermal chilliness, the direction is in large part through the unpleasant emotion directly aroused by the chilliness. In such circumstances, the dreamer seldom if ever dreams of pleasant situations, although if the dream were really a "fulfillment" of a "repressed" sexual wish, as the Freudians ingeniously suppose, we should expect the fulfillment to be most frequently pleasant.

The importance of the emotional factors in dreams is strongly emphasized by the universal dreams, such as that of being nude. The dream of flying: of moving through the air by merely "flapping" the arms, or by some other absurd means, is apparently due to respiratory feelings. The dream of falling, always colored by a strong emotional feeling, may perhaps be due (this is a tentative explanation), to spasmodic contraction of a certain group of genito-urinary muscles: a contraction which uniformly occurs in actual falling, or even in the sudden thought of falling, as when one comes unexpectedly on an open elevator shaft, or the perception of some one else falling. In any event, the emotion aroused is the important thing, and suggests the ideational factors of the dream.

There is one special type of associative revival in dreams, which, when considered by itself, out of relation to the more general facts of association and recall, has seemed a marvelous phenomenon to those unacquainted with the psychology of the thought processes. This is the case in which the thing dreamed of is a *symbol* for something else. Now, a symbol is something which has become definitely associated with anything else, as, for example, the name of a man with his appearance or personality. The most conspicuous symbols, however, are those which have become associated with systems of objects, with classes or genera, or with abstract principles. Thus, the flag is the symbol of the nation, associated in common thought with not only the name, but many other characteristics of a people: the six-pointed star is a symbol of "perfection": and the rose is the symbol of silence or secrecy. The history of religion, and consequently of art, is full of symbols, developed in part as an efficient means of calling attention to certain facts of life and certain articles of faith, and in part as a means of secret communication between members of a select group. Much of this symbolism is unknown to the average man, but every one has a vast range of associations of a similar nature. To one man, his collection of golf clubs is a symbol of recreation. To another a

certain journal is a symbol of anarchy and deadly civic danger, and so on. In other words, these particular objects have become associated with a certain condition of things, or with certain principles, so that the thought of the one associate leads by normal progress to the thought of another.

As a matter of fact, any pair of associated terms stand in exactly the same psychological relation to each other as symbol and thing symbolized, and it is impossible to draw a line sharply around a group to be exclusively designated as "symbols."

The occurrence of symbols in associative thinking is therefore not a source of especial difficulty for explanation, but merely a typical case of the general process. It is intelligible that a man who feels in need of recreation should think of a certain new golf club he has not yet tried out: the club is for him the symbol of recreation, associated definitely with the whole situation. Nor is there anything more surprising in the fact (to cite an actual case) that a young woman who has been facing serious temptation, and has been emotionally excited about the situation during the day, should dream of an anchor, the symbol of her religious training, consciously associated through hymns, sermons, and miscellaneous religious training, with a force sustaining her against temptation. In the same way, in dreams due to worry over a situation involving a definite individual, another individual associated with the first — through similarity of names or any other common associative link — may appear as the "symbol" of the first.

In normal waking thinking, the calling up of one association by another, whether ideational or emotional, is determined not by the single association alone, but by the conjunction of many associative links. The term first appearing is usually linked to a number of others, any one of which might next appear. But other ideas and perceptual processes, just preceding, are integrated with the idea or emotion of the moment, and co-operatively determine the exact direction of associative recall. In the fragmentary integration of dreams these normal controls are absent, or interrupted, and the associative recall accordingly takes directions which, compared with the waking processes, seem irregular and freakish.

Distinctively symbolic factors occurring in dreams are in most cases certainly, perhaps in all, items which have been associated with a group of others along with definite emotional factors. The recurrence or revival of the emotional tendency in sleep may, under

the relatively uncontrolled conditions described above, bring on any of these factors, which appearing thus relatively detached, are symbols of the total situation.

One great danger in symbolic interpretation of dreams lies in the difficulty in determining what the dream details symbolize for the dreamer himself, and the tendency of the interpreter to substitute the symbolic meaning they have for him. In trying to trace an associative link from a given item, the important point is to determine the association which the dreamer has actually formed in previous experiences, and avoid the association which the interpreter has formed. Another danger, when the fact of *an* association in the dreamer's experience is established, is in too easily assuming that it is *the* association which functioned in the dream state. In most cases, an item has been associated with a considerable number of other items, and the particular association which became effective in the dream state may be replaced by another in the more fully controlled waking state.

In all cases, associations exist only where they have been consciously formed in the past: in other words, they must be *learned* before they can exist as reaction tendencies. Here, as elsewhere, we can dispense entirely with mystical notions, and rely entirely on the established principle of habit formation. Ideas themselves are acts, and not things, and the laws of their occurrence are in accordance with the general laws of organic reactions.

Simple paired associations, such that direct substitution of one term for another can be made in interpretation, and associations of a simple item with a complex system of items in such a way that any detail in the system tends to arouse the simple item: symbolic associations, in other words are more striking than frequent in dreams. One unfortunate result of fascination by the concept of symbolism, especially when it is naïvely conceived as a working of some mystical force, is the tendency to force symbolic interpretation where the situations are really more complex. The valid and thorough interpretation of dreams, aside from a few simple types, is a technique which must await the completion of a great deal of experimental research. The extent to which our present knowledge of dream phenomena depends on experiments, in spite of the fewness of these experiments, is striking, and is a strong indication that further experimentation will be really profitable. The fact that very little experimental work has been done since the publication of Mourly Vold's monograph in 1896, may be due in part to the withdrawal

of interest from experimental research in this field through the influence of Freudian theories; but it is certainly largely due to the extreme difficulty which the field offers to experimental technique, and to the great expense which would attend any comprehensive investigation. It is to be hoped that some time, some philognostic foundation will provide funds for the maintenance of a special laboratory or vivarium in which human subjects can be kept for a sufficient period of time under standardized conditions, and in which an adequate corps of psychologists and physiologists can be maintained for the extended study of sleep and dreams.

REVIEWS

HUMAN BEHAVIOR IN RELATION TO THE STUDY OF EDUCATIONAL, SOCIAL, AND ETHICAL PROBLEMS. By Stewart Paton, M. D., Lecturer in Neurobiology at Princeton and in Psychiatry at Columbia, ex-President, Eugenics Research Association, New York. Charles Scribner's Sons, 1921. Pp. v, 465. Price \$6.

This comprehensive discussion of human personal and social affairs "is intended," so its author says in the Preface, "to serve as an introduction to the study of human behavior. * * * The importance of the subject is obvious and has been tragically emphasized by the present world crisis. Little is known about man as he is. Imagination has supplied many of the details in the picture of what he was once supposed to be, while the anxiety associated with the unrealized expectations of what he might have become has increased the difficulties of taking measure of his present stature. Parent, teacher, physician, student of social phenomena, prospective reformer, statesman, and philosopher, each has his special interest in the great human problem. * * * There can be little doubt that in the careful painstaking study of man as he is, will be found the means by which human institutions may be established upon a more rational basis and at least an intelligent effort made to lay the foundations of a durable peace." In thinking of the book as an "introduction" to human behavior the reader will promptly see that it introduces him to social rather than to personal psychology, which is undoubtedly the more correct way of orienting behaviorism.

Fourteen chapters and a good index constitute this work so far as practical plan is concerned, every one of them showing a very wide and detailed acquaintance with the world's work each in its own direction. The titles of the chapters are these: "The study of the individual in relation to educational and social problems; adjusting mechanisms; special mechanisms of adjustment; the personality; the development of the personality; organization and synthesis (temperament, character, and intelligence); controlling mechanisms (inhibition); factors determining the trends of activities (dispositions); habit-formation; involution of the personality; imperfect organization of activities (conflict and dissociation of the personality); methods of studying the personality; the intelligent direction of activities (education); and the study of man in relation to the progress of civilization."

Besides being, in the good sense of the term, a useful compendium of the best thoughts on this great subject, Doctor Paton's present work is marked by that wisdom that comes from extensive reading ably digested and the food-essence thus obtained then pushed a little further toward our knowledge of the truth. "Gnothi seauton!" said the wise-man of Athens; here and today we find it echoed in our introductory chapter: "The truth which will eventually make men free will be the truth revealed by patient, careful study of the human individual; and upon this revelation depend many of the hopes for the continued existence of the human race." At present "man is his own worst enemy." The present reviewer (as much of his work would show) heartily agrees with the author that in studying all available aspects of the human being the real student is doing an intensive bit of evolution, — mayhap the most intensive that he could do. The physician who does not get this point, sharp and penetrating into the very heart of scientific Truth, fails to get beneath the epidermis, as it were, of his opportunity and so he rails at the psychologist and all that this creature thinks and does, not knowing, usually, even what it is all about.

Indeed, the average physician is a sort of "Dr. Jekyll and Mr. Hyde," for when associating with his patients (usually) he is a natural idealist, but when talking shop ostensibly only a mechanism, albeit a machine his utmost imagination cannot adequately compass. To correct this lamentable and persistent state of medical affairs, this curable hemiplegia of wisdom, is one of the greatest of present problems of medical education. This book and similar works, could they be sympathetically read by the "doctors," would sometime or other force the mental aspect of life into the effective consciousness of most of them, preferably, of course, in school.

Doctor Paton's book is undoubtedly the best of its kind, and is a fine synthesis of modern knowledge enlivened and humanized with human scientific imagination from many minds besides the author's. The ever-more numerous students of Things-in-general in the ancient town of Weiss-nicht-wo can't fail to welcome it with wide open hands — wider open often than some of the impatient minds who will not appreciate its large value as a basis of further synthesis as well as a contribution to important knowledge.

GEORGE VAN NESS DEARBORN.

SLEEP WALKING AND MOON WALKING: A MEDICO-LITERARY STUDY. By Dr. J. Sadger, Vienna. Translated by Louise Brink, New York and Washington. Nervous and Mental Diseases Publishing Co., 1920. Pp. x, 140. Price \$2.00.

This volume is number 31 of the Nervous and Mental Disease Monograph Series, and there are few treatises on the subject. There are a brief translator's preface; an introduction by the author; two parts, respectively "Medical" and "Literary Section"; a conclusion and résumé; and an index; the original's title is "Über Nachtwandeln und Mondsucht," and it is the seventh volume of "Schriften zur angewandten Seelenkunde," edited by Freud in 1914. Other German sources of this psychologic material are Krafft-Ebing, P. Jessen, Spitta, and Löwenfeld. The average reader of the JOURNAL will find here all of it he is apt to need in his business, and this of great interest.

Part I consists of the exposition and the analysis of five of the author's cases, and three autobiographic reports from general literature by Burdach (the famous neurologist), L. Ganghofer, and L. Tieck.

Part II, nearly two-thirds of the book, quotes from (and criticizes Freudially) Sophus Michaelis's "Aebelö," Gustav Frenssen's "Jörn Uhl," Otto Ludwig's "Maria," and "Buschnovelle," T. Mundt's "Lebensmagie, Wirklichkeit, und Traum," H. von Kleist's "Der Prinz vom Homburg," L. Anzengruber's "Das Sündkind," and from "Macbeth" by the Master-Poet across the North Sea.

As readily may be imagined, the Teuton author thinks, or would have his readers think, that Shakespeare had wished his father dead, that he was a sleep-walker, etc., in a form and a substance that well might be foretold before Sadger's opinion was read. Here he goes out of his way to be Teutonic when his previous quotations and animadversions already have adequately emphasized his thesis.

The "conclusion and résumé" of this interesting discussion is adequately represented by the following paraphrases of its eight sections, in part, however, quotations:

1. "Sleep walking under or without the influence of the moon, represents a motor outbreak of the unconscious and serves, like the dream, the fulfilment of secret, forbidden wishes, first of the present, behind which however infantile wishes regularly hide. Both prove themselves in all the cases analyzed more or less completely as of a sexual erotic nature."

2. The leading wish of the sleep-walker is to "climb" into bed with the beloved "object," as in early childhood.

3. The sleep-walker often identifies himself with the beloved by putting on her clothes, imitating her, etc.

4. Children sometimes can satisfy themselves by pretending to be asleep on sundry occasions without being blamed, and sleep-walkers in like manner strive to escape censure.

5. "All sleep-walkers exhibit a heightened muscular irritability and muscle erotic, the endogenous excitement of which can compensate for the giving up of the rest in bed," — surely a bit of esoteric Freudism that might mean something if proven real. "Muscle erotic," especially pure Freudism, is about the limit of analytic asymptotes!

6. "Sleepwalking and moon walking are in themselves as little symptoms of hysteria as of epilepsy. Yet they are found frequently in conjunction with the former."

7. "The influence of the moon in this moon-affectivity [sic] is very little known, especially in its psychic overdetermination. Yet there is little doubt that the moon's light is reminiscent of the light in the hand of a beloved parent who every night came in loving solicitude to assure himself or herself of the child's sleep." [Etc., even with gas and electricity? But why not include some mythology?]

8. "It seems possible that sleep walking and moon-walking may be permanently cured through Freud's psychoanalytic method."

All this, says Dr. Sadger, is only "the first beginning of an understanding." For it let us render all thanks that may be due. The book undoubtedly will sell.

GEORGE V. N. DEARBORN.

THE BEHAVIOR OF CROWDS. By Everett Dean Martin, Lecturer in Social Philosophy and Director of the Cooper Union Forum of the People's Institute of New York. Harper and Brothers, New York, 1920. Pp. 303.

THE author of "The Behavior of Crowds" has presented us with a work replete with picturesque and interesting illustrations of crowd phenomena, and being a keen observer of people and events he has gathered together in this volume the fruit of a versatile experience as lecturer and reader.

The first chapter points out the complicated play of social forces in our civilization today, with an increasing necessity to be able to understand and interpret this flux of ideas and events. Individual materialistic psychology cannot account for the facts; and the attempts

of LeBon, McDougall, and others only partly explain social behavior. The author believes the "unconscious" is possibly a means of approach to the solution of the problems in the field of social psychology, and acknowledges the valued contributions of Freud and other analytical psychologists in giving means and methods of attacking cases in mental pathology.

The crowd is not the same as the "masses" or a gathering of people. In a certain sense it is scarcely an entity; but in another sense, as a "state of mind," it is a very real entity. In a crowd the individuals apparently think and act mainly by and through their unconscious mind; hence the crowd mind is really a form of abnormality like dreams, delusions, insanity and other forms of automatic behavior. Social gatherings serve as useful releases for "complexes," and also for the establishing of ideals and beliefs (or perhaps illusions). The abstract ideas held as beliefs by the crowd form a closed system like the obsessions of the paranoiac and hence tend to make individuals act and think like automatons.

Accepting Freud's theory of the extreme egoism of the unconscious, the author draws further proof of this fact by enumerating incidents in history and of his own experience. The individual's unconscious and the crowd mind are in about the same relation as microcosm is to macrocosm, both being characterized by extremely prejudicial, egoistic, selfish, and conservative qualities of thought and action. But the crowd as a creature of absolutism and hate is much more extreme than the individual if one can judge from some of its acts as given in this book. Taking this for granted and going but a step further, the author questions the judgments and value of crowd rule or democracy. Is it not irrational, tyrannical, and hopelessly conservative and "propagandered"? To give a final word in this matter the writer very wisely refers to other experts in that field; but he leaves the suggestion that democracy is the best mechanism of government, and that education beginning with the individual is the solution for bettering present affairs and the way to salvation from the evils of some of the present day social movements.

Following upon this brief outline of the contents of the book, a discussion and criticism of it seem obvious. Its principal weakness (if it may be termed such) lies in its dependence upon and avowed agreement with the theories of Freud. All criticisms of vagueness, mysticism, and lack of adequate proof that have been made of Freudian theories and methods are equally applicable here. The discussions

and practical illustrations from everyday life appear sound; but there is a lack of definite empirical proof to substantiate any of the more fundamental suppositions of the "unconscious," "crowd mind," etc., as used in this larger sense. Freud has achieved a goodly number of seemingly remarkable cures by his so-called reductive method, but his general theories are far from being universally accepted. A considerable number of psychologists in fact conceive that many of the results are achieved chiefly through the personality and experience of the investigator, and in spite of his theories, rather than by means of them. Lack of space prevents further discussion of this question, but it must be settled before we can seriously assume the validity of many of the assumptions in "Behavior of Crowds."

Another item in question is that of the "crowd" and its characteristic features. In the first place, this "state of mind," the essential constituent of the crowd, is an extremely vague and elusive conception. Man, the *individual*, is in himself complex enough to involve us in endless contradictions and arguments; but when a writer essays to give a unified conception of certain indeterminate groups of men entertaining uniformly certain opinions in their "unconscious," we are, to express it mildly, totally "at sea." As men differ widely both in size and behavior, so do crowds differ in number and behavior; and whether the crowd, or all crowds as the author seems to imply, are creatures of tyranny, absolutism, and hate is a mooted question.

However, in conclusion it must be said that the author has presented here a most readable and well-written book which contains many thought-provoking as well as amusing accounts garnered from the wide experience of an observant student of crowd phenomena.

H. R. DESILVA.

THE TWENTIETH PLANE: A PSYCHIC REVELATION. Reported by Albert Durrant Watson, M. D., President of the Association for Psychical Research of Canada. Jacobs & Co. Philadelphia, 1919.

AT last we are told of a medium who is able to communicate with the great figures of the past, mostly literary, and to hear the opinions of their own work as well as that of their contemporaries. By use of a board, not unlike the ordinary "ouija," by automatic writing, or by speaking during trance, the medium, a Canadian, forty-two years old, well read in the works of Disraeli, Lincoln, and Ingersoll, but without an intimate acquaintance of the great poets and dramatists, is able to give messages from "Col-

eridge," "Tennyson," "Walt Whitman," "Lincoln," and a host of other famous personages. Even "Robert G. Ingersoll" when asked what surprised him most when he first found himself on the "twentieth plane" answers briefly, "That I am alive." The curious thing about all these messages or communications is that there is no marked diversity of literary style. The contrast between the style of the cynicism of "Voltaire" and that of the egotism of "Walt Whitman" is not of sufficient degree to warrant saying that the communications came from original sources, nor do "Shelley" and "Coleridge" ever break forth in lyrical meters as we believe they were wont to do. A careful study of these messages reveals the important fact that they were all, I believe, elaborations in the unconscious mind of the medium. For this reason the book is valuable and there are many resemblances between this case and that of Dr. Flournoy's Mlle. Helene Smith. There is no doubt whatever that the medium was at all times sincere and unconscious of the communications. It probably shows that by hearing, unconsciously, or perhaps reading quoted conversations and fragments of poetry and drama, the medium, as the normal conscious ego, or as an ego artistically inclined, was able to reproduce them in a form unrecognizable to himself, not unlike the original, but all unmistakably having a characteristic individual style of presentation. Nowhere, I believe, is there shown to be any direct evidence of telepathy. Dr. Watson, the reporter of the observations, postulates no theory. He says that neither he nor the medium wish to be quoted as spiritists. It is a little difficult to gather from reading the messages just what is meant by the "Twentieth Plane" for it appears that "Shakespeare," "Coleridge," and "Tennyson" frequented that plane while "Lincoln," "Disraeli," and "Emerson" are on only the sixteenth. "Sappho" on the other hand has attained the one-hundredth, while on the one-thousandth plane dwell "Christ," "Socrates," and "Plato." Ordinary mortals, "Emerson" tells us, are living on the fifth plane. The conversations are interesting and in a general way show a resemblance to the original but in no sense to be convincing.

EARL L. HECK.

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ORIGINAL ARTICLES

SYMPOSIUM ON THE RELATIVE RÔLES IN PSYCHOPATH- OLOGY OF THE EGO, HERD AND SEX INSTINCTS¹

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I

THE EGO-INSTINCT

BY BERNARD GLUECK, M. D.

DIRECTOR OF MENTAL HYGIENE DEPARTMENT, N. Y. SCHOOL OF SOCIAL WORK

THERE is still ample reason why one should hesitate to state anything dogmatic concerning instinct as related to human behavior, notwithstanding the fact that psychological literature, especially of recent years, is pregnant with speculation concerning this subject. The situation is fairly simple when one finds it easy to pursue the common fallacy of confusing psychology with biology and physiology as many students of human behavior are in the habit of doing. Thus convictions and principles are rigidly adhered to and loudly proclaimed on no further proof than that gained from observations on the behavior of lower animals, and physiological processes or biological phenomena which may very well explain things in the behavior of the dog and cat are taken as absolute criteria for guidance to the psychological understanding of the behavior and endeavors of man. Such mixing and confusion of categories is held justifiable on the ground that man is but a more highly evolved ape and that any attempts at differentiation between that which is readily enough recognizable as a physiological process in a lower animal and

¹ Held at the Eleventh Annual Meeting of The American Psychopathological Association, Atlantic City, N. J., June 11, 1921.

that which is a strictly psychological problem in the total behavior of man is dismissed with a shrug of the shoulder as bordering upon the mystical.

This fallacious attitude — at any rate, a thoroughly impractical one in the realm of everyday human affairs, is but one of the penalties of a too great preoccupation with the gods of modern science.

The practical psychopathologist or psychiatrist cannot afford to permit this rigid and often misleading tendency, scientific though it may be called, to overawe him, and incidentally to work havoc with his task as a therapist, primarily concerned in the adjustment of mal-adjusted human relationships.

Those who have taken part in the struggle to emancipate psychiatry from the trammels of a too rigid nosology know how little concern is to be had over accusations of being unscientific and are not strangers to the amount of real mischief that is still being perpetrated under the guise of a respectful and respectable adherence to scientific classification and nosology. Only recently a candidate for a doctor's degree in philosophy, a man of considerable promise and achievement, was arrested for having stolen some books. The stealing on the part of this type of man, already a somewhat curious phenomenon in itself, received further uniqueness from the fact that this man exhibits a special penchant for stealing books on ethics and philosophy and in his personal conduct and relations is extremely ascetic and dogmatic about moral principles. Furthermore, there appears to be a significant temporal relationship between the death of a devoted sister, the abandonment of a habit of conduct which caused great moral conflicts and the beginning of these overt delinquencies of stealing books.

But formal and scientific psychiatry, finding the man neither insane nor defective in intelligence, declares its impotence in the matter and turns him over for treatment to the law. Repeatedly cases of misconduct or maladjustment, especially in adolescent boys and girls, have come to our attention with the story from a distracted parent that the psychiatrist, frequently the last hope in a long search for help, has declared with finality that it is not a case for him, since, forsooth, the boy or girl is neither defective nor insane, nor, if you please, psychopathic. And yet, the bulk of extra-institutional psychiatric practice, whether private or in the free public dispensary, is made up of cases which do not readily fall within the accepted psychiatric categories.

The experiences of the world war have given a new impetus to the already widely prevalent and genuine interest in psychiatry and mental hygiene on the part of the general public, and have rendered more urgent the obligations of the progressive psychiatrist to emancipate this branch of medicine from a too rigid domination by the various abstractions which have lately been passing as scientific formulations, and whose scientific procedure consists in a hopeless confusion of the psychological in human behavior with physiology or general biology, and in a complete identification of the aspirations and endeavors of man with the life phenomena of the dog and cat, as revealed by physiological and behavior studies of the laboratory. The type of psychiatry which promises the best results is the type so frequently stressed by Meyer and which depends for its formulations on the study of man as he is revealed to us in his everyday behavior reactions, in his ambitions and strivings, his successes and failures, etc. This involves a recognition of such things as "human values" which are unique as values because they are human values, and as such have no community of purpose with the dog or cat.

Psychoanalytic theory and procedure have been adversely criticized because of their avowed purpose to prove man to be no different from the beast. On the contrary, one of the most valuable contributions of the psychanalytic school has been the emphasis it puts upon the truism that for the understanding of man we must study men and not beasts.

What has been said thus far may sound, indeed, as a strange preamble to a discussion of instinct. I certainly hope that I have avoided giving the impression of not being in full sympathy with research in comparative anatomy and physiology, or with the efforts of the behaviorists. Neither am I at all inclined to depreciate the value of the contributions that have come from these fields. Particularly noteworthy along these lines are the efforts of McDougall, and his followers, to show how the simple instinctive reactions which are common to all living creatures become elaborated and shall I say, humanized, before they are expressed in the behavior of man. What I am contending against, is the widespread tendency to the often wholly unjustifiable and loose drawing of analogies between the behavior of man and the reactions of other animals. In the practice and teaching of psychiatry, one finds it inescapable to see in the fully integrated human being something different from a unity which can be wholly explained on mechanistic principles.

Man, such as he is, and such as one is obliged to deal with in everyday human intercourse, when viewed in his synthetic and integrated totality is neither a mere aggregation of vital organs and functions, nor a bundle of stratified hierarchies, one presiding over the other. A new quality seems to emerge from this anatomic, physiologic and psychologic synthesis which we call human personality with objectives of its own. No amount of insight into the various types of response, such as tropism, reflex, instinct, will in itself suffice for an understanding of the human personality, if these responses are viewed in their crude aspects and as reflected in the behavior of the dog or cat.

Any discussion of instinct, therefore, which has for its object some additional light upon the subject of human behavior must have in view, first, that in the behavior of the human personality as such, we are dealing with psychological phenomena essentially, and, second, that while due attention must be given in such a study to general biology, it is the special biology of man which is of prime importance.

The reasons for the first condition are obvious. The second condition is essential because the manifestation of crude and unmodified instinctive reactions in the behavior of man is a very rare phenomenon under present-day conditions of life, and something which we have only very exceptionally to deal with as psychiatrists.

Take, for instance, the subject of fear, an emotion associated with the all important danger instincts. This phenomenon, even in a very exaggerated form, is not uncommon in psychiatric practice, but only very exceptionally do we see it accompanied by reactions which are truly instinctive. Rather do we deal here in most instances with what Rivers has aptly called "manipulative reactions" which bear only faint traces, if any, of an instinctive character. Furthermore, accepting, as we are inclined to do, that there are certain innate instinctive determinants of the self-preservative manifestations in the behavior of the human being, we still cannot conceive of the ego as something apart and passively waiting for a stimulus which arouses some one or more of the egoistic trends, and only then manifesting the required reactions.

This may well be true of those instinctive determinants which have to do with the simple organic needs of the human organism, — such as food, drink, shelter, elimination, etc. But how often, I ask of you, do these simple and primitive organic needs give rise to psychopathological problems in the life of man under present-day social

organization? What we meet with as psychiatrists, in so far as the ego-instincts are concerned, are maladjustments with reference to the goal which a given human being has evolved for himself, with pathological phenomena which have to do with the individual's ego-ideal. The ego-ideal, to be sure, an elaboration which has its roots in crude instinctive determinants, is, nevertheless, something quite unique to the human organism, dealing not alone with organic needs, but with human values, and requiring, therefore, for an understanding, an approach which is quite different from that which we find adequate for an understanding of crude instinct. It is from this point of view that I would undertake the discussion of the ego-instincts in psychopathology, the subject assigned to me in this symposium.

As a preliminary, I think it quite justifiable to adhere to McDougall's list of instincts, since this estimate of the innate equipment of man is quite adequate to explain human conduct in the main. But I consider it distinctly advantageous to adopt Tansley's grouping of McDougall's list of instincts into the three main categories of herd, sex and ego.

According to this grouping we would include under the ego-instincts the following: Flight, pugnacity, repulsion, curiosity, self-assertion, self-abasement, construction and acquisition with their accompanying emotions.

Equally important, and eminently practical, especially in dealing with human behavior, is Tansley's proposed formula of the great and fundamental complexes. By "complex" he means, a well defined system of ideas and emotions, created in the mind by the play of experience upon the primary forces of the mind, the instincts. Instead, therefore, of dealing here with the crude and unmodified ego-instincts we consider it more to the point to take as our starting point what Tansley terms the ego-complex, since it is essentially with instinct as modified by experience and organized into patterns of behavior that we have to deal in the human being and not with simple conations. This brings us at once within the realm of human values and permits us to deal with the ego's strivings, desires, achievements and disappointments, rather than with the crude ego-trends.

What then are some of the strivings of the ego, which appear to be common to humanity in general? First and foremost, undoubtedly, is the *desire for security*. A great deal of the behavior of the human being, in so far as this behavior is intelligent and deliberative, has this for its goal. Then comes the *desire for recognition*. Underlying many

of the serious psychopathological disorders is a conscious recognition on the part of the patient of either a fear that he may lose the esteem of his fellows, or a painful conviction that he has lost their esteem. Much of the conscious striving of the individual has this for its goal, and the curious manipulative activities of mankind in the pursuit of this goal give more frequent occasion for serious maladjustment than is ordinarily recognized. Then comes the *desire for more intimate response*, in the nature of love, adoration, personal praise, the deprivation of which or the unsatisfied hunger for which is not infrequently reflected in the histories of our patients.

These fundamental and universal hungers of the human-ego constitute much of that which the man of the street means when he speaks of a fuller life. It is embraced in the phrase of a wise economist when he speaks of the universal desire of man to "put himself across" and of another, when he says, "every man strives to break through the western front along some sector," while the late Carleton Parker's concept of the "balked disposition" embraces much of that which we speak of as psychopathological.

This rather simple delineation of fundamental human desires in terms of humanly appreciable values is proposed by Professor Thomas, the eminent sociologist, to which he adds another, the desire for new experience. In view of the peculiar onesidedness which current psychopathological discussions have assumed, a onesidedness which deals with categories which seem in many respects quite remote from the practical daily tasks of the psychiatrist, I am taking the liberty of quoting Professor Thomas fully in his discussion of these fundamental desires. The material forms part of a guide to personality study in connection with some immigrant studies carried on by Professor Thomas.

1. The desire for new experience is seen in simple forms in the prowling and meddling activities of the child, and the love of adventure and travel in the boy and the man. It ranges in moral quality from the pursuit of game and the pursuit of pleasure to the pursuit of knowledge and the pursuit of ideals. It is found equally in the vagabond and the scientific explorer. Novels, theaters, motion pictures, etc., are means of satisfying this desire vicariously, and their popularity is a sign of the elemental force of this desire.

In its pure form the desire for new experience implies motion, change, danger, instability, social irresponsibility. The individual dominated by it shows a tendency to disregard prevailing standards

and group-interests. He may be a complete failure, on account of his instability; or a conspicuous success, if he converts his experiences into social values — puts them in the form of a poem, makes of them a contribution to science, etc.

2. The desire for security is opposed to the desire for new experience. It implies avoidance of danger and death, caution, conservatism. Incorporation in an organization (family, community, state) provides the greatest security. In certain animal societies (e.g., the ants) the organization and co-operation are very rigid. Similarly, among the peasants of Europe, represented by our immigrant groups, all lines of behavior are predetermined for the individual by tradition. In such a group the individual is secure as long as the group organization is secure, but evidently he shows little originality or creativeness.

3. The desire for recognition expresses itself in devices for securing distinction in the eyes of the *public*. A list of the different modes of seeking recognition would be very long. It would include courageous behavior, showing off through ornament and dress, the pomp of kings, the display of opinions and knowledge, the possession of special attainments — in the arts, for example. It is expressed alike in arrogance and in humility, even in martyrdom. Certain modes of seeking recognition we define as “vanity,” others as “ambition.” The “will to power” belongs here. Perhaps there has been no spur to human activity so keen and no motive so naïvely avowed as the desire for “undying fame,” and it would be difficult to estimate the rôle the desire for recognition has played in the creation of social values.

4. The desire for response is a craving, not for the recognition of the public at large, but for the more intimate appreciation of *individuals*. It is exemplified in mother-love (touch plays an important rôle in this connection) in romantic love, family affection, and other personal attachments. Homesickness and loneliness are expressions of it. Many of the devices for securing recognition are used also in securing response.

Apparently these four classes comprehend all the positive wishes. Such attitudes as anger, fear, hate and prejudice are attitudes towards those objects which may frustrate a wish.

Our hopes, fears, inspirations, joys, sorrows are bound up with these wishes and issue from them. There is, of course, a kaleidoscopic mingling of wishes throughout life, and a single given act may contain a plurality of them. Thus, when a peasant emigrates to America

he may expect to have a good time and learn many things (new experience), to make a fortune (greater security), to have a higher social standing on his return (recognition), and to induce a certain person to marry him (response).

The "*character*" of the individual is determined by the nature of the organization of his wishes. The dominance of any one of the four types of wishes is the basis of our ordinary judgment of his character. Our appreciation (positive or negative) of the character of the individual is based on his display of certain wishes as against others, and on his modes of seeking their realization.

The individual's attitude toward the totality of his attitudes constitutes his "*personality*." The personality represents the conception of self, the individual's appreciation of his own character.

Without undertaking to champion the sociologist's outline as something final or all-embracing, I must say that for the purposes of a practical psychopathology and psychiatry it is more helpful than many of the discussions of crude instinct as such. Besides, it does not in the least carry with it the necessity of ignoring any of the help which we might derive from general biology and physiology. It merely insists upon dealing with psychological facts, psychologically and in terms understandable for human beings. That it may also serve quite adequately as a basis for the discussion of the pathology of the ego-instincts, I hope to make clear as I go along.

The task assigned to me in this symposium is made difficult to start with on account of the necessity of fitting the discussion of the ego-instincts into the larger scheme in which the herd and sex trends of man are separately considered. For it is impossible for me to conceive of any consideration of the ego, — wholly apart from his sex and herd attributes. Indeed, in actual practice any attempt at such separation is a mere fiction and bound to lead to hopeless confusion. If I were to be at all dogmatic in anything I have to say in this paper it would be that in the behavior of man, as we are able to observe it, the instinctive component receives its value only in so far as it is expressed in the service of the personality as a whole, fused, integrated, and free from any determination for an independent expression. Conversely, instinct is apt to become pathological as soon as it tends to assume an independent existence. What we speak of as "conflict" is the immediate defense-reaction of the personality as a whole to any such tendency for independent expression on the part of any instinct.

Experience teaches us again and again, to avoid the fallacy, for instance, of speaking of a "sexual neurosis" as such. The very thing which brings the patient to us for treatment is the ego's reaction to the alleged sexual difficulty, and not the sexual difficulty per se. For there can be no difficulty of specific instinct unless it makes itself felt in some disorder of the personality as a whole.

So that health, or normality, as it concerns instinct is to be measured by the same standard as health, in other respects, is measured, namely, by the standard of integration. So long as an individual does not become especially aware of the fact that he has some instincts within him, his instincts are to all intents and purposes normal. On the other hand, any special or extraordinary claim upon the personality as a whole on the part of any instinct requires an extraordinary adjustive readiness and capacity on the part of the organism as a whole, and may lead to disease or abnormality. In fact, one might go a step further and say that normally, this special and independent assertion of any given instinct requiring a definite break in the integration of the herd, sex and ego-components of man is called for only in exceptionally critical situations, and that it seems that man is losing the capacity to act effectively, even in critical situations when such split in unity is called for.

Normal instinct, therefore, is instinct which fits the individual's scheme of life and behavior in its entirety. This dictum is simple enough when it concerns living creatures other than man. In man we have to reckon with another factor than the mere ego-instincts, the factor of the ego-ideal, and here we are at once confronted with the question, what constitutes a healthy ego-ideal? For it deserves frequent reiteration that in dealing with the human personality and its needs much remains to be said, still, after due attention has been given to the organic needs of the human organism. What constitutes a healthy ego-ideal? Unfortunately biology or physiology or even normal psychology helps us here very little. We can only infer what this is likely to be from a consideration of the evidence furnished by psychopathology.

The troubles of the ego, as we call them, are often troubles with reference to the ego-ideal, and of a nature of a too great discrepancy between aspiration and equipment. It would seem, therefore, that judging by this criterion, a normal ego-ideal would be something which is not static, but dynamic, either progressive or regressive and constantly adjusted in such manner as to avoid putting upon the

individual demands for achievement which are quite out of accord with his capacity for meeting them. I say that the dynamic nature of the ego-ideal may have to allow for the possibility of regression as well as of progression, because it is the lack of this very capacity to adjust to adversities which demand a regressive reshaping of the ego-ideal that frequently leads to pathological reactions.

This brief statement of what might be considered a healthy ego-instinctive component and ego-ideal with the general and specific elements of the latter, brings us to a consideration of the psychopathology of the ego-instincts.

What renders the ego-instincts, or better still, the ego-complex, in the sense of Tansley, pathological, and what are the manifestations of such a pathological state? It would be, to my mind, pure speculation to start with, to endeavor to determine what the situation may be here congenitally. In spite of the fact that we are apt to see in certain states of maldevelopment of personality, such for instance, as in epilepsy, feeble-mindedness, and in certain types of constitutionally inferior individuals, indications of a pathological ego-equipment it is not very safe to assume absolutely that the ego-instincts may be affected congenitally. Certainly, it would seem altogether too speculative an enterprise to endeavor to be in any way precise and specific concerning possible congenital modifications of the ego. What is true of the wider field of psychopathology is coming to be recognized more and more as being true also of those states which we were in the habit of stigmatizing as defects, namely, that the life experiences, in the broadest sense of this term, with which the individual has come in contact are the real determinants of personality and character, and that we are on much safer ground when studying these more tangible and concrete facts in their possible influence upon the personality than is offered by the speculations concerning heredity and congenitalism.

We are coming to recognize more definitely, for instance, that the character defects of the epileptic, while rooted in a defective soil, are conditioned very materially by the epileptic's life-experiences and are subject to a degree of modification hitherto undreamt of. Similarly, while we may prove statistically the congenital character of certain forms of feeble-mindedness, the student of this subject recognizes clearly that much remains still to be said concerning a specific individual that is of vital importance, after a diagnosis of feeble-mindedness has been established. One knows of cases of feeble-mindedness of a similar degree of mental-deficiency who differ

from each other as widely as possible, the differences being determined very often by the differences in the conditioning life experiences of these individuals rather than by any mystical hereditary selectiveness.

The feeble-minded boy whose defect is recognized early and who is accordingly spared the repeated humiliations and defeats which go with an unintelligent persistence in putting a defective child at tasks which are quite beyond his possibility of achievement, is apt to develop a different personality, and different ego, from that of the personality of the mismanaged feeble-minded boy.

The epileptic boy whose ego-centric dominations are checked and corrected from early childhood and in whom an effort is made to cultivate socially acceptable modes of self-assertion is apt to be a less distressing and annoying kind of epileptic than the one who is neglected or merely treated chemically. In both the feeble-minded and the epileptic the phenomena of make-up and behavior which are essentially psychological are subject to the rules governing all psychological phenomena. If there are differences here they are differences of degree rather than of kind. We shall, therefore, not speak any further of any pathological manifestations of the ego-instincts which may be supposed to have been determined congenitally. In doing so we naturally do not mean to suggest that the road to research along these lines is absolutely closed. We merely want to avoid futile speculation.

When we come, however, to those pathological manifestations of the ego which we believe to be traceable to conditioning life-experiences, we are entering upon distinctly firmer ground.

It would lead us considerably beyond the scope of this paper which deals primarily with psychopathology to enter into a too detailed consideration of the development of the ego. It would involve a consideration of those very fundamental and extensive constituents of the ego which are embraced in the body with its organs and mass of continuous stimuli which we designate as common sensations, and which contribute so largely to the shaping of the thoughts, emotions and strivings associated with the self.

It would take us necessarily into a discussion of the very intimate and important relationships between the development of the self as such and one's sexual development. It would involve us in the highly speculative realm of the genesis and advent of self-consciousness.

For psychopathological purposes it is safer and quite sufficient

to confine one's self to the more or less well integrated end-products which we may recognize as belonging to the ego-complex primarily.

Thus it is safe to deal with such of the conations of the ego-complex as we are familiar with in ourselves and others. As self-maintenance or the "will to live," being the primary conation and self-maximation or the "will to power," in its various and intricate manifestations, the conation of secondary importance, it is essentially with the pathological modifications of these fundamental strivings of the ego and with the means employed for their achievement that we are interested in as psychopathologists. For a correct estimation of these manifestations it behooves us to pay heed to what William James had to say in his discussion of the "hierarchy of the me's"; it demands a greater stressing in psychopathology of what some one has called the "bread life" of the individual with the underlying manifestations and influences of the acquisitive instinct. The positive value of the constructive instinct and its influence upon the shaping of the ego, specifically, in determining the relative social worth of a given personality deserve more of our attention.

Then the instincts of self-assertion, and self-abasement, with their accompanying emotions, components of the ego which play such a determining rôle in conditioning the degree of self-esteem as well as the degree of suggestibility to herd influence which the individual manifests, must claim our attention.

These various constituents of the ego-complex which we have mentioned are no less important as determiners of the character and reaction patterns of the individual, than are the more overtly expressed instincts of pugnacity, repulsion and flight. Moreover, whereas the latter come to the surface most commonly only in connection with certain critical situations, the former are the steady, habitual influences which go to shape the personality.

The emotions associated with the ego-complex in which we are particularly interested are those which are coupled with the twin instincts of self-assertion and self-abasement, namely, the positive and negative self-feeling of McDougall, or the feeling of elation and depression, since upon the condition of these twin instincts probably depends the habitual state of the morale of the individual. And is it not some sort of problem in self-respect, or feeling of adequacy, or of morale that we most often encounter in psychopathological reactions?

I shall touch briefly upon the relation of the emotions of fear,

anger and apathy to the ego-complex later on when considering some of the acute pathological reactions of the ego.

This brief reference to the constituents, conations and important emotions of the ego-complex ought to furnish us the starting point from which we might consider the pathological modifications of the ego-complex which may be brought about by the play of experience upon these instincts, modifications either in the shape of pathological character formations or of acute reactive phenomena.

We are concerned in the former mainly with two types of variations from the normal, namely pathological egotism and drive for self-maximation with all the accompanying phenomena, and a pathological degree of timidity and self-effacement with its train of manifestations. Since a normal state of the ego probably depends in the main upon a proper balancing of the instincts of self-assertion and self-abasement, it would be well to consider primarily the conditioning influences upon these two instincts. Among these conditioning influences those which have to do with various inferiorities are commonly met with in psychopathology. The inferiority to start with may be relative or actual and may depend upon some structural or functional defect or upon a mere feeling of inferiority induced psychologically as a result of any possible variety of life experience.

The subject of the inferiority feeling or inferiority complex has been dealt with adequately by many authors and requires no treatment here. Indeed, it forms the basis of Adler's psychological scheme. What must be emphasized over and over again is that the manifestations of a pathological exaggeration of the ego, or of the obverse state is much more often something in the nature of a reactive, compensatory manifestation than an inherited, fixed and unchangeable anomaly of character and make-up. Of considerable practical importance is the growing belief that it is distinctly within the realm of a practical mental hygiene to prevent the occurrence of these pathological reactive phenomena of the ego-variety. It is one of the most pressing problems of the day in the field of education, since a proper recognition of the rôle of success and failure in the shaping of the ego, and of the perniciousness entailed in the growing tendency on the part of the modern parent to wish to re-live his own life, only in a more elaborated and maximated degree through the lives of his children, should do much to prevent many a frustrated career. It is this pernicious tendency which is largely responsible for the maladjustments resulting from a too great discrepancy between aspiration and endowment. The

family tragedies at the basis of a pathological need for self-maximation on the part of one or both parents is almost inevitably reflected in the personality and make-up of the children, either in the form of an actual crushing of the self with a persistent state of timidity and lack of morale, or in a frantic need for a compensatory exaggerated egoism. These reactive phenomena of the ego may manifest themselves, as they frequently do in overt behavior reactions of a selfish, anti-social nature, especially when the behavior is the result of a reflective rationalisation, as in the case of habitual offenders against the law, of certain "captains of industry," or prophets of a new order. Or, the manifestations may be more or less symbolic, and by that token, are apt to be more strictly pathological as in the case of various delusional and hallucinatory elaborations of the intimidated hebephrenic or aggressive paranoiac.

Especially deserving of further study are those pathological elaborations of an ego-ideal, the roots and instigators of which have become definitely repressed into the unconscious. Since here any possibility of constructive adjustment is ruled out from the start, the patient is not even conscious of the main objective of his frantic drive for self-maximation and the goal persists in eluding him. In the meantime, the pathological need and drive for compensation, the roots of which remain out of reach of the individual's awareness lead to persistent behavior reactions which are distinctly pathological in their ego-manifestations.

My remarks concerning this extensive and important subject of instinct in human behavior are apt to be less complete than they are bound to be anyway, if I were not to mention, briefly, at least, the subject of the acute psychopathological manifestations which are related more or less exclusively to the ego-instincts of man. This phase of the subject before us is to my mind not nearly so important as is the aspect which we have more fully stressed, namely, that of the conditioning influences which life-experiences exert upon the shaping and development of the self. The subject deserves some mention, particularly, because of the controversy which has arisen in connection with the attempt to give clear definition to some of the neuroses of warfare. The question has been raised as to whether the war neuroses are the expression either in part or wholly of the ego-instincts. Those who have had to deal in civil life with situations which resemble to some extent the exigencies of warfare have been familiar with the pathological reactions which have received so much

attention in connection with the world war. I am referring to pathological reactions observed in connection with imprisonment, especially under exceptionally rigid conditions of deprivation and balking of the ego, and occasionally, in connection with the imminent threat to life in those condemned to execution. We have had occasion to observe repeatedly these reactions in all the various forms which were manifested at the front, and some years ago published case studies which showed clearly the situational character of those neuroses and psychoses and their essential recoverability when only the ego-instincts were involved.

The emotional accompaniments of these prison-psychotic reactions are limited as in the psychoses of warfare to the emotions of fear, anger and apathy.

Now that I have reached the end of my paper I realize how incomplete is my presentation of the subject, and what is more distressing, that because of the hurried fashion in which it was written, how much of the staccato nature it reflects, in that it touches unpar-donably lightly upon many important points which deserve a much more extensive and erudite treatment than has been accorded them here. I hope, however, that the thesis which I am most anxious to bring before you has been made sufficiently clear — namely, that in the consideration of the subject of instinct as related to human behavior we must endeavor to avoid the fallacy of confusing the issues of human personality with those presented by a study of the behavior of the lower animals.

II

THE HERD INSTINCT

BY SANGER BROWN, II, M. D.

A study of the development of the mind, and of its normal and abnormal processes, has been carried on, until recently, through studying man chiefly as an isolated individual. But within the past few years it has been indicated from a number of sources, that such a study is incomplete unless, at the same time, man is considered in relation to others in his group. Man does not live alone, and in isolation. He is gregarious, and his life is inseparable from the lives of others. So to learn of his mental development, he should not be studied solely as an individual, as such, but also as his life brings him into association with others.

These facts have always been appreciated to some extent by a few; but Trotter, probably more than any one else, has emphasized their importance and their significance.

Today, we think of man as being highly individualistic, of his thinking and acting, for the most part, independently, at least within reasonable limits. But if we look into this more closely, we realize that man is less individualistic than he appears to be. At least the majority of men do not live in complete intellectual isolation, as regards their thoughts and opinions.

There are, of course, many variations in popular opinion; but as Trotter has shown, people are divided into groups, and the individual man, however radical, takes much comfort in identifying himself with one of these groups, either as a follower, or as a leader. Perhaps in earlier times, people of the nation or of the tribe conformed as a whole quite closely in matters of opinion. The difference at present may be that whereas before there was but one large group, constituting public opinion, there are now many small groups.

Of course these groups are not always recognized as such. A man does not usually consider himself as belonging to any particular type or class; but as a matter of fact, intellectual or social isolation is quite exceptional. When we do meet such a person, he seems to be swimming against the stream. He has a hard time, and is not regarded in a favorable light. He is likely to be thought queer, and erratic, and his friendship is not sought. But if he collects even a few followers he is no longer an outcast; he has joined a group.

It has been shown that the group, through the vehicle of public

opinion, has a very subtle way of imposing its will upon the individual. The latter is not fully aware of this influence, and he responds to this general, although ill-defined, pressure, without entirely realizing its presence. This pressure of public opinion, as the term is here used, is spoken of as herd influence; and the susceptibility of the individual to this influence is spoken of as herd instinct.

It is possibly not very flattering to our intelligence for us to believe that we are controlled to a certain extent, in this way, by public opinion. We prefer to think that the ideas which we entertain are arrived at independently. Probably people vary considerably in their susceptibility to this influence. Some, interested in the material affairs of life, accept the opinions and beliefs held by the great mass of people without concern or question. Others, of a more reflective or investigating turn of mind, are more critical of the opinions which they accept. It is probably by them that the numerous smaller groups with variations in public opinion have been formed.

This independence of thought, as expressed in the freedom by which these small groups are formed, while a part of our civilization today, did not always exist as such. We need not go back many years to learn that great conformity once existed in most important matters of opinion and belief. If we go back, not for centuries, but even a comparatively few years, we find that people were then much less at liberty to express individual beliefs than they are now. Even such temperate individuals as Matthew Arnold and Huxley and Darwin felt themselves isolated intellectually, and it required courage on their part to maintain their opinions. The farther back we go, the more firmly we find national public opinion united against innovations.

It is probable that in respect to forming a number of groups we have gained in intellectual liberty. If one does not like the opinions of one class, he can associate himself with another.

The development of herd influence in the life of man has a long history. Possibly we have sufficient perspective to trace some of the changes which it has gone through, from its characteristics in savage life, as we understand it, to its expression in the present day.

Herd influence with savages called for great conformity, even in their everyday affairs of life. There were endless prohibitions, taboos, rituals and ceremonies, which governed the way everything was done. These methods became customs and laws, closely bound up with the life of the people, so that eventually morals, religion,

tribal customs, craftsmanship, and indeed nearly all matters of life and death, were governed by prescribed forms laid down from time immemorial. The carefree savage, as we might be inclined to think of him, was in reality to a very great extent a slave.

This group life of savages had its positive as well as its negative characteristics. Those who have studied rituals and ceremonies and legends, feel that all of these things were built up by the collective thought of the group, if it may be so termed, rather than by any one individual. The myths and rituals expressed the deepest thoughts and emotions of the race; they seem to be a part of the race itself rather than produced by any one person. In fact, they seem beyond the creative ability of any one person of the period during which they developed. They stand as monuments of what the group may produce intellectually in the savage civilization.

Gilbert Murray seems to have proven this same influence in the origin of Greek epic. He shows quite conclusively that the *Iliad*, which we call Homer's, originated in reality from group thought, and not from the mind of any individual by the name of Homer, or any other one person.

When we think of the racial development of man, then, from the historical standpoint, we must agree with Trotter that in the past, he has been most intimately associated in his thoughts, actions and beliefs with the life of the entire group.

However, man of today, while still gregarious and social, has developed very strong individualistic characteristics. Herein we have a significant situation. On the one hand, we still have herd influence, although in a somewhat altered form, and on the other, we have this strong individualistic tendency. The existence of the two makes for conflicting purposes.

Perhaps the situation which we have today may be summarized as follows. We no longer have strict and binding national and tribal traditions and customs, expressing only one public opinion, to which all must bow; today we have strong individualistic tendencies. These tendencies, however, do not place the individual in entire intellectual isolation, since herd instinct is strong within him, practically obliging him to identify himself with one group, however small. In place of the large body of public opinion, we have numerous small groups, to any one of which he may attach himself.

It might be inferred from this that as far as the individual is concerned, we are rapidly ridding ourselves of any detrimental effects

of herd influence. Small groups have been formed where the most diversified opinions are acceptable, and the individual has the privilege of changing from one to another, if he so desires.

There are a number of reasons why all the problems connected with herd influence cannot be settled in this simple way. Some people in early life may be subjected to particularly strong traditional influences, either through moral training, or religious training, or training by way of family tradition. As a result their judgment may become biased. This makes it difficult for them to change their point of view on some subjects, even though such a change might bring greater harmony into their lives.

Chance, or circumstance, may place others in a career which they find uncongenial, or for which they are intellectually or temperamentally unfitted, but a change to more profitable pursuits may be difficult for them, because it necessitates a change of cast, or perhaps because the realization of the need of change comes too late.

A brief illustration will suffice. A man of good intelligence and education struggled along in a law office for fifteen years, at a profession for which he was temperamentally unfitted. When the war came, he had a respite for three years, and these were the happiest years of his life. Then he went back to the office, but the life which had been barely endurable before, was now no longer endurable at all. He became more and more oppressed with it all, and in the course of time he, who had formerly been discontented and a failure only, became, in addition, a patient.

If this youth had not been reared under the tradition of following the profession of law, at which his father and his grandfather gained eminence, he might have chosen a career for which he was temperamentally fitted. Had social opinion, in his case, made it possible for the son of a prominent man to quit his profession, when he found he was unfitted for it, results might have been different. Had he possessed the strength and courage to have overcome, unassisted, this pressure of opinion, and to have made a change regardless of it, his case would doubtless have been otherwise. But while it appears that all of these things should have been possible, one can appreciate circumstances in which they are not.

Of the many people in the world who find themselves in quite similar situations, probably only a few become patients. They are failures, or at best incomplete successes, and they contribute to the sum total of discontent.

Perhaps the most important class of all, who come under this category, are those who for various reasons, cannot conform to the opinions or traditions of any established group whatsoever. There are some people who do not fit in anywhere. Some of them have intellectual limitations or handicaps, but as a whole they are the non-conformists spoken of above, who seem to be swimming against the stream. They are not necessarily patients from the beginning, but they furnish the group from which the patients of psychopathologists are drawn.

It is upon these people, probably, that herd influence has its most disastrous influence. Humanity as a whole has not reached a point where it is very sympathetic toward them. They suffer from pressure from without, in an unfriendly environment. They are unable to get that comfort out of life which most people get, by identifying themselves with some group. They feel an unpleasant intellectual isolation, which makes man unhappy. They suffer from the effects of herd instinct existing within themselves, urging them to conform to the ways of other people. Moreover, because of their somewhat unusual personalities, they encounter exceptionally difficult problems in life, in a world fashioned for people constituted otherwise than themselves.

To pass upon the value of herd influence, as it exists in society today, is not easy. Doubtless herd influence is of inestimable value in some directions, mainly, as a tremendous force in making for law and order, with the great mass of people, acting through the medium of public opinion, it also places a powerful check upon undesirable excesses.

If it deters the individual from undesirable excesses, it also may put a restraining check upon his originality. Many people showing evidences of originality in youth, seem to be discouraged and oppressed when this individualism brings them into conflict with some of the irrational and traditional beliefs of the past. Any one familiar with the history of the progress of science, particularly with the lack of advance over long periods, can readily see that a passive acceptance of traditions, has often retarded progress.

In education today, it has been pointed out that the conventional instruction given the average young man, while acquainting him with the prescribed knowledge and opinions of his time, does little to encourage him to think for himself. Many people believe that society through over-standardization of education, limits the independent

intellectual development of some of its most enlightened members.

Herd instinct is doubtless a great leveler. It brings the mass of people up to standards of conduct, which they might otherwise never reach or maintain. At the same time, it often robs the enlightened few of the full development of their intellectual possibilities.

If society were capable, which it is not at present, of directing the trend of herd influence, how should it begin? Too great individualism makes for chaos; but by herd influence certain irrational traditional beliefs are kept alive, not to the best interests of society. With no herd influence, however, the great mass of people might readily yield to individualistic extremes.

It would seem that psychopathologists, in any case, may make a practical use of what knowledge of herd influence exists, to assist in straightening out the unsatisfactory lives of those people wherein this influence has played a disastrous rôle.

The success with which people get on in life is not dependent upon their mental qualifications alone. It is also dependent upon environment in which chance may have placed them for the exercise of their talents and abilities.

The mental therapeutics of the future will doubtless find it necessary to give greater attention to the social habits of individuals treated. The study of an individual, however intensive, does not give sufficient data for intelligent treatment, unless this is supplemented by a knowledge of his social life with the rest of mankind.

A just criticism of the narrower Freudian psychology of the past has been that the treatment has dealt almost exclusively with the individual regardless of his social environment. It is also probable that we will wish in the future to place greater emphasis upon what has been recently termed "the situation types" of neuroses and psychoneuroses. In such types conflicts in which herd instinct plays a part are very evident, and we should supplement our study of the individual in such cases by a more thorough study of environmental influences. This is particularly true of such conditions arising in the early years of life.

There remains to be discussed a somewhat academic subject in relation to herd instinct; namely, the relation of certain kinds of thinking, seen during early racial development, when herd instinct

appears to have been much in evidence, to an apparently similar kind of thinking, seen in psycho-pathology.

Many have pointed out parallels in ways of thinking, between the strange symbolisms and myth-making of savages, and the romancing and day-dreaming, in the play life of children. A similar kind of thinking, and symbolism, has been recognized in the distorted dreams of some neurotic people, and in the dreams of perfectly healthy people; likewise in the workings of the minds of certain mystics, and of those belonging to occult sects, and finally, in the distorted symbolic trends of thought of the insane, this same kind of thinking seems to occur. Can these similarities be traced to similar qualities of mind, in all these people?

It was pointed out above, that in very early savage life individual thought did not exist, in the same way as it exists at present. A collective kind of thinking, which has been termed group thought, indicated an ability on the part of the group, to instinctively think and act as a group unit. Individual thinking at that time must have been very restricted and limited.

Miss Jane Harrison, in a book entitled "Themis," has made an interesting analysis of the ways of thinking of savages, which may make the above statements somewhat clearer. She shows that during this earlier period of collectivism, man had relatively little consciousness of self, or of his own personality as such. He did not regard himself as intellectually entirely separate and distinct from other people, or quite distinct from inanimate nature.

It is difficult for us to conceive of a mental state of this kind; but such a condition of the mind explains many things in savage life. It explains and makes rational the seemingly irrational ways of savages, in social customs, and in their fashion of attributing life and influence to inanimate nature, in their surroundings.

For example, a savage felt that anything which was near and dear to him, such as his weapons or his trinkets, actually became a part of his own individuality. He thought that if any one destroyed these possessions or weapons they could thereby do injury to him. This belief worked out in curious ways. He believed that an enemy, by gaining possession of bits of his hair or his clothing or other possessions, could make him ill by magical performances upon these things. It is stated that one effect which this belief had, was to make members of one group or moiety of the tribe always suspicious of members of another group. Individuals of different groups were

never quite at ease in each other's company. They feared domination from an enemy by means of this outside influence, somewhat as a paranoid patient feels domination from an influence from without.

Here is an example, therefore, of where it is thought by those who have made a study of it, that strange and distorted beliefs, entirely normal in savages, are dependent upon a vague, imperfect development of consciousness of self.

This vague sense of individuality may be illustrated in other ways. Savage man has always been prone to fashion images of himself, in his attempts at art. In his legends, he portrays important experiences of his life history. During this time when he is supposed to have had this vague sense of personality, how was he to portray himself, in art, and to fashion romances about himself in his legends?

In this he seems to have been entirely consistent, in that he did not sharply individualize. If, for example, he wished to represent an ancestral goddess, he represented a very peculiar being. The goddess, instead of being a beautiful woman, as we would imagine her, or even as she appeared in a later period of civilization, appeared, during this earlier period, as a woman ending above with her head in the clouds, from which volcanic smoke issued; below she ended, not with feet, but as a mountain from which streams flowed to the ocean. She was a nature goddess.

A similar creation, was a male ancestor who did not appear as a human figure, in our sense, but was partially human with a snake's body or tail. We are told that the pictorial and legendary representations of that time, were in accordance with what man conceived himself to be. This was during a very remote period of savage life, when vegetation spirits and nature deities held sway. Full fledged gods with human attributes are thought to have originated much later.

Here again, then, it has been affirmed that this peculiar kind of thinking and symbolism which was current with primitive man, was dependent upon his lack of appreciation of his own personality.

In young children these same characteristics have been pointed out. It has been observed that the child, under a certain age, does not have that consciousness of self and personality which adults have. The child attributes life to inanimate objects in its surroundings, in much the same way as savages. The study of children has shown that there appears to be a time in their mental development when their consciousness of self is not entirely mature.

In mental diseases a parallel condition has often been described. Here a similar disturbance of personality sense seems to take place. The self is no longer in control, and there are feelings of domination from without. Delusional trends seem in part to be dependent upon this condition. Many psychiatrists feel that the inadequate evolution of the personality sense is the significant thing in certain types of dementia praecox. It is also felt that the distorted and symbolic thinking, seen in these cases, may be dependent upon a lack of integration of personality. Analogies between the symbolism of mental cases, and savages have frequently been pointed out. This may be dependent upon a primitive state of evolution in savages; and an atavistic lack of integration in mental cases.

Again a sense of altered personality seen in states of hysteria, and the temporary confusion of personal identity in dream states, and some other disturbances of consciousness, possibly have points in common with conditions mentioned above.

This vague, indefinite kind of thinking may not be as foreign to anything we know of as at first appears. May it be suggested that certain people living in our generation, but who really seem to belong to another, because of their interest in occultism, mysticism and the so-called new cults, which are really old cults, — may it be suggested that these people belong in the same category?

Possibly what is meant here by a sense of individuality, a consciousness of self, should be defined more closely. What does one mean by personality, self-consciousness or awareness of self? It may be possible to discuss some characteristics of these conditions in plain and simple terms.

Low forms of animal life, while so constituted as to possess sense organs, special sensory communications, from skin and viscera, and higher centers from which responsive impulses issue, are not thought to possess, to any appreciable extent, a consciousness of self; i. e., of personality.

Higher organisms with more highly differentiated sense organs, nervous centers, association paths between centers, — mechanisms which make for complicated co-ordinated action, deliberate action, action under control of one dominant center — even these organisms as seen in the higher vertebrates, are not thought to possess a consciousness of self, as it exists in man.

But with a much more elaborate development, the storing up of

impressions, of memories, power of recall, elaborate association between centers, — with this kind of development, such as is possible in the new brain, the cerebral hemispheres of the human species, a somewhat different situation arises.

Even this does not constitute an awareness of self in the very young child. There is a period in infancy, as stated above, when reflex action, and immediate response, have not fully been replaced by purposeful action, deliberation, forethought and conscious control. But with the human species, these latter attributes develop quickly in the young. Something which we must think of as the self, the ego, emerges promptly. Memory grows more enduring, and lasting impressions of experiences, associations, the power of bringing up memories, and most important of all, the power of assimilating the whole into a unit, an individuality, takes place.

As experience increases this unity becomes identified with a subjective sense of power, of control, and then we have what may be called the self, and awareness of self. Conscious control becomes, subjectively, an established fact. Although this integration is not present in infancy, in the human species, there exists the organic framework for tremendous expansion. Pathways are ready to carry impulses, and development probably depends, in part, upon sufficiently numerous, and sufficiently varied, stimuli.

If we assume, from a practical standpoint, that what we think of as the ego, or the self, develops in some such way, this problem may be more clearly visualized.

It may be that in adult life we are at times rudely robbed of this acquired sense of consciousness and of personality.

We can conceive of conditions in which this comes about quite readily. For example, in some organic conditions, in illness or delirium, while sense impressions from sense organs and skin are still appreciated, and while certain degrees of response are possible, higher associations, memories, recognition dependent upon memory recall, are either entirely lost or presented to consciousness at random.

Under such circumstances, consciousness or awareness of self, is swept away.

With disturbances so gross, an appreciation of personal identity is confused. Bodily sensations are not correctly interpreted. A patient may think he possesses two bodies. He may think his extremities distorted, or separate from his body. His body may seem to

float in space, etc. One can see how in such cases physical personal identity is not clearly defined.

Is there an analogy between this gross disorganization of self, and the infinitely more selective dissociation of sensation and impressions which one sees in delirium, not organic, but subconsciously purposeful, — the hysterical delirium, for example? That is, is an analogous thing accomplished by the cutting off of function, not by some toxic or mechanical means, as in organic states, but by a psychological process?

Are dream states, deep abstractions, certain stuporous conditions so different from the above? If these become habitual or chronic, have we the primary symptoms of certain psychotic states? Are the secondary states, — trends and falsifications of external impressions very illogical?

Is it possible to interpret the kinds of thinking we have been discussing in savages, in children, and in certain conditions in psychopathology on this common basis?

We should consider whether this resemblance is more than superficial. We may ask whether these apparently atavistic qualities of the mind, and these archaic forms of thought which are met with in psychopathology, dependent chiefly upon a lesion, if we may so speak of it, of the personality sense? Is this kind of thinking a normal phase in the mental development of man, seen in children before a certain age, and even more clearly in savages? Has consciousness of self, man's awareness of his own individuality, undergone an appreciable evolution during a period within our knowledge? These are questions which should not be answered in the affirmative without sufficient data to support them; but the study of the origin of herd instinct in the race seems to offer an interpretation of a number of mental conditions met with in psychopathology.

III

NOTE ON THE SEXUAL INSTINCT

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THE rôle of the sexual instinct is almost universally admitted to be of great importance in both normal and abnormal psychology. In the normal child the sexual instinct seems at an early age to color the activities and the interests; at puberty it causes turmoil; at adolescence it adds glamour and intensity to the world; throughout the prime of life it influences conscious motives and unconscious driving forces. In the neurotic patient the symptoms are often found to be the disguised expression of the sexual instinct; behind the delusions and hallucinations of the insane the sexual instinct is often detected subtly manipulating the wires.

With such universal agreement as to the importance of the sexual instinct, it is disconcerting to find universal disagreement as to the meaning of the term instinct, and the significance of the word sexual.

To some the behavior of the adult human being can, to a large extent, be resolved into a limited number of components, each of which consists of a definite mechanism reacting to definite stimuli in modes conducive to the well-being of the individual or the preservation of the species; the actual behavior of the adult is admittedly complicated by the presence of less definite mechanisms whose manifestations are seen in reasoned judgment, and in ethical strivings.

That there are in most animals in response to environmental stimuli certain patterns of reaction, which are obviously serviceable, is undeniable; the guiding force behind the evolution of these useful reactions is a problem perhaps as insoluble as the problem of life itself, one which involves philosophical considerations which go beyond the scope of a mechanistic biology. The uniformity of the reactions, their usefulness, and the fact that they are not the product of individual experience give these instinctive reactions their special stamp. The life of the insect is brief; there is no period of careful schooling for the adult tasks; nature has therefore somehow or other furnished a useful substitute for this training.

In the adult man or woman, too, we meet certain patterns of reaction, more or less serviceable, presenting a certain uniformity, but apart from a few simple reactions, such as those of fear or anger,

the problem continually arises of determining how much of this uniformity is due to the prolonged moulding of the individual by the uniform forces of the environment.

The temptation to transfer the simple formulæ of the lower biological levels, formulæ which cover much that is mysterious, to the complex human levels is great. Human conduct can then be easily compounded from a variety of instinctive elements, the number and nature of which are liable to vary with the different observers. One need never be in difficulty over any complicated behavior, any more than the practical endocrinologist is over any problem of physique. There are instincts for most purposes; to be a good hospital registrar, one needs to have "the instincts of the lexicographer."

The complexity of a concrete case, such as a wayward adolescent, is often impossible to formulate in terms of any disordered balance of a group of instincts. One is forced to admit that while in the total complexity one can trace here and there certain familiar elements, such as anger reactions, self-assertion, etc., there is a large residual which cannot be thus analyzed. The concept of instinct only carries us a short distance in the analysis of the case, unless one is willing to indulge in speculative formulations.

In a discussion of the sexual instinct, it may therefore be wise at the beginning to lay little stress on the term instinct, which, after all, is merely an abstraction from a complex whole.

If the term instinct lend itself to abuse, the term sexual is still more elusive. To associate it closely with reproduction would be to eliminate many reactions, where reproduction is out of the question, as in the homosexual manifestations; the adaptive or biological criterion of reproduction does not suffice to denote what we shall call sexual.

There are certain activities which all will call sexual; no one would hesitate to call the familiar masturbation of puberty sexual. It may not be so easy to qualify analogous manipulations in infancy. The casual gropings and manipulations of the child may involve the genitalia as well as the toes, but to apply the term sexual to the manipulations in the former case usually involves the assumption that there is a *specific*¹ pleasure connected with the activity.

Of this specific pleasure there may however be indications only in a small proportion of cases. On the other hand there may be

¹ Some may take exception to the term *specific pleasure* and maintain that pleasure is always an identical quality, no matter with what activity or state it is associated.

evidence of this specific pleasure in relation to manipulations which are not directly connected with the genitalia, e. g., thumb-sucking. To assume that there *must* be this specific pleasure in thumb-sucking, and that this action is always of sexual character is to make an unwarranted generalization. A similar situation arises in relation to many other activities or functions. The emptying a full bladder or rectum yields a definite relief or pleasure; the pleasure may be sufficiently definite for the repetition of it to be more or less a determinant of the infant's conduct in relation to the formation of habits of cleanliness. So far there seems to be no special basis for calling these activities nor the pleasure sexual. In some cases, however, one finds a very close relationship between the pleasure associated with these acts and the pleasure associated with a definite condition of the sexual organs. Thus one little patient got great pleasure, which most would admit to have a sexual quality, from the distended bladder which gave her the feeling of "an electric current coming out of the batteries."²

It is again an unwarranted generalization to assume that in normal development the pleasure associated with these systems always has a sexual quality, or that it always attains a degree of intensity which makes it an important determinant of conduct.

To claim that the pleasure derived from a great variety of organic sources, from cutaneous sensations, from rhythmic movements, from distension of bladder and rectum, is essentially sexual is to assume the major premise that all organic pleasure is sexual. This is to beg the question and such an abuse of words makes mutual understanding difficult. To a large extent this *petitio principii* is involved in the use of such terms as muscle-eroticism, anal-eroticism, etc.

In all such terms the essential quality of the erotic is obviously held to be the pleasure element. The emphasis of some authors on the pleasure or hedonic aspect of sexual activity is quite disproportionate and leads to a peculiarly distorted formulation of human conduct in general.

One reason for this distorted formulation is that in the lives of many of the patients examined the more or less deliberate hunt for sexual pleasure as a goal in itself has been an important element; the hedonist, utilizing the machinery of reproduction for the maximum of individual pleasure, is an individual likely, from an early age, to squeeze the last drop of pleasure from all possible organic sources,

² Vid. *Psychoanalytic Review*. Vol. V, No. 3; July, 1918.

and may well have been a diligent thumb-sucker, obstinately constipated, a rhythmic voluptuary. That does not make these latter activities sexual, nor does it make the eager hunter for sex-pleasure the paradigm of human behavior.

The above remarks are in criticism of the unwarranted extension of the term sexual to embrace a great variety of activities, merely because a certain pleasure is associated with these activities. In another direction one sees an equally unwarranted extension of the term; this time the emphasis is laid not on the hedonic but on the energetic aspect of sexual activities. In this second formulation not only are the generally accepted sexual activities grouped under the term sexual, but many activities which *prima facie* have no sexual quality whatever. It is assumed that there is a fixed quantum of a specific sexual energy, and that if this does not have a direct outlet it of necessity has an indirect expression, and all activities resulting from the repression of the specific sexual energy are *ipso facto* sexual. Here we have the assumption of a specific sexual energy, often called Libido. Libido is like the chameleon; its true colour is not easy to determine. It sometimes flaunts its sexual nature, again it prudently denies it, claiming only to be a generalized interest, or it may even claim to be the equivalent of the *élan vital*.

It is not easy to operate with such a concept, which at one time seems to represent the hunt for sexual pleasure, and again to be merely a focal manifestation of cosmic force.

To assume that, where a specific sexual activity is repressed, the alternative activities must necessarily be sexual, is not sound. The hungry man, recognizing that no personal efforts yield any immediate chance of a meal, may, to distract himself, plunge into some interesting study, and while he is engrossed in this the tendency to hunt for food may be temporarily in abeyance. The study, however, is not a nutritive activity, nor a sublimated expression of the hunger instinct. While hunting for food he may find himself in danger and all his energy be mobilized to escape this danger, the hunt for food no longer showing any trace of its activity. Here again the actual activity superseding the earlier one is not to be looked on as a derivative of the hunger instinct, but as an entirely different mode of utilization of the energy and the mechanisms of the individual.

Activity of obviously sexual nature may be superseded by other activity without the latter activity showing any special sexual quality; the energy of the individual, potentially available for sexual activity,

may be actually utilized for other purposes. It is true that, in many cases where sexual activity has been repressed, the substitutive activity may be definitely modified by the repressed factor, and that its control of the reactive mechanisms of the individual may be only partial, often shows traces of a compromise, and in some cases is only a disguised expression of the apparently repressed trend. In other cases however it may utilize all the energy of the individual, with complete, if temporary, abeyance of any sexual activity.

The above remarks form a plea for a less schematic and dogmatic formulation of the facts of human behavior, which are related to the sexual life. In calling attention to certain one-sided formulations, it is not meant to minimize the extremely valuable contributions to human psychology made by those who have pushed their formulations to an extreme. The time has come for a sober evaluation of these contributions in full recognition of the complexity of the facts. It is easy to juggle with clean-cut instincts and with a docile libido, but satisfaction with such juggling is apt to warp our observation, and lead to rigid formulæ.

We are far from understanding in detail the constitutional and environmental influences which determine the rôle played by sexual factors in the life of the child, and of the adult. The physiological conditions of the sex life are poorly understood, the nature of individual variations can only be expressed in rather general descriptive terms. In some individuals a placid equilibrium is difficult to maintain in view of the disproportionate organic demands made by this side of the organism; in others the organic demand seems much less but the balancing forces and other outlets of energy seem inadequate.

In one child unequivocal sexual manifestations appear at a very early age, the child seems early sensitized to stimuli of this order and soon begins to accumulate experiences which load its later character; in another child the same stimuli may cause little response, and the sexual life only manifests itself much later and in less disturbing fashion. We are not entitled to take the more sensitive and precocious child as the type and to assume that in the other child there has been the same evolution, repressed and disguised. Affection and emotional dependence on relatives and friends are attitudes much too complex to be expressed in simple sexual terms, they contain important factors which are not necessarily disguised or modified expressions of sexual forces. In different individuals the hedonic and the energetic aspects of the sex life vary considerably; it is not only a question of

plus or minus, of repression or expression, of sublimation or vicarious indulgence.

The mode in which the individual meets the tests of life, deals with the endogenous demands of his cravings, with the situations which occur during puberty, adolescence and adult life, whether celibate or married, is a function not merely of one single system but of the total personality. There is perhaps no better test of the general stability of the individual than the demands associated with the sex life; in analyzing the successes and failures in regard to this adaptation there is a danger of abstraction and simplification, and of over-emphasis on what is merely one component in the complex forces which make up the total personality.

IV

SYNTHETIC VIEW OF EGO, HERD AND SEX INSTINCTS

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THE environment of civilized man is extremely complex and calls for a high degree of discrimination in his behavior if he is to adapt himself successfully to it. This discrimination is derived from, or might be said actually to be, his intelligence, so intelligence is an essential equipment for adaptation. On the other hand this varied environment furnishes a large variety of opportunities for the support of life and its enjoyment. If choice between these different possible activities were to be settled by mere intelligence man would be in a paralysis of indecision such as that of the metaphysician's ass, precisely halfway between carrots and hay which he wants equally. As a matter of fact either the carrots or the hay is really preferred and the preference makes itself felt before intelligence operates to measure the distance to each. This choice-function is derived from the instinctive part of the human psyche and intelligence is merely the instrument of instinct. If a man had such a relatively simple phylogenetic history as a fish only a limited number of occupations would attract him. But, leaving aside his marine and amphibious forebears, man has lived on the surface of the ground, in caves, in trees and at times almost in the water. He has fed on animals and been a hunter, or fisher, or depended, sometimes, on vegetables which he found or cultivated. He has gathered his food and fought with his hands and also with tools or weapons. He has been a solitary animal and lived in a herd, a nomad and a dweller in cities. He has seized his sexual mate and abandoned her; he has also won her with servile courting and placed himself in bondage to family institutions. In the prosecution of each of these activities instincts have grown up, and, as they all survive in varying strengths, their combinations tend to produce an infinite variety of personalities. Were it not that certain instincts or groups of them usually predominate over all others and that some work powerfully to produce uniformity of character, there would be no consistency in human behavior and psychology would be doomed to a Sisyphus task of description. But at best we have to admit in normal man the existence of a number of instincts which interact and produce what we call normality.

Since, biologically speaking, disease consists in the destruction

of more recent evolutionary developments with a consequent lawless accentuation of more primitive processes, one would expect the symptomatology of mental disease to show a wider range of atavistic instincts in operation than one meets with in normal people. It is therefore unthinkable that one group of instincts could be responsible for all psychopathological reactions unless it could be shown that the human mind is resistive to all strains, except those of one class, or that only one strong primitive instinct survived since barbarous times to spring into prominence when the instincts peculiar to civilization were dissipated. Such conditions are thinkable but improbable of universal demonstration. We should, therefore, not expect to find one formula covering all abnormal reactions any more than one instinct would be expected to guide the life of normal man.

Few of us, moreover, are capable of searching for many unknowns at once; singleness of purpose seems essential as a stimulus to research. Freud's theories which centre around the sex group of instincts have provided the necessary impetus for initial investigations in dynamic psychopathology but the time has come to consider more catholic views. Other theories such as those of Shand, McDougall and Prince have been less productive of enthusiastic research because their readers have not been able to see the woods for the trees. The long catalogues of instincts postulated or inferred by these authors are too diffuse. None have been granted sufficient dominance over others to give the student any sense of direction. From a dynamic standpoint their analyses become rather tautological, new instincts being easily hypothesized to account for new reactions. The cataloguing of long lists of instincts, and disputes as to the existence, or non-existence, of separate minor instincts degenerate into sterile academic discussions and squabbles about nomenclature. Such unfocussed formulations have, pragmatically, a tendency far opposite to Freud's. Dogmatism is so far avoided as to make an invertebrate system.

A tentative solution may be found in adopting some middle ground. If instinctive reactions could be separated into groups which could be shown *a priori* to be inherently antagonistic and if clinical experience demonstrated certain abnormal reactions to be definitely related to the preponderance of one group over the others, then this grouping would have high pragmatic value. The interaction of three factors is difficult to study but is not impossible. No one short of a supreme genius could formulate a dynamic system where a score of factors operated and, if he did, few could understand it.

Some simplification is therefore made necessary by the limitation of the human mind. If it sufficiently approximate the truth it may stimulate another forward move in psychopathological research similar to that initiated by Freud's theories but productive of greater accuracy. The question is being put for discussion to this Association as to whether the division of instincts into ego, herd and sex groups is justifiable on theoretic grounds, and seems likely to afford explanation for a sufficient number of clinical facts to warrant its adoption as a working hypothesis.

The first problem is to see what relative importance of different groups of instincts could be predicted from the biological history and present status of civilized man. I presume that it is safe to assume before this audience that abnormal mental states (in so-called functional disease) result from the operation of unconscious forces, which, in turn, are unconscious as a result of conflict. This conflict is, we assume, something that takes place between instincts or instinctive derivative within the individual himself. We are therefore interested in the discovery of causes for inner, instinctive conflicts.

In the lowest forms of life the individual is pitted against all environmental forces and there can therefore be no inner conflict of any moment. He eats when hungry, rests when tired, fights or flees — according to his nature — when in the presence of his prey or enemy. If he is faced with danger when hungry he attends to the stronger stimulus. This contention of stimuli might be said to constitute conflict of a mild sort but it is not of the dynamic order in which we are interested as psychopathologists. The recognition of one stimulus and disregard of another is essentially an intellectual operation, a phenomenon of attention. With true conflict the struggle is not between two stimuli but between instincts which *seek* different stimuli, and the solution is reached by the subjugation of one of the instincts. When one stimulus, however, becomes stronger than another and dominates the field of consciousness previous reactions are not subjected or weakened, they simply are in abeyance. Examples may make this clearer. I may be working and begin to feel hunger. When the latter stimulus becomes strong enough I cease work and eat, then I return to my work. My permanent interest in work has not suffered, nor, when I work, do I weaken my potential appetite for food. On the other hand, if I am hungry and have no money to pay for food an instinctive conflict arises. I want to eat but I also want to be honest. This conflict can only be solved by the repression of one

desire by the other. This repression results in the exclusion from consciousness of aversion to stealing or of desire to eat. If the conflict were prolonged and sufficiently repeated I would become a criminal or insensitive to hunger stimuli, either being an abnormal mental state for civilized man. The primitive solitary animal, however, can experience no such conflict. His duty, so to speak, is to himself alone; his struggles cannot be internal but only between himself and the environment. This is, I believe, a most important differentiation and our literature is full of logical errors resulting from a failure to discriminate between alternation of attention and true instinctive conflict.

The earliest conflict is probably related to sex because the indulgence in reproduction involves great sacrifice for a prolonged period to the parent of one sex or the other, or to both. Perhaps to offset this sacrifice nature has placed a high premium of pleasure on the sex act. This pleasure aspect of sex activity which satisfies the ego, relates sex as definitely to ego appetites, on the one hand, as to reproduction and service of the species on the other. (It would be an interesting problem in animal psychology to determine whether the strength of the sex impulse which, presumably measures the degree of pleasure in copulation is correlated generally with the degree of responsibility assumed by one or both parents for the welfare of the offspring).

In so far as ego and sex instincts are concerned there does not seem to be much permanent conflict for there is an alternation of attention to one type of stimulation or another, at least in so far as the pleasure aspects of the sex instincts may conflict with other pleasures of the ego. It must be admitted that parental instincts might lead to more protracted and real conflict with ego tendencies, and in this connection one should note that the more selfish a man or woman is the more do the pleasure aspects of sex life predominate. In general, however, alternation of attention is apt to be the form assumed by ego-sex conflict since breeding is a seasonal function, in most animals, and even care of the young is for a relatively short period of time. Indifference to offspring appears so soon as the progeny develops a certain degree of maturity. When danger or hunger interferes with mating the latter is temporarily discontinued but is renewed when danger is past or hunger appeased. There is no repression (which would lead to sexual incapacity) but only alternation of attention. The probability is that important pathogenic conflicts would not result from the interaction of sex and ego instincts alone.

But development of herd life introduces another type of conflict. Self perpetuation and group safety are concurrent needs and when one is threatened the other is apt to be. Individual comfort is then best secured by suppression (and annihilation) of ego tendencies, a phenomenon well demonstrated by bees. Man has never developed or has lost this type of evolution (in perfect form). Under certain circumstances, however, a tendency in this direction appears. For instance, in war perfect morale involves individual unconsciousness of danger and indifference to personal deprivation. Though a well developed reaction of this order is episodic, civilization entails a constant restriction of ego impulses. This inhibition acts through laws and conventions, which, as Trotter has shown, derive their power not from an intellectual recognition of their wisdom but because the voice of the herd speaks through them. The herd instincts, therefore, force the individual to obey conventions. When these conventions cramp individual ambition, the ego accepts the restriction because it gets a *quid pro quo*. This compensation takes the form of protection from danger, a share in material prosperity not achievable by the individual alone and, above all, a feeling of comfort derived from unity with the group that is a direct emotional expression of the herd instinct.

If these compensations are not procurable conflict arrives. But it is largely a conscious affair because the struggle is between consciousness and "conscience." The latter seems to be largely a growth of experience of what the herd wants, that is an automatic recognition of herd standards. In so far as unconscious factors may enter into the construction of conscience, the conflict has unconscious elements but these seem to be slight. For instance, in the situation in which war neuroses develop there is a conflict between a desire to be loyal and a desire to save one's own skin. The loyalty is mainly a conscious matter and that the conflict takes place at a level near to consciousness is, presumably, proved by the facility of treatment of uncomplicated cases of war neuroses. Another important factor to bear in mind is that civilization does not deprive man of all right to self-defence or self-aggrandisement. Society does not censure a man for jumping out of the way of an automobile, and he can actually win social approval by building up a fortune. Normally, therefore, some outlet to ego tendencies is always allowed by the herd and the pressure of such ego impulses, as may be repressed, is continually being reduced, which prevents the accumulation and damming up of unconscious ego energy.

In consequence of this adjustment of ego and herd instincts pathological ego expressions should not be expected to occur except in two possible situations. One is where there is a constitutional predominance of ego tendencies such as seem to exist in epilepsy; the other is under exceptional circumstances when the ego is denied normal expression. These circumstances would be episodic and therefore produce only episodic abnormalities enduring only for the period of the emergency. A repetition of such influence could, of course, lead to a new standard of behavior, the rather artificial production of a dominant ego analogous to that of epilepsy. These special situations produce an unnatural severance between the individual and the group. When repeated the individual may assume a conscious attitude of hostility to the group and permanently regress to that phylogenetic level where the individual exists in a purely hostile environment. The clinical facts presented by Dr. Glueck confirm this view. Psychopathic reactions of ego origin appear in epilepsy rather chronically, episodically in crime and in the situation neuroses and psychoses or a conscious adoption of exclusively ego ambitions may lead to crime as a vocation.

The conflict between sex instincts and herd instincts is more complicated. Society allows only one form of entirely free sex outlet, namely in legalized marriage. This possibility is open to adults only and even when legal maturity has been reached marriage is subject to many vicissitudes. One inevitable result is that sex impulses are liable to conflict in all people for years and in some permanently. As has been stated above sex has two aspects; a fundamental biological urge for propagation, with which is probably to be related parental instincts and a secondary development of great importance, the pleasure-giving capacity. The first of these is, perhaps, related to herd instincts. It is, however, more fundamental since sex subserves the maintenance of the whole species, while herd instincts cement and maintain only a group within the species. Another contact has to do with the factor of intelligence. An animal has sensational contact with the group, whereas, the "species" is an abstraction which can be intellectually grasped by educated man alone. Sex therefore operates more directly in purely instinctive reactions whereas herd reactions may be immediately determined by intellectual factors behind which lie the instinctive forces. Between propagation impulses and herd standards of conduct the conflict is mainly conscious and does not approach in severity the struggle between society or the

secondarily developed pleasure components of sex. The latter are viewed as purely ego tendencies and treated as inimical to the welfare of the group. The degrees of sympathy or distrust felt for the sex delinquent vary largely with the extent to which the practice definitely assails marriage, renders it impossible, is a substitute for it, is of its nature sterile or would involve in-breeding. Adultery is aimed against marriage, hence legal action is severe but some sympathy may be shown the culprits; prostitution does not prevent marriage hence it is condoned pretty widely; the relationship of man to mistress, which is without the legal guarantee of permanence that marriage enjoys but is otherwise largely identical, is in many countries an open and approved practice. On the other hand inversion and perversion are fairly universally held in disgust, while incest is abhorred. That nature holds in-breeding to be unsafe is shown by the innumerable specializations, anatomical and physiological and instinctive, which prevent it. An instinctive prevention of in-breeding is the only thing that can account for the tabu of exogamy among savages who are totally ignorant of any relationship between intercourse and pregnancy. Similar rites are reported of beavers who drive out the young from the house when puberty is reached. There is, therefore, good biological reason for believing that there are instinctive forces directed against incest and since these operate in connection with social institutions, they are, presumably, related to the herd instincts.

Although discrimination between propagation and pleasure aspects of sex may be made in theory it is impossible in the light of our present knowledge to draw a sharp line between the two in practice. Hence the value of discussing instinct groups rather than separate instincts. The question as to whether so-called "infantile sexuality" is truly sexual or not is thus avoided. The pleasure aspects of adult sex activity have much in common with the "autoerotism" of infancy, the latter has biological significance only as a forerunner of sex in the narrow sense, yet sex consciousness is absent in the infant sucking his thumb or actually masturbating. One can argue indefinitely about the nomenclature to be applied to these phenomena and never escape this dilemma. But if a group of sex instincts is postulated that group will then combine all impulses which are historically or potentially related to sex practices. The only condition for the presence of any impulse exclusively in this group is that some connection with sex can be demonstrated and that this impulse is not explicable as an exhibition of some other instinct. Discussion

is then confined to the question of the classification of such impulses as may express instincts of different groups. For instance, the infantile sucking tendency certainly has to do with nutrition and the maintenance of life. It can, therefore, be classed as an ego instinct expression. But it may be present in the absence of hunger, or special forms of it may actually interfere with the taking of food. In the latter instance the practice is indulged for the pleasurable sensation it gives and for this alone. We can trace this pleasure sensation in its development to a point where it unites with practices indisputably sexual. Hence, we are safe in saying that sucking, which does not subserve the function of nutrition, is an instinctive practice which belongs in the sex group. Exactly the same argument may be employed in discriminating between different phenomena connected with excretion. In fact this duplication of function must exist in the absence of a large group of organs specialized for the recognition of a sex object alone, and for the stimulation of the sex desire and for the satisfaction of sex-sensation cravings.

You will have noted that the types of sex activity which Dr. Campbell has spoken of as pathogenic have all of them, components of pleasure which predominate over the propagation elements. As just stated society frowns on non productive sex indulgence and it seems that this inhibition becomes incorporated in the individual's instinctive life, by way of the herd instincts. Psychoanalysts find that repression operates with progressive strength as it is directed against impulses in which the pleasure aspect gains relatively greater importance. The stronger the repression the deeper in the unconscious does this repressed tendency go. Finally a point is reached in uncovering unconscious sex cravings when they are found to be purely selfish and totally unrelated, or actually inimical, to propagation.

An important cause for continuous conflict between the sex and herd instincts is that sex is not a periodic function in the races of man we know about. A study of the psychology of those tribes of Eskimos, who are said to have seasonal sex impulses, would probably be most illuminating. A second and all-important point is that the channels for sex stimulation are, many of them, identical with the channels of social contact. This is an inevitable result of the lack of anatomical specializations of organs by which sex stimulation is affected. The community of interest, the moral and physical propinquity which draw people into groups may draw two individuals into a sex relationship. It is therefore difficult for one to receive a social

stimulus without at the same time being subject to a sex stimulus. The latter falls almost invariably, under social tabu, hence a constant conflict between the synchronously stimulated herd and sex instincts is inevitable. On the other hand this same situation makes sublimation possible and relatively simple. Since unconscious tendencies can be expressed indirectly and symbolically, social activities of all kinds are capable of giving an outlet to unconscious sexuality. The importance of this conjunction of sex outlets will be apparent when one comes to consider some of the phenomena of development of *dementia praecox*.

A third factor in the development of unconscious sexuality must be briefly considered. Anatomical and physiological restriction of actual sex expression has an essential influence on psychosexual development. In childhood sex instincts are incapable of any outlet which fulfils this biological purpose. In consequence budding sex tendencies are restricted to pleasure impulses which are, at first, autoerotic in nature. As soon as they begin to be objectivated they tend to be expressed in relation to those in the immediate environment. Even at this early stage the common channels of stimulus for sex and social activity begin to complicate matters. Were the infant's environment widely social no untoward results would ensue, but, not only are his companions in the main relatives, but by all his associates he is treated with that affection and given that personal attention which is sexually exciting in adult life. That the larval sex impulses would therefore be directed towards relatives is only natural. The choice of the parent of the opposite sex is probably in large measure due to the attitude of the parents themselves. There is almost always a difference in attitude of the father and mother towards the boy or girl particularly before definite personality traits are developed. In so far as these objectivated sex impulses tend to assume an adult form their expression is possible only in fantasy. So soon as the herd instincts begin to operate and through them the child senses the attitude of society towards sex in general, and towards anything sexual of which he is capable in particular, at this point his fantasies become specific objects for repression and form the foundation of unconscious sex ambitions. It is probable (and there is much evidence on this point) that these first fantasies are vague in the extreme but that each increment of sex sophistication which the growing child acquires is utilized unconsciously to build up a more and more definite incest fantasy. Until puberty is reached literal translation

of this thought into action is a physical impossibility. Consequently, for many years there must exist unconscious ideas capable of no expression except that of symbolic outlet. This is probably the reason for the universality of potent unconscious sex tendencies, more potent (as unconscious factors) than any ego impulses. The fate of the latter is much less harsh. From his earliest days the child, although curbed in many directions of ego expression is still allowed some chance to assert his individuality and to protect his personal interests. It is therefore only under unusual circumstances that his ego instincts are so thwarted of expression as to lead to the construction and maintenance of a large system of repressed, unconscious ambitions. The same type of process does occur here, however, as Dr. Glueck has shown, in the formation of what appears clinically as a feeling of inferiority. But one finds both from analysis of individuals and from theoretic considerations such as are here outlined, little reason to believe that this feeling of inferiority when uncomplicated by sex factors is a common cause of psychopathic reactions.

The most valuable material as evidence of the existence of this Oedipus complex, so called, appear in studying the delusions and hallucinations of dementia praecox and manic depressive insanity. Until Freud's theories became known we had no clue as to any psychological law, governing the appearance of false ideas except in unusual cases. Now, however, we find that these patients are all of them expressing thoughts which represent the original Oedipus drama in its crude form or in one of its many derivatives. The value of this material lies in its objective nature. The opponents of psychoanalysis have frequently claimed that the material recovered from psychoneurotic patients was a product of suggestion. Whether this be a valid claim or not the argument can have no bearing on the evidence secured by observing the psychoses. Clinical records of psychotic productions antedating Freud's earliest publications by years betray exactly the same thoughts as our patients now give utterance to and of which we now see the significance.

In addition to the conflicts ego and sex, ego and herd and sex and herd, one other possible type of conflict must be considered. It is conceivable that, with the highly complex development of psychosexuality, one kind of sex ambition might clash with another. Freud makes a great deal of this possibility in his discussion of narcissism and ego libido. His system becomes so complicated, however, that Freud himself has never been able to explain it without inconsistencies

and the use of anthropomorphic argument. On the other hand if one assumes that the herd instincts supply repression one can formulate a much simpler and apparently adequate psychological system. Narcissism, although an important type of psycho-sexual aberration is probably only an epiphenomenon in relation to repression. One can account for repression proceeding from the individual's ideal of himself by assuming that herd instinct is an essential factor in the composition of that ideal. In reading Freud's tortuous arguments on this point the impression is fostered that "ego libido" is fabricated to avoid the admission of dynamic factors other than sexual.

In concluding these remarks about conflicts in general one point must be added. Serious conflicts are apt to occur only when the opposing forces are approximately evenly matched. Rivers reports an extraordinary harmony and smoothness in the life of Melanesians among whom herd reactions predominate and the phenomena of group consciousness are striking. It is, therefore, not surprising that he found only one type of psychopathic reaction among the savages (excluding feeble-mindedness, of course). This is a very simple kind of insanity in which the victims seem simply to run off and exclude themselves from the group. The matching of strength of two instinct groups is shown in the development of dementia praecox. The two main types of personality antedating this psychosis are the seclusive and antisocial. These betray weak herd instincts in positive and negative expression. When the psychosis emerges, delusions and hallucinations appear which represent an acceptance of the unconscious type of sex fantasies. As the disorder proceeds in intensity, these fantasies assume, roughly, the form of unconscious thought proceeding from lower and lower levels. The situation may therefore be looked on as one where sex is not essentially overdeveloped but rather, when the herd instincts are weak. When the latter are disproportionately powerful no psychosis appears but, rather, too great an absorption of current ideas. Independence of thought is lost and intellectual stultification takes place. The individual is, so to speak, too normal.

If time permitted the question should be discussed at this point of the relationship of herd and ego instincts to the different concepts of reality. Mention must be made, however, of the surmise that the lost sense of reality of which we speak in psychiatry is not really any more a loss of the capacity to grasp reality in the absolute than it is a failure to see things as other people do. In other words our working

standard of reality is often not the product of what we truly perceive but what people say we should perceive. For instance, one believes that the earth goes around the sun but, probably, not one of us here could prove it, yet if one of us were to declare suddenly that he believed that the sun went around the earth, he would be looked on as deluded. We hold definite opinions about the reality or unreality of ghosts, yet no one has ever investigated occult phenomena with sufficient thoroughness to justify an opinion either pro or con.

These generalizations about instinct conflicts may be summed up in a few words. The most important conflict is between the sex and herd groups of instincts and this results in the formation of unconscious cravings for the pleasure giving aspects of sex. This unconscious is present in all people, potentially capable of producing psychopathological reactions. The next most important conflict is between the ego and herd groups. The former usually does not suffer complete repression and hence does not tend to build up any elaborate unconscious system. Abnormal mental reactions are produced by this conflict only when the ego is constitutionally preponderant or when special circumstances call forth an ego response. The manifestations of these disorders are in behavior or in temporary neuroses and psychoses.

Our next problem is to determine what forces operate in the precipitation of morbid psychological conditions. Normality is achieved and maintained by the balance of an intricate system of instincts. In the terminology of psychoanalysis this balance is the product of sublimations, forms of activity which allow outlet to the various instinct groups at once. These outlets are indirect since direct expression produces instant conflict. The maintenance of indirect outlets demands a greater expenditure of energy than does direct expression of instinct. Any factor such as physical illness, therefore, which reduces the individual's supply of energy endangers the stability of the normal system. It is more or less of a truism of general pathology that disease breaks down the most recent evolutionary structures or functions while more primitive ones survive. In psychopathology we see something similar. When the energy supply is low sublimations are weakened and instincts of the sex or ego group express themselves more directly. This is the principle of regression. Another situation is that of environmental stress. When circumstances make the maintenance of sublimations difficult or impossible the same mechanism comes into play. To understand this type of precipitating situation

it must be borne in mind that the term "sublimation" is used here in a wider sense than that of most psychoanalytic writers. We do not mean merely socialized or indirect sex outlet, but any activity which gives pleasure to the individual by satisfying personal ambition or symbolically releasing sex energy and at the same time assists in the adaptation of that individual with his social group. Any environmental event, then, which weakens such sublimations can lead to regression. Such events may be business or political disappointments which may have little to do with sex. When these conscious activities fail to give satisfaction the process of regression leads to an attempt at unconscious satisfaction. Since the unconscious is constituted largely of egoistic sex cravings the immediate determinants of the ensuing symptoms may be sexual, without the general cause of the disease having anything to do with sex. A third pathogenic factor is the direct stimulation from without of an unconscious tendency. For instance, if the rival of the unconscious Oedipus drama dies the way is left open for autistic indulgence of this primary ambition. This may lead to an inflation of unconscious sex cravings.

The last portion of our problem is the most difficult, being the operation of these instinct groups in the production of different symptoms, which is an intricate matter. Few symptoms seem to have a simple relationship to one group of instincts alone.

This may be shown by considering first a fundamental psychopathic symptom — unreal thinking. Dr. Sanger Brown's argument as to the herd type of thinking being present in the child and repeated in the psychosis seems to be unanswerable. If further evidence were required one could point to the fact that the clearest thinkers are, as a rule, egoists. We may assume, therefore, that delusional thought processes represent an atavism to the evolutionary period when individual consciousness was not sufficiently developed for accuracy of observation and recall to exist except in larval form. So much for this type of thinking process. But when we turn to the content of delusions the reverse seems to be true. What we call fantastic thoughts are beliefs maintained in spite of the opinion of the immediate herd. The urge to unreal thinking does not come then from those herd instincts which lead us to unify ourselves with our actual fellows but rather from the attractiveness of the imagination itself. We must probably look to the sex instincts for the immediate production of most autistic thought for the reason that sex imagery is for years the main outlet for sex impulses, which establishes fantasy as an expression

for these instincts. If regression leads to an awakening of unconscious sex impulses, these tend naturally to expression in fantasy. If the lure of these images is stronger than one's desire to accept the herd standards of reality a delusion results. Only in most complete regression does the thought represent a crude unconscious desire. The herd instinct is not abolished but forces, as a rule, some modification or transformation of the idea that is less repellent to the socialized personality. Ego ambitions may also lead to imaginations but these are more readily translatable into terms of action and hence do not involve the same degree of divorce from reality. (This holds true no matter whether "reality" is taken in an absolute sense or as the herd formulation as to what is real.) Another stimulus to fantasy is, probably, the curiosity impulse. Whether this is a purely instinctive thing or not, it seems to be related both to the ego and sex instincts. But the fates of curiosity as to sex and other matters are different. The former falls under a social tabu and cannot be satisfied except through imaginations. The ego-determined curiosity — a hypothetical interest in objective facts for the sake of knowledge itself, so called "intellectual curiosity" — can proceed from fancy to actual experience. So an examination of curiosity leads us to the same conclusions: the urge to think vividly of something alluring and unreal is probably a product of the sex instincts in the main, although a less potent tendency in the same direction may come from the ego group.

If unreal thinking is an atavism to the period when herd thinking was dominant but the regression is determined by a sex urge, we have here an example of the principle first enunciated by Rivers, I believe, which may prove to be of great value in dynamic psychology. He points out that civilian hysteria based on sex conflicts exhibits the same symptoms as war hysteria based on danger reactions, the latter symptoms representing primitive reactions to danger. He suggests that reactions first elaborated in the service of what he calls the danger instincts may be utilized by the sex instincts. If this principle holds, we could invoke it to account for delusions repeating a type of thought developed as a phenomenon of group consciousness, but now directed dynamically by sex instincts.¹

¹ The evidence in favor of there being a "collective consciousness" among many primitive peoples is strong enough to make us presume that this may be a fundamental kind of human mental process, which civilized man has outgrown but still maintains in vestigial form. At the same time the "primary subjective state" which Burrow has described carries with it a good deal of the same sort of dependent, rather than independent thinking. The infant, who identifies his own with his mother's body and fails to discriminate between this flesh and the surrounding material objects, is repeating more fully perhaps in this

The same principle may explain the relation of many pathological emotions to the various instinct groups. As Dr. Glueck has pointed out, the ego emotions seemed to be confined to fear, anger and apathy and we certainly see them in purest form in the war neuroses and in epilepsy. - It may be remarked parenthetically that apathy is a good example of the all-or-none reaction which Rivers claims to be characteristic of simple, primitive instincts. Perhaps elation, as the emotion occurring with free expression of personal power or powers, should also be included with the ego emotions. Now we also see fear, anger, apathy and elation in situations precipitated by sex. For instance, in the psychoses we find sex aggression represented by an idea of physical attack. That this emotion is fundamentally a sex fantasy is shown by the fact that physical assault occurs as a variant in the same individual for a delusion as being an object of sex interest on the part of the aggressor. In these psychoses, when the idea once appears in a form implying bodily injury, anxiety appears. That is, a sex desire is transformed into a delusion or hallucination of some threat to the ego and, promptly, an ego emotion appears. The emotion, then, is an ego instinct reaction but the motive power comes from the latent sex impulse. Similar events can be shown to produce anger, elation and apathy.

If we turn from the psychoses to other fields we find similar evidence. In dreams the principle is usually demonstrated exquisitely. In most anxiety dreams, for instance, the fear is a direct response to the mental image of bodily harm. But when one analyses this manifest content it is found to be the product of latent sex impulses. In anxiety neuroses there is much evidence (which time prevents us from repeating) that the fear is a reaction to a co-conscious hallucination of attack. The mechanism is the same as that seen in psychoses with the exception of the fantasy not having penetrated into full consciousness. The broader aspects of the anxiety neurosis problems become more complicated. Freud claims that anxiety

period than at any other in his life this psychological feature of herd specialization. Of course it is not impossible that the primary subjective state is much more fundamental matter than herd development. If this were so, communal society would be a specialization of a type of emotional relationships first appearing with maternal care. The two factors seem frequently to co-operate in the production of symptoms or characteristics. People who are unusually sensitive to differences of opinion in those they love, who exaggerate the importance of "unity", are apt to be morbidly uncomfortable (even fearful) when they feel urged to conduct different from that of their business, social or political associates. In the first situation the mother identification (in this sense largely an ego instinct phenomenon) preponderates. In the second instance the reaction is mainly a herd instinct exhibition. Yet both factors probably operate together.

represents a transformation of libido into fear and points to the fact of common clinical experience that this neurosis develops in situations where sex outlet is denied or greatly hampered. The direct transformation of an unformulated instinctive urge into an emotion is as foreign to our notions of psychology as is alchemy to modern chemistry. We should therefore be chary of accepting such a hypothesis and another view is conceivable. The heightened libido is probably always pathological. Freud furnishes much evidence of this when he tries to prove that the incapacity for sex expression is abnormal. The exaggerated libido may easily represent an instinctive attempt at cure. Stekel says all fears have in them an element of dread of death or of the unknown. We certainly see the most dramatic exhibitions of psychotic fear in involution melancholia when the delusion of imminent death is obsessive. This may be regarded as the situation of the herd animal separated from the group. In every psychopathic situation there is evidence presented of weakened herd instincts. We might therefore assume that the excessive libido represents an attempt to force a re-establishment of emotional contact with one's fellows and such an attempt may be a natural corollary of the identity of sex and social contacts. A feeling of social isolation would lead to a desire for close contact with others. The emotional value of this contact can be immensely heightened by its sexualization. In my experience the pathological libido of these cases disappears on analysis and the patients have little difficulty in leading continent lives, thereafter. One advantage of this hypothesis is that it covers the phenomena of anxiety in children much more adequately than do the theories of Freud.

Anger in the psychoses can easily be shown to be a meeting of aggression with aggression, the instincts involved being exactly the same as those in anxiety states.

Elation in manic depressive insanity is found to be associated with ideas of exercise of great power in business, discovery, religion or love. The general construction of their ideas is that of sublimations. Their energy seems to come from unconscious sex sources, as with anxiety, but the emotions are of ego expression, a feeling of free expression of power.

Ecstasy is similarly found with religious ideas that are a vehicle of sex impulses of the unconscious type but the feeling seems to be that of union of the individual consciousness with a larger consciousness. This is presumably a direct utilization of the old group con-

sciousness capacity. If this view be justified it may explain the coincidence of erotic and religious phenomena, which one meets constantly in the biographies of mystics. The religious idea becomes a vehicle for liberation of unconscious sex energy and the expression of a herd emotion.

The feeling of tenderness associated with the parental aspects of sex occurs in manic states but is rarely a prominent emotion. It is probably rare for the reason that pathogenic sexuality is of the pleasure giving rather than of the altruistic order. Another directly sexual emotion, a lustful excitement, occurs most infrequently, if at all, in the ordinary psychoses. It does appear, however, in epilepsy. Since it is directly related with the pleasure aspects of sex, this emotion too is probably to be placed in the ego group. Its occurrence in epilepsy justifies such a view, for the sex life of the typical epileptic is almost devoid of anything suggesting altruism and is intensely selfish. So much is this the case that normal copulation seems to appeal to him no more than auto-erotic practices or perversions.

The situation with depression is complicated by the fact that this is not a simple emotional state but a clinical condition. In this mood there are elements of sadness which on analysis seem to be a subjective recognition of blocked energy. There is no reason to exclude any one of the instinct groups as the source of this energy. This sadness also has another component, a feeling of wickedness. The emotion is different from guilt in which an idea of social censure is prominent. The depressive feeling of wickedness is an intensely subjective and self-contained reaction. It probably represents somehow the conflict between sex and herd instincts since these are the ones that are struggling against one another in manic depressive insanity. There is a good deal of evidence which points to the occurrence with depression of highly antisocial ideas, sexually determined, while neither reach consciousness nor are successfully repressed to the deep unconscious. They remain co-conscious and give the patient a poignant although unfocussed feeling of unworthiness. Reference will shortly be made to other indefinable affective components of depression.

We must next turn to other symptoms. Freud comments on the fact that most heterogeneous unconscious ideas find expression in a small number of stereotyped hysterical symptoms such as anorexia, paralysis, anæsthesia, aphonia, etc. He admits that his theories do not account for stereotyped symptoms. Rivers' hypothesis may, however. As has been stated the latter suggests that most hysterical

symptoms are danger reactions. We might elaborate this view by assuming that only such unconscious sex ideas reach expression in symptoms as are capable of exciting an ego reaction. An example may make this clearer. Anorexia may be the only physical expression for complicated unconscious sex ideas in a woman. One of these may be unconsciously formulated, after the infantile habit, as pregnancy in the stomach. This again is transformed into a notion of something noxious there. At this point the ego reactions of disgust may give symptomatic expression of this last formulation. Some conscious outlet having been achieved the energy of all other unconscious ideas is drained off by this route. This hypothesis would also explain the necessity for prolonged and elaborate analysis before such a symptom disappears. According to this assumption we are consciously capable of experiencing only a relatively small number of emotional reactions, only those with such a long biological history as that of the ego group. Evolution then has not proceeded far enough to give us the power of expressing emotionally the more finely differentiated feelings which have developed with sex and herd life, and which therefore remain unconscious. On the other hand it may not be a failure of evolution. The gift of speech may be a substitute for instinctive expression. The greatest literary artist is certainly he who can stir in us the most subtle emotional response, a reaction which we feel within but cannot describe or exhibit to our companions in any way. This may have a bearing on the indefinable emotional components that appear in such conditions as depression and in some mystical experiences, for example. They may be larval emotional responses to instinctive impulses which have not found expression in the easily definable and recognizable ego emotional reactions.

Suggestibility is perhaps determined compositively as well. For our present purposes we might define suggestion very broadly as a process by which one individual influences another's conduct or transmits ideas to another (taking "idea" in a broad sense) without utilization of the ordinary, civilized, intellectual channels of communication. This phenomenon is probably met with first in connection with reproduction, both in respect to the mating behavior and in the relations of parent to offspring. Dispassionately viewed the act of copulation between the male and female of many familiar species of mammals represents a co-ordination of effort, that is strikingly disproportionate to their ability for co-ordination in other enterprises. Fundamentally, therefore, suggestion is probably sexual

in origin. We are probably right in thinking that the most effective suggestion seen in normal human lives occurs in connection with love. One has only to recall how sensitive lovers are to each other's moods to realize the truth of this statement. On the other hand, suggestion bulks largely among herd phenomena as Dr. Sanger Brown has shown. Perhaps the only safe view to take of the matter is to assume that group suggestion is a utilization and over determination of an earlier sex mechanism. In psychopathology suggestion, when individual, seems to be largely an exhibition of an unconscious sex relationship. The question of herd suggestion playing a rôle in the war neuroses has been mooted by Rivers. He thinks that military training inflates suggestibility. Mimesis is one of the phenomena of suggestion and this, he thinks, is an important factor in the production of hysterical symptoms. The argument is specious, but the evidence is insufficient, either for its proof or disproof. If true, symptoms of one type or another would have shown an epidemiological occurrence. If there were such epidemics of specific symptoms, I have not seen reports of them. On the other hand group suggestion played an important part in the spread of neurotic reactions in general although it could be argued that one had to do here with conscious knowledge rather than with unwitting imitation.

A word should be spoken about the symptoms of compulsion neuroses. There are different types but one may be taken as a paradigm, namely, the case we all know where there are ideas of injury to others offset by an elaborate ritual for undoing the effect of the primary imagined evil. Here all three groups of instincts co-operate. First there is the impulse to harm a loved one which is usually called sadistic. Freud, quite wisely, now regards sadism as an accentuation of the masculine tendency to dominate. With our present notion of combined instincts we would certainly view this as a sexualization of an ego impulse. Such a view receives support from the observation of children, savages and epileptics. The belief in the magic of the thought to produce harm is, surely, a survival of the magic which Dr. Sanger Brown has explained to us as an exquisite example of herd thinking. The desire to make good the damage is a direct expression of the social aspect of the patient's character, back of it lies the whole history of "conscience" which as has been stated above is largely constructed by the herd instincts. The ritual again harks back to the psychological level of group thinking and group practice. There

is probably no clinical condition in which these three instinct groups participate so equally or where their identification is so easy.

The brief analyses of symptoms thus attempted are not supposed to be either exhaustive or profound. A proper analysis of each symptom would call for a monograph by itself. The attempt has been merely to indicate superficially how the principle of co-operating instincts may be applied to clinical problems.

In conclusion an answer must be given to the question in all your minds, "What of predominant herd instincts?" This does occur, but, sad to say, the product is not considered pathological. Herd conduct is the standard of normality. Hence one who conforms more than his neighbors is held to be the worthiest and most normal of citizens. Yet rampant herd instinct is the greatest enemy to human evolution. Ego and sex instincts, when in the ascendant, lead to the destruction or ineffectiveness of the individual. Herd solidarity, however, which should merely act as a balance wheel, in practice is a locked brake. The genius who is ahead of his time is subject to the same distrust or persecution as is the lunatic or criminal who lags in evolution. It is herd instinct which stones the prophets, burns Galileo, puts convention above abstract justice, cements the uncritical electorate, rushes wildly into war. The world of men suffers and has suffered more from such tendencies than from all crime, insanity or nervousness.

THE RÔLE OF THE RISQUÉ STORY

BY RALPH C. HAMILL, M. D.

CHICAGO

OVER one hundred years ago Goethe in commenting on his own and his sister's childish attitude towards Klopstock's Messiah wrote: "Thus children and common people are accustomed to transform the great and sublime into a sport, and even a jest; and how indeed could they otherwise abide and tolerate it."

Recently a patient gave me this history. It is greatly condensed and the elements, gleaned in a number of visits, are rearranged into a consecutive order.

A younger daughter, in a large family of girls, the patient at twelve became her mother's helper. She was of a serious disposition. In the close association with her mother she received direct and indirect lessons aplenty in the value of chastity and in the shamefulness of sexual looseness. As she talked of her mother the deep impression these lessons made was quite apparent.

At eighteen the patient went into business with an older sister. The business grew, there were branches in a number of cities.

At one period she was very closely associated with men. As in some ways, she was an attractive woman she had offers of marriage and offers, not untempting, of a position as mistress. These offers were all refused; she went on with her work. She had been kissed, fondled, sexually excited by a number of men but had never lost her physical chastity.

At thirty-six she married. Her husband was just the man she wanted. She was quite satisfied in every way.

After two years of married life the husband went to war. He was a Frenchman and saw service for three years.

Finally, came Armistice Day. "It was the most terrible day of my life." She was obsessed by a terrible feeling. She could not understand herself. It was as though some kind of threat hung over her. Then she began to sleep badly and have bad dreams. She dreamed that her husband came home but his penis had been eaten away by syphilis.

There were other details to the story but only one is of importance as bearing on the present problem; she finally obtained a statement from her husband of an affair with a woman in Germany while on

leave after the Armistice. Because of this confession sexual relations between the two had been practically discontinued.

Before the history was completed I started to explain something of a sexual nature and was met with "Oh, don't talk about that stuff. I know all about it. Why, my women friends say I know more risqué stories than any one." This was said with much feeling in which contempt and ridicule were apparent.

The important elements of the history are: The early schooling in the shamefulness of sexual laxity, the preservation of chastity until thirty-six in spite of more than ordinary temptation, marital relations for two years, the necessity of return to continence, the unexpected reaction to Armistice Day and the mutilating dream.

The penchant for risqué stories in a woman with this history may be a matter of chance, but it seems to me it can be shown that the stories serve a definite purpose.

The coincidental development of a sense of shame, the religious impulse, and a repertoire of risqué stories in the years from fourteen to eighteen are well known.

Three qualities superficially so different as these developing in the same atmosphere and from the same soil must have some close causal relationship, else their differences would be mutually excluding.

There is enough in common between shame and religion and between shame and risqué stories to help bridge over the difference between the three. From earliest infancy the child is being served with lessons whose purpose is to teach him the wickedness, sinfulness, weakness and general punishableness of giving in to sensuous desires. The desires are the inevitable mental representations of the sexual instinct. They are bound to come in spite of all the lessons. The consequence of the coexistence of the desires and an appreciation of their wickedness is the creation of a sense of unworthiness in the mind of the adolescent.

Along with the development of this sense of unworthiness runs the development of an appreciation of the outside world. Competition gradually broadens, leading the child out into the world. With this broadening of effort and sense of unworthiness or inadequacy there is certain to be some effort made to find help in the solution of the problems of life.

Religion has been taught both by direct and indirect means. It deals with sin. It claims all are sinners. It offers thus to spread a cloak over the individual who is apt to fancy that only he is sinful

and so include him among the rest, bring him back from his isolation. It also claims boundless power to protect and reward.

All these ideas have been drawn temptingly before the eyes of the young. Naturally, then, in his extremity the youth is going to try religion. And this he does at about sixteen.

The choice occurs at this period because of several factors. The child has gotten away from home. He has learned that his parents cannot give him the sort of help he needs. The physical changes of puberty have made it apparent to him that this primitive force goes on its way regardlessly. Only a supernatural aid can be expected to help him cope with it.

But religion is a fearsome thing. At least punishment and fear of deity are plentifully stressed. And now the youth has one more thing to fear. How is he going to meet it?

How has man always met fears of this intangible sort? Perhaps always is a bit too strong a term, but at least on many and many an occasion man has met fear with bravado. If there is no other way of getting rid of ghosts of intangible fears a laugh may serve.

Certainly no one can go on living in a constant state of apprehension. Those in this condition we call sick. They are neurotic. They are forced to take places where the exposure is lessened. They have to step down from their high ambitions. But if this fearsome inadequacy comes to mind with fearsome religion as one of the choice means of escape what is to happen?

What happened to the patient whose history stands above? What does a great philosopher like Goethe say? "transform . . . into a sport and a jest, how could they otherwise abide and tolerate it."

The patient in order to maintain her chastity had to frighten herself. She had to enlarge on the wickedness of sexual laxity. She had to magnify the punishment to a degree that would overshadow the temptation. She had to do her utmost to bring about a state of reflex reaction in which temptation instead of leading to thoughts of accomplishment would lead instead to thoughts of punishment: fearsome thoughts.

It seems to me this conclusion is justifiable in the light of the reaction on Armistice Day and the dream. Armistice Day meant her husband was coming home, meant a resumption of sexual life. According to her statement their sexual life was perfectly satisfactory; she had married just the man she wanted and their relations left nothing to be desired. Why the reaction on Armistice Day?

This reaction was described as an indefinable dread. From her description it apparently had that intangible quality that makes a fear pathological. A normal or reasonable fear is one for which the cause is clearly recognized and because of its reasonableness it is well handled. When, however, a fear exists and the individual is more directly concerned in denying the possibility of the cause for this fear than he is in conquering the fear itself, then, of course, the cause is not recognized. The fear is unreasonable. It must be met by other than direct means. Hysterical symptoms and the state of mind in phobias are examples of such means. Dreams may be also. In this particular instance it is with a dream that she meets and attempts to do away with the fear. The fear would disturb sleep. If, however, her husband is so mutilated as to be no longer able to arouse sexual desires in the patient then there is no further cause for apprehension, sleep may go on and peace and contentment remain undisturbed.

Assume for the moment the wish fulfillment function of the dream. This dream can only mean that for some reason the patient wants her husband so afflicted that he will be unable to have intercourse; in fact, will be repulsive to her. Not only is his penis destroyed, but it is destroyed by a disease long considered as a form of punishment for sexual laxity. Syphilis will work still further in keeping the two apart.

From this evidence it is safe to assume that this woman is afraid of sexual excitement. How does she meet this fear? The expression on her face as she said, "Oh, don't talk to me about that stuff," etc., certainly was meant to express a familiarity and contempt that entirely belied the distress of Armistice Day and the dream. And when she went on further to speak of her repertoire of risqué stories it seemed as though she supplied a connection between the two opposing phases: the fear and the contempt.

To summarize: This woman was fearful of sexual temptation. She was unconscious of her fear. The relation of a therapist to the patient did not allow the writer to freely investigate the question as to just when and why this fear developed. Furthermore, there is considerable doubt in the writer's mind as to the episodic nature of this development. Fear which is present in the human mind from earliest infancy, as fundamental as an instinct, is attached to anything that is made a matter of danger, a matter of sin and punishment, by parents or other instructors. There are as many lessons given indirectly as

directly and the indirect ones cannot be remembered with the distinctness of events.

There must be some way of meeting fear, this fear in particular. There is the retreat from the world: the nunnery. There is early marriage without too long a duration of the conflict between instinct and education or morality. There is the strict chastity of the frigid old maid who abhors and shrinks from all physical contact. And there is such a means as Goethe recognizes.

It is in the last method that this patient found a solution of the problem. She transformed into a sport and a joke that which she could not otherwise have tolerated.

Prudery is a characteristic of the years fifteen to twenty. Overt sexuality is abhorred. It is well nigh impossible for the youth to adjust himself to the sensuousness inseparable from the function of reproduction. There are many who make this adjustment without outward sign of distress, but there are many others who need help. To them the problem has elements of terror. To meet this terror risqué stories are developed, are listened to and told. That which was a fear is spoken of as a joke and tension is eased.

This, then, is the rôle of the risqué story.

REVIEWS

THE FOUNDATIONS OF SOCIAL SCIENCE. By James Mickel Williams. Alfred A. Knopf, New York, 1920. Pp. XVI plus 495.

THE author of "The Foundations of Social Science" observes that students of history and social science have been led to seek in human motives for the causes of the phenomena they study. He believes that such efforts can be co-ordinated by the development of "an underlying science of social relations," namely, social psychology. This is "the science of the motives of the behavior of men living in social relations"; a motive being any mental state, whether conscious or unconscious, which assists or hinders an act. While he believes that this science will never be completed, Professor Williams has planned an extended exposition of his subject. The program includes the relations of social psychology to the other social sciences; the relation of social psychology to the criticism of literature and art; an analysis of behavior conflicts in society; the methods of individual adjustment; and the processes of social control. Although subjected to revision in the light of recent events, most of this work was done before the excitement of the war. As yet, however, business conditions have permitted the publication of the first volume only.

This volume, "'The Foundations of Social Science,' treats of the relations of the science of this new field to the other social sciences." While each of the fields has its particular assumptions, some of the most important of these assumptions must be in regard to human nature. Such premises require investigation, because they easily become too fixed. This is especially true in the social sciences, where mystery and confusion have always made men anxious for clearness, and where social pressure has always lent rigidity to current assumptions. Again, the general use of conceptions based upon historical study and mass phenomena, has blinded us to the fact that we are always dealing with groups of *individuals*, whose elementary processes are those of certain instinctive dispositions. These dispositions may well be used as "assumptions in the analysis of the psychological aspects of assumptions of the social sciences." Later, the assumed dispositions themselves will be reduced to their lowest terms.

The first portion of the work deals with the relation of social psychology to political science. After the Greek philosophers, the state has been assumed to be a consequence of human nature. The particular political attitudes which arose have become logical bases

for the various theories of sovereignty, as these are discussed in political philosophy. The theories are shown to have been produced under the influence of time and place. And each theory of sovereignty, as each view of the nature of social classes, has its psychological assumptions, though often professing to escape assumptions. Professor Williams shows how important it is to investigate these notions of human nature, particularly in the light of modern industrial conditions. There follows an empirical study of the facts of political relations, in which the author distinguishes motives from professions, and habit from thinking. This psychological approach to the question of sovereignty avoids much hypostatization, and makes possible an acute description of the interplay of social forces, with especial reference to the behavior of classes.

In turning to the psychology of nationality, Professor Williams points out that while nationalistic feeling is weakened by class internationalism, nationalism is by no means obliterated. This becomes clear in his analysis of modern nationalisms. Then the way psychological assumptions grow from the political and intellectual history of a nation is illustrated at some length in the case of Germany, whose political ideals he contrasts with those of England and of America.

Passing to the psychological aspects of international relations, the author discusses the possible types of international behavior. These types range from national isolation, which he shows to be a purely temporary phase, to international co-operation. Interesting parallels are drawn between the development of inter- and intra-national relations, particularly in the rise of economic classes, with their sympathies and antipathies. It is maintained that dominant economic interests have played a leading part in international conflicts; and the author examines the propaganda by means of which these interests win popular support. He concludes that "permanent peace cannot be expected without a development of industrial democracy in each nation. These democratized nations must then subject the economic interests of the different nations to the international control that is necessary to insure a lasting peace." This requires, of course, a press that will provide real knowledge of the facts; and it requires, especially, an educational system that will develop real intelligence. For the sake of progressive citizenship, popular education must be of the type which urges intelligent co-operation, not rivalry, between families, sects, classes, and nations. The best mode of approach to this goal of free intellectual development, is an education

that teaches impartial judgment in the more common class conflicts.

The second portion of the volume treats of the relation of social psychology to jurisprudence. It appears that in law, as in political science, the theories of jurisprudence have been developed deductively. The traditional, professional legal attitude has been that of deference to law as command, an attitude which has been perfectly agreeable to capitalistic classes. But what we need is description, in terms of social-psychological processes. When this method is applied to the history of jurisprudence, it becomes apparent that the public welfare is in process of becoming the conscious purpose of lawmaking. More explicitly, the social purpose of progressive lawmaking is to enable the individuals of a population to organize for self-development. Interesting chapters in support of this thesis are those which discuss the conflicts of judicial attitudes (particularly as revealed in labor disputes), the idea of natural law, and of natural rights, private property, and private rights. Under the last of these topics the author finds place for a good discussion of the freedom of speech.

The third, and relatively brief, portion of the work, deals with social psychology as related to economics, history, and sociology. Professor Williams shows how the psychological assumptions of various economic doctrines should be examined, so as to make possible a psychological description of the motives of men in society. Such a description would include many factors too often overlooked, such as the relation of incompetence to attitudes of domination; psychological factors affecting the rate of increase of population; and psychological aspects of trade unionism, mechanisms of commerce, insurance, taxation, price levels, and trade disputes. As related to history, the author indicates that social psychology may be turned to good account in criticizing historical methods. When he comes to the relation of his subject to sociology, eugenics, and social philosophy, he provides historical sketches of these fields, and critical estimates of their usefulness and needs. The social philosopher is brought in for examination, with the conclusion that he is most valuable, partly because he is necessarily more conservative in practice than in thought.

The fourth and last portion of the work, which covers the field and methods of social psychology, is short. Here the author explains the importance of knowing men's conscious and unconscious motives. The methods of study which he outlines include direct, personal field work, and documentary record of such work. Among the printed sources of material are bibliographies and newspapers, when wisely

used; and "the critical periodicals, such as *The Nation*, *The New Republic*, *The Searchlight*, and *The Survey*, which represent no group or class but aim to enlighten and guide the reader in an analysis of current events and problems." While social psychology aims to become a quantitative science, so far as possible, there are many phenomena of human behavior, such as satisfactions, which are always relative. The book closes with some observations upon the necessary characteristics of the social psychologist, and upon the advantages of the study of social psychology by the masses and their leaders.

Such is the scope of this volume. Because of the newness of the subject, the author explains, the study has been written "more concretely than is usual for the serious student, and with more numerous citations and references than is usual for the general reader." The references, indeed, are a most valuable part of the work. They include the classics in the various fields; outstanding articles in periodicals, including *The Atlantic Monthly*, *The New Republic*, *The Harvard Law Review*, and *The International Journal of Ethics*; recent court decisions, with important dissenting opinions; and studies by Woodrow Wilson, Goodnow, Fisher, Laski, Kallen, Perry, Pound, and a great many others. Also, as remarked by the author, although he has tried to avoid abstraction, parts of the manuscript were submitted to experts for criticism. Certainly the book shows both detailed knowledge and perspective, along with some repetition of fundamentals. But in view of the brevity of the last portion, the volume suggests considerable duplication of the ground covered by more avowedly economic studies. Perhaps the chief use of this work is its clear reduction of social problems to psychological foundations, in a spirit that is empirical, open-minded, and progressive. While Professor Williams treats of material which is often substance for social passion, his own attitude is rather that of a student of human interests.

W. S. TAYLOR.

MANUAL OF PSYCHIATRY. Edited by Aaron J. Rosanoff, M. D., 5th Edition. John Wiley & Sons, Inc., Phila., 1920. Pp. xv, 694. Price \$4.00.

The editor explains that this volume has grown from J. Rogues de Fursac's "Manuel de Psychiatrie" which first appeared in English in 1905. The editor and three other writers have contributed various chapters on subjects connected with the practice of psychiatry. This volume, numbering 640 pages exclusive of a very complete index, is

really two books bound in one. The first, of two parts, deals with general and special psychiatry and the other part is made up of eight appendices dealing with the technique of diagnostic procedures. The first part contains many orthodox chapters on psychiatry to which have been added several accretions.

In the writer's opinion it would have been better if the chapter on psycho-analysis had been omitted, or if necessary that this subject must enter into a treatise on psychiatry, that should have been more thoroughly edited for the benefit of students who need practical help in applying this measure. The chapter is virtually taken from Freud's book and the bulk of it is in quotation marks and the inquiring student will get little assistance in its practical use in psychiatry.

There is also a chapter on Sociology in Psychiatry written by Miss Mary C. Jarrett, the competent social worker. Sociology rightly defined is using common sense in handling the various problems arising in the care and treatment of mental cases, — and this author is a sociologist. She urges the employment of social workers in our hospitals where she believes there should be one social worker for every 200 to 300 admissions.

There is a brief chapter devoted to medico-legal matters which is excellent as far as it goes.

The section of special psychiatry is most excellent and has been brought up to date. The chapter on Manic-depressive Psychoses is especially clear and helpful.

The third part containing eight appendices relating to the technique might well have been published as a separate volume as its 190 pages useful as a manual would have been more convenient to the clinical worker.

EDWARD B. LANE.

THE ENDOCRINES. By Samuel Wyllis Bandler, M. D., F. A. C. S., Professor of Gynecology in the New York Post Graduate School and Hospital. W. B. Saunders Company, Philadelphia and London, 1921. Pp. 486. Price \$7.00.

This book by Bandler discusses the ductless or endocrine-glands from the standpoint of a gynecologist. The reader will find it interesting from the very first page to the last.

Bandler discusses such questions as environment and heredity, hypergenitalism and hypogenitalism, skin affections in relation to the internal secretions, puberty and the climacterium, sterility in women and its frequent relation to the endocrines, constitutional dysmenor-

rhea, and the relation of the placental gland to pregnancy and labor.

Bandler shows an interest in things psychologic to a degree which it is hard to find in the average gynecologist.

He has taken a deep interest in and discusses the instincts and emotions, mental and nervous defects, neuroses and psychoses, and the autonomic nervous system.

The author reduces everything to ductless glands. As a result we find that here and there he has gone to decided extremes and makes exaggerated claims or prophesies. In spite of this defect, the book is full of stimulating ideas, and one does not have to read far before becoming infected with the contagious enthusiasm of the author. A study of the book will help to put one on one's guard and keep one's eyes open for possible minor ductless gland disorders and indications for ductless gland therapeusis in the patients who come before us from day to day.

DR. MEYER SOLOMON.

LA GRAPHOMANIE (Essai de Psychologie Morbide). By Ossip-Lourie. Librairie Felis Alcan, Paris, 1920. Pp. 232.

The author believes that he has found a new form of mental aberration. "Struck by the constancy with which certain non-amented individuals write without apparent necessity or precise aim, or, perhaps, with the sole desire to astonish, to attract attention, or to conceal their true intellectual or moral natures, it occurred to us that this writing tendency could well be the result of a psycho-pathological cause." After stating that "la graphomanie" is a psychopathic tendency to write, he gives us a rule by which we may determine whether or not a specific product of the pen is to be considered as abnormal. "All writings which do not convey a positive fact, the result of observation or of experience, which do not bring forth an idea, which do not materialize an image, — a personal artistic product, — which do not reflect the interior life and the personality of the author, are in the domain of graphomania."

The introductory and first chapters deal with the origin and psychology of written language. Chapter two discusses the disturbances of memory, imagination, and ideas which accompany this increased desire to write. The third chapter, probably the best of the book, brings forth some of the essential forms of graphomania, — autographic (name scribbling), and the writing of letters and of anonymous letters. The chapter on the literary forms of the disease will provoke opposition, in that the author seems inclined to classify all

unmeritorious literary and scientific products as pathological. He apparently forgets that many write to make a living, and that their work is no more symptomatic of mental disturbances than that of the day laborer.

As to the etiology of the disease, he believes that it is "psycho-socially acquired," and is mainly the result of our educational methods which teach the child to copy, instead of drawing out his creative powers. The chapter on the disease in women goes far afield, degenerates to personalities, and could well be omitted.

The complementary disease, "la manie de la lecture," appears to be an equally vague and illy-defined entity. From the author's description it might be assumed that any one who reads a text without understanding it is a victim of this malady. However, he probably intends to refer only to those cases in which there is, in psychoanalytic parlance, a complete withdrawal from reality.

The final chapter on therapeutics and prophylaxis is the most absurd of all. He proposes to reform education (it doubtless needs it), to suppress valueless literary endeavors (no hint is given as to the personnel of the tribunal — presumably psychiatrists), and to raise manual labor to such high prestige that people will turn to it for fame rather than to writing.

M. Ossip-Lourie has, in this work, returned to Kraepelinian methods of classification. Since the advent of psychoanalysis we had fondly believed that our classifications more nearly conformed to the actual causes of the disturbances than to their external manifestations, — the symptoms. In view of this, then, the author has merely described a symptom common to several diseases, and he regards this symptom as a cause. The modern psychiatrists will not take seriously this little book; the less charitable of them will probably consider it as eccentric.

F. T. HUNTER.

CONCEPT OF REPRESSION. By Girindrasheklar Bose, M. B., D. Sc., Lecturer in Psycho-Analysis and Abnormal Psychology at the University of Calcutta. Bose, Calcutta, 1921. Pp. 223.

This must be the first work on Psycho-Analysis written by an Indian, and we note with interest that it betrays a considerable knowledge of the subject. The author tells us that he has been practising psycho-analysis since 1909, and although he has no access to writings in the German language, and evidently only to a certain number of those in English, he gives evidence of considerable per-

sonal experience as well as of careful thought. In the first chapter or two the author explains his position as a pan-psychic determinist, a doctrine he applies thoroughly. He has chosen repression as the title of his book and as the main theme in it because in his opinion "Freud's concept of repression is perhaps the most important contribution to psychopathology." He then expounds the subject of repression, of conflict, and of allied themes familiar to the readers of this Journal. In it he lays especial, and unwonted stress on the tendency to polarity in the human mind. The book is extensively illustrated by diagrams, which will doubtless be useful to the beginner. ERNEST JONES.

THE ELEMENTS OF PRACTICAL PSYCHOANALYSIS. By Paul Bousfield. E. P. Dutton & Co., New York, 1920. Pp. xii, 276.

The author states in his preface that "The object of this work is to give an account of the theory, technique, and scope of psychoanalysis, in such a form that its essentials may readily be understood by the student or practitioner without previous systematic reading in psychology and psychotherapy." In so doing he has eliminated the use of technical terms as much as possible, and whenever their use is unavoidable he has given brief and clear-cut definitions which permit of slight ambiguity. As an introductory work on psychoanalysis it is to be highly recommended. Written in a clear and concise style, it is well adapted to putting the novice on the path of clear understanding when he first sets out in the quest for psychoanalytic knowledge.

Dr. Bousfield, though a disciple of Freud, has ideas of his own; and while accepting Freud in the main, he voices objections to some of the master's dogma. "The three notable subjects on which I consider Freud's evidence to be insufficient are:— firstly, in his theory of *complete* determinism as opposed to Free Will; secondly, in his statement that *all* Dreams have the same causative factors; and thirdly, in his theory that sexual desire is the fundamental desire underlying *all* other desires and emotions." Without advancing convincing proof, he suggests that Free Will may operate on occasion and yet be compatible with the psycho-analytic mechanisms which determine our conduct most of the time. Furthermore, certain dreams seem to him to be explainable only on the grounds of telepathy. Doubtless there exist other factors in dream-making than Freud is willing to concede; but why assume telepathy until one has exhausted every other possible explanation? At least the author has

made a brave, though unconvincing, attempt to reconcile psycho-analysis with a "soul" psychology.

The chapter on the Fate of Erotic Impulses is especially good, and the same may be said for the two chapters on the Functional Diseases. The latter, though clear to the initiate, are hardly within the scope of the unread layman's comprehension. One chapter is devoted to defending psycho-analysis against the shafts of its critics.

In the final chapter, the author's suggestion for the "de-sexualization" of the race seems absurd. In brief, he maintains that there is at present too much differentiation between the sexes in the matter of clothes, courtesies, etc.; that there is hence too much energy spent on sex that had better be sublimated. And acknowledging that complete sublimation is impossible, he states that a maximal sublimation would still leave enough sexual energy intact to care for the propagation of the species. Women's clothes of the present day are doubtless obstacles to maximal sublimation; but who among us ordinary mortals would desire such a "Bolshevik" state of affairs,—a world lacking in romance and feminine charm? Over-sublimation suggests the proverbial 'oldmaid' with her sour disposition. Moderation seems the sane course to pursue; preoccupation with, and minimalization of sex, being both extremes, are most undesirable.

On the whole this little book is well worth the reading. The author's spirit of open-mindedness may bring back to a more sober point of view certain of those who have accepted Freud and his psychology without reservations. And for the benefit of those who would like to accept Freud with modifications, it offers several suggestions likely to lead to a suitable compromise.

F. T. HUNTER.

BOOKS RECEIVED

Death, Its Causes and Phenomena. By Hereward Carrington. Dodd, Mead & Co. Pp. VIII plus 307.

The Problems of Psychical Research. By Hereward Carrington. Dodd, Mead & Co. Pp. IX plus 288.

Instinct in Man. By James Drever. Cambridge University Press (England). Pp. X plus 281. Price 9/net.

Human Efficiency and Levels of Intelligence. By H. H. Goddard. Princeton University Press, 1920. Pp. VII plus 128. Price \$1.50.

Heredity and Environment. By Edwin G. Conklin. Princeton University Press, 1920. Pp. XV plus 361. Price \$2.50.

Benign Stupors. By August Hoch. The Macmillan Co., 1921. Pp. XI plus 284. Price \$2.50.

The Logic of the Unconscious Mind. By M. K. Bradby. Oxford Medical Publications, 1920. Pp. 316.

The Eugenic Prospect, National & Racial. By C. W. Saleeby. Dodd, Mead & Co., 1921. Pp. 239.

Democracy and the Will to Power. By James N. Wood. Alfred A. Knopf, 1921. Pp. 245. Price \$2.00.

The Value of School Supervision. By Marvin Summers Pittman. Warwick & York, 1921. Pp. X plus 129.

Periodic Variations in Efficiency. By Archibald G. Peaks. Warwick & York, 1921. Pp. 93.

State Maintenance for Teachers in Training. By Walter Scott Hertzog. Warwick & York, 1921. Pp. 144.

The Psychology of Learning. By Wm. Henry Pyle. Warwick & York, 1921. Pp. 308.

An Introduction to the Study of Sociology. Robert E. Parks and Ernest W. Burgess. University of Chicago Press, 1921. Pp. XXI plus 1040. Price \$4.50.

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ORIGINAL ARTICLES

THE USE AND ABUSE OF INSTINCT IN SOCIAL
PSYCHOLOGY

BY WILLIAM MC DOUGALL

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DISCUSSIONS of Instinct in Man have appeared so frequently of late in the journals as well as in books that many readers are, no doubt, tired of the topic and would like to see it strictly barred for ten or twenty years. Yet the discussion must go on until we can arrive at something like a consensus of expert opinion. For no one can deny the importance of the questions at issue. Until the psychologists can achieve such a consensus, the students of the social sciences must continue to build on most unstable foundations.

Recent years have seen the publication of many books and papers the main theme of which has been the application of the notion of human instincts to the advancement of the various branches of social science. Still more recently these efforts have provoked a violent reaction, and hardly a week passes without the appearance of some article which attacks these attempts, pours scorn or ridicule upon them, and proposes to repudiate completely the notion of Instinct in Man, or at least complains in severe terms of the abuse or excessive use of the notion by the social scientists.

In most of these articles my 'Social Psychology' is pointed to as a main source of the trouble. I have no wish to repudiate the responsibility which is thus laid upon me. Since ceasing to be wholly absorbed in the tasks demanded by the war, and especially since coming to this country, I have been gratified to find that my little book has exerted a very considerable influence. The mere fact that the publishers have found it necessary to reprint it rather oftener

than once a year since its appearance in 1908 would fix a considerable responsibility upon me. And if, as many of the recent critics maintain, my conception of Instinct in Man is wholly false, and the account of moral character and will which I have elaborated on that basis therefore wholly fictitious, my responsibility is indeed heavy. If I could be convinced that these adverse criticisms are well founded, I should, I hope, at once do what I could to suppress the book. But since, after giving respectful attention to them, I remain convinced that my book, however much in need of correction in detail, embodies the psychological truths (or hypotheses) which are of most importance to all the social sciences, because forming their essential foundation, I feel that the time has come to attempt some answer to the more radical critics. I propose also to take this opportunity to examine some of the views on this topic which are allied to my own and which have been put forward since the publication of my book; and, where I fail to agree with them, to indicate the grounds of my disagreement. Finally I shall try to make clear in what way my own view of the nature of Instinct has developed.

Before entering upon this program I venture to set down certain facts which support my confidence. Let us suppose for the purpose of discussion that human nature, or the innate constitution of the species *Homo sapiens*, does actually comprise some such factors as I, following James, have called instincts or instinctive dispositions and which by older writers, such as Dugald Stewart and others of the Scottish philosophers, were called implanted or instinctive propensities. How may the fact be established among the truths of science? It is clear that it cannot be established by simple direct observation or experiment, in a way comparable to the processes by which the existence of the pineal gland, the presence of the 'blind spot,' or the reality of the circulation of the blood, have been proved. The existence of instincts in man must always remain an hypothesis, justified, if at all, by its co-ordinating in an effective manner an immense range of facts of immediate observation, facts of human and animal behavior and of human experience. Those who will not take the trouble to survey and to reflect long and carefully on these facts, and those who are incapable of marshalling a large array of facts and of weighing hypotheses in the light of them, can never be rationally convinced of their existence, or of the usefulness of the hypothesis that they exist. That is to say that, like the more abstruse truths or hypotheses of the physical and biological sciences, the nebular hypothesis, the exist-

ence of the ether, the atomic constitution of matter, or the reality of natural selection as a factor in organic evolution, the existence of instincts in man can never be a matter of demonstration to more than a very few; the rest of the world will accept them, or reject them, in obedience to the authority of those few. This being so, the burden of responsibility that rests upon psychologists in this matter is very great. For it is among them that the few whose consensus will determine the opinion of the rest of mankind must be found or created. Hence, the importance of achieving, if possible, some such consensus. Unhappily we are very far from that goal. It is true that popular speech and popular literature continue to use the word 'instinct' as freely as ever, perhaps more freely, with a minimum of meaning and a maximum of vagueness. I claim no support for my view in that fact. More important is the fact that the authors of a number of books on psychology, on education, and on various branches of social science have adopted my scheme of the human instincts, incorporating it in their books and giving it a more or less qualified approval. It would be possible to make a considerable array of the names of such authors. But I refrain; for I agree with what is, no doubt, the opinion of my critics, namely, that the great majority of these writers are concerned primarily to expound and to apply current doctrines of psychology, and that they cannot fairly be claimed as thinkers who have independently weighed the evidence and reached a conclusion in the light of a thorough preparation for such evaluation. Yet there are a few authors of this class whose agreement I may fairly claim as strong support for my view. Chief among these are Dr. Drever and Professor Stout. Unfortunately, from my point of view, both these eminent psychologists carry less weight than they should with many of the young bloods of psychology, because they are open to the serious charge of being philosophical. Drever is the only critic of my view who has given evidence of a thorough examination of it; and in the main he accepts and endorses it, with, of course, some suggestions for the modification of it. His endorsement is valuable, not only because it comes from a highly competent professional psychologist who has devoted special attention to the problem and to the history of opinion upon it, but also because (as he has informed me) he approached it in a somewhat adverse attitude, rather than with any prepossession in its favor.

Stout, in the third Edition of his *Manual of Psychology* (1913), expounds Instinct in a way with which I am happy to find myself in

almost complete agreement; and he cites, without binding himself to its acceptance in detail, my list of human instincts.¹

More important perhaps than the agreement of these more theoretical psychologists is the endorsement of my view by certain applied psychologists who have adopted it as the guiding hypothesis for their practice and have found that as such it gives satisfactory results in their fields of work. For even those who are not confessed pragmatists must, I think, agree that, in this question, such testing by application to practice must be the final court of appeal. I find, therefore, much comfort in the fact that Dr. Morton Prince, eminent both as a theoretical and as a practical psychologist in the field of nervous and mental disorder, finds my scheme useful in the interpretation of cases and as a guide to actual therapeutic procedure and, therefore, gives it general endorsement.² A physician of great experience and distinction in another field of medicine, the care of the mentally deficient, Dr. H. Goddard, has endorsed the scheme on similar grounds.³

In the field of ethics Professor W. K. Wright has found it illuminating, has illustrated its application in a number of articles, and has given it his general approval.⁴

I am also encouraged to believe that my scheme is not utterly without basis in fact by private communications from a number of experienced teachers in psychology and education, who assure me that they have found my book valuable, both because it provides a type of psychology in which they are able to interest their students, and because they themselves find it helpful in the interpretation of human experience and behavior.

With so much encouragement I should show a craven spirit, if I should shrink from the task of defending my scheme against its more radical critics and of amending it in the light of the many dis-

¹ Especially important in relation to the main topic discussed in this article is the following passage: "Such behavior as this [that of a wasp] shows clearly that instinct does not consist merely in a congenital arrangement through which a certain stimulus elicits certain movements. What it essentially involves is rather an impulse which requires for its satisfaction the doing of something in the sense of achieving a certain perceptible result. If the given situation at once evokes the movements required to produce this result, there is no renewal of effort with variation of procedure. Otherwise what we can only call fresh attempts are made involving more or less novelty of adjustment. To some extent the nature of the new adjustments may be provided for by the inherited constitution of the nervous system. But this explanation seems plainly inadequate to cover the relevant facts." (p. 346.)

² In "The Unconscious," and in several articles in this Journal.

³ 'Psychology of the Normal and the Abnormal.'

⁴ 'Journal of Philosophy,' January, 1921.

cussions which have revealed various degrees of agreement in principle, with differences in details.

THE CRITICS OF INSTINCTS IN MAN

It is common to most of the writers who attack or belittle the conception of human instincts, that they do not select for criticism any one author's scheme of instincts, mine or another's, but disparage the conception in general by citing whatever seems most open to objection in the expositions of various writers and in the popular and literary use of the word 'instinct.' Thus, by implication, they involve each exponent in the odium of the errors committed by all. I protest that this is not playing the game. Let each of those who seek to banish Instinct from human psychology and to reduce the human mind once more to Locke's *tabula rasa* select one or two of the exponents of Instinct whose work seems most worthy of their steel, and let them criticize that work as thoroughly and severely as possible. In that way they may achieve their purpose; but not by selecting arbitrarily a few points and statements from many exponents and throwing cold water upon them.

Those who reject the view that human nature comprises instincts or innate tendencies which operate in adult life in a way that renders an understanding of them important for the social sciences, fall into two groups: (1) those who deny all instincts to man: (2) those who admit certain simple human instinctive tendencies, such as that of the babe to suck, or to hang by the hands, or to wail, or to grasp at seen objects; but deny that these or other innate tendencies continue to play any important part in later life. The difference is slight, and chiefly a matter of terminology; the former call all such infantile movements reflexes; the latter distinguish between such simple instinctive tendencies and reflexes.⁵ They agree in the main in demanding that any movement attributable to Instinct must be observable in young infants before they have had opportunity to learn such movements.

This demand is utterly unreasonable. Suppose it to be true, for the sake of the argument, that the human species resembles all the higher species of animals in being endowed with a sexual or reproductive instinct. Are we to ignore this fact forever, because the human infant gives no unmistakable signs of its operation within

⁵ I shall for brevity's sake class all these writers together as 'deniers' of human instincts.

him?⁶ This is only the clearest instance of the misleading nature of this demand. Even though it were true in principle that we inherit nothing in the way of active tendencies beyond some very simple sensori-motor responses, it would yet be impossible to determine the nature of all these by observation of young infants; and there would be no warrant for rejecting all that are not demonstrably present in infancy. Development is, at every stage, from the moment of the fertilization of the ovum, a matter of the interplay of innate constitution and environment; and we can never hope to ascertain just what is wholly innate and what is wholly due to environmental influences. When, then, such writers as Professor Thorndike and Mr. J. B. Watson send us to the new-born babe as the only authentic source of information on the human instincts, they are laboring under a delusion and harboring an ideal of knowledge which, from the nature of things, can never be attained. By the same reasoning (as indeed by most of the arguments used against instincts in man), we should, if we accepted it as valid, be compelled to give up instincts in animals also.

Many of the arguments used are so haphazard and *ad hominem* in character that to answer them in detail would be a tedious and thankless task. An example of this class must suffice. Mr. E. Faris⁷ picks out for specially emphatic rejection my conception of a maternal instinct. He tells us that the belief in this has caused much suffering to children and that Mr. J. B. Watson has drawn our derisive attention to the spectacle of an inexperienced young mother bathing her infant. The implication is that the maternal instinct in the mother is supposed by me to enable her to perform all the movements necessary to bathing her infant as effectively as a mother-cat licks her kittens. He goes on to clinch the case by asserting that "by the criteria of McDougall it would be entirely possible to make an irrefragable argument for the existence of infanticide as a human instinct." For, says he, infanticide is and has been widely practised among many races and occurs in animals. He admits that "infanticide is not universal, yet no instinct is without exception.

⁶ Incredible to relate some of these deniers of instinct ask us to believe that all the sexual behavior of men is the expression of reactions, tendencies or conditioned reflexes acquired during the life history of the individual. "All our sexual appetites are the result of social stimulations. The organism possesses no ready-made reaction to the other sex, any more than it possesses innate ideas." Mr. Z. Y. Kuo, *Journal of Philosophy*, November, 1921.

⁷ "Are Instincts Data or Hypotheses?" *American Journal of Sociology*, September, 1921.

. . . It is undoubtedly very widespread among civilized people, but is now usually concealed. It could also be argued that infanticide had, originally, a survival value."

He omits to notice that infanticide, unlike the maternal instinct, is not absolutely essential to the continuance of most of the species of mammalia, as well as of many other animals. But the proper reply to such scepticism regarding the reality of this instinct is to ask how the sceptic proposes to account for the behavior of human mothers towards their infants, for their devotion and delight and for their care, however lacking in skill it may be. Is he prepared with Bain to explain all these manifestations by the principle of association with the pleasures of contact? And if not, how otherwise? This points to the essential weakness of the position of some of these deniers. They are content to reject and deny, and they fail to give us any constructive suggestion that might contribute however slightly towards a foundation for the social sciences. They make play with the magic term 'reaction-pattern' and that is all.

More serious is the indictment of 'instincts' by Professor Knight Dunlap.⁸ After admitting that certain unlearned muscular and glandular performances resulting from sensory stimuli may be regarded as instincts in the physiological sense of the term, he goes on "to ask whether there are 'instincts' in the teleological sense — the sense in which the term is used in McDougall's *Social Psychology*"; and he reaches the conclusion that, in this sense of the word, "for psychology there are no 'instincts.'"

He asserts that, in the sense of the term which he attributes to me, an instinct is a group or class of all activities which lead to 'results obtained in the outer world' of a certain kind. "Thus, the 'instinct of flight' includes all those activities which result in a get-away from a dangerous locality. . . . The 'gregarious instinct' is the composite of activities which result in forming a herd and holding it together, and so on through the list." He adds in parentheses, "Of course I mean that the tendency to these activities constitutes the 'instincts,' but the shorter expressions are not misleading." I protest that they are extremely misleading and that the use of them is at the root of the trouble. What I have maintained is not that instincts are activities or groups of activities, but that instincts are innate dispositions and that, though the movements incidental to such activities as 'result in the formation of a herd and holding it

⁸"Are there any instincts?" *JOURNAL OF ABNORMAL PSYCHOLOGY*, December, 1919.

together' may be largely learnt or acquired, yet the innate disposition continues to be an essential factor in such behavior, without which such movements would not be directed in such a way as to achieve this result.

Professor Dunlap holds that such grouping of activities according to the kinds of result they achieve is purely arbitrary and a matter of convenience only. "The grouping of activities into 'instincts' may be admitted to be a useful procedure, if it be clearly understood to be a device of convenience only, similar to the arrangement of documents in a well-ordered filing system. . . . We may classify 'instincts' under two, four, twenty, or a thousand headings, according to the particular purposes we have in view, may then use another classification for another purpose." But such grouping has no value for psychology, he says; and he demands a 'psychological grouping.' Well, I admit that if we were confined to a behavioristic standpoint and forbidden to seek light on instinct from our own experience, it would be difficult to provide any psychological support for the notion of human instincts. But Dunlap deliberately ignores the fact that I have insisted upon a psychological ground for the classing of activities and the reference of them to instincts; namely, the qualities of the emotional excitements that accompany various types of behavior. Instead of carefully examining my view, he gives us a few scornful references to those who postulate a moral and a religious instinct, or an instinct to imitate, to Freudians and to Trotter, and concludes by saying—"I am at present inclined to think that the possibility of discovering social psychology rests upon the possibility of discovering psychological groupings of instinctive activity"; which possibility is exactly the one I have endeavored to exploit, though Dunlap ignores my attempt.

Professor Kantor⁹ has made a vigorous onslaught on my view. The burden of his indictment seems to be similar to that of Professor Dunlap; but I must confess that, owing no doubt to my own obtuseness, I cannot make out exactly what is the ground of his quarrel with me. I gather, however, from an article by one of his pupils that he conducts an anti-instinct campaign. Yet he seems to accept the existence of human instincts; and he makes the following suggestion to explain the empirical fact that instinctive activity seems to be commonly associated in time with emotional excitement. Emotion has no intrinsic connection with instinct; but only an indirect one. The

⁹ "A functional view of human Instincts," "Psychological Review," January, 1921.

function of emotion is to produce a state of cerebral dissociation in which all thinking is impossible. When this state has been induced, the instincts are released from the control of the cerebrum and manifest themselves as bodily movements. Thus, if I am frightened by a sudden sound while wandering through a wood, and if I run away, the running away is an instinctive train of movement; but its relation to the emotion of fear is merely that the fear has dissociated my cerebrum, so that I cannot think; and the lower-level reflexes, thus freed from control, then break out in the form of the movements of my legs. It is not easy to see why, if this view of the function of emotion be true, the qualities of emotional excitement should vary in a constant fashion with the general character of the instinctive activities they accompany, why we should feel fear when we shrink and run, anger when we strike, disgust when we spew out, curiosity when we draw near to examine. It is much, however, to find a critic who does not content himself with observing of this feature of my theory that there is no such relation of concomitance between instinctive activity and emotion as I have drawn attention to and sought to explain; and who offers some suggestion, however unsatisfactory, as a substitute for my view.

✓ Professor Lloyd Morgan is a high authority on animal instinct, with whom no wise man will lightly disagree. His many discussions of the topic are always carefully thought out. But to me it seems that his inability to recognize in the human species such instincts as I have described is rooted in the same error which is implied or dogmatically asserted by almost all of these critics. In his latest discussion,¹⁰ after carefully distinguishing learnt from unlearnt modes of behavior, he goes on to recognize as founded in man's innate nature the two tendencies that I have called 'self-assertion' and 'self-abasement.' He illustrates and abundantly recognizes their importance in human life. He says—"Can there be any doubt that both these tendencies are there in the inherited make-up of each one of us? . . . In almost everything that we do, now one, and now the other gets expression. . . . The teacher who knows his business plays upon these complementary traits in the characters of his pupils. If both be present by nature in something like due balance, he seeks to bring it about that each finds its proper place and time in the life of the boy or girl."—And so on. Further—"It is tolerably obvious,

¹⁰ 'Instinctive Behavior and Enjoyment,' *British Journal of Psychology*, vol. XII pt. I.

then, that if we speak of these as modes of instinctive behavior — if with Professor McDougall we place them on the list of man's 'primary instincts' — we should clearly realize to how large an extent the purely instinctive factor is masked by manifold acquisitions in the life of human folk. . . . Still there is present an unlearnt core at the heart of so much that is learnt."

I hardly know whether I may accept the passage from which I have cited these sentences as an acknowledgment of the essential correctness of my view. I have myself elaborately discussed in a succession of chapters the processes by which such instinctive or 'unlearnt cores' became overlaid and disguised in the long process of growth from infancy to manhood. But my essential contention is that in the adult the 'core' is there; that without it these modes of complex behavior which involve it would not have been acquired; and that, if the 'core' were somehow extracted (even in the mature man) these forms of behavior would cease to be manifested; just as in the old man in whom the fire of sexual desire has died out, the attitude and behavior and feeling towards women is radically modified; even though some old men in that state may maintain by artful acting an appearance of youthful gallantry.

Such 'unlearnt cores,' it is my main contention, are the main-springs of human action. But I do not think that Lloyd Morgan intends to accept my view, although his language might easily be interpreted in that sense. When he says 'unlearnt core' he means, I think, some element of bodily action, some combination of muscular contractions, which was provided for by innately organized connexions of motor neurones and which still may on occasion be manifested among the more complex combinations of adult movement. What I mean by 'core' is the capacity in a man for impulse towards the kind of goal to which such behavior is directed, the capacity for desiring that end, the admiration of the crowd, the homage of his peers, the praise of his superiors. What I maintain is that, if the 'unlearnt core' were extracted from a man, all that type of behavior and feeling would cease in him; that he would cease to be ambitious, or proud, or vain, or eager for praise. What Lloyd Morgan means, I take it, is that in such a case the man's muscular combinations, upon occasions appealing to his self-assertive tendency, would be modified by the subtraction of the unlearnt elementary combinations which have entered into the more complex acquired combinations.

If I am wrong in this interpretation of Lloyd Morgan's meaning,

I shall be delighted to know it; and indeed his article on 'Instinct' in Hastings' 'Encyclopedia of Ethics and Religion' almost compels me to suppose I am in error. For in that article, in which he treats of human instincts, he has written almost as I should have desired to write myself. A large part of the article is in fact and confessedly an exposition of my view.¹¹ But, in spite of this appearance of near agreement, I feel sure that there remains a deep lying difference between us, and that this is the same which divides me from almost all of the critics of instinct in man. It is this. Lloyd Morgan and these other critics are mechanists. All their thinking, all their explanation of human behavior, is limited and hampered by their assumption of the truth of the mechanistic dogma. Having, on one ground or another, adopted this metaphysical position, their reasonings and conclusions are dominated by it. They cannot conceive impulse, or admit the reality of purposive striving, of desire or aversion, of will or effort; and, when they use the word 'tendency,' they do so only in the same sense in which one may speak of the tendency of water to find its own level. All these terms, as used in common speech, in literature, or in psychology, have become meaningless to them. For them all human action is reflex action, the mechanical issue of nervous currents initiated by sense-stimuli and running along pre-formed channels of greater or less complexity. In their view, all that can be inherited in the way of tendency or predisposition to movement is of the nature of motor mechanisms, more or less fixed conjunctions of sensori-motor channels, after the pattern of spinal reflex-arcs. Holding this view with the utmost confidence, their view of Instinct is completely governed and shaped by it. Hence their denial that instincts in man are of any significance for adult life or importance for social psychology. For, they argue, implicitly

¹¹ In another recent article ('Instinctive Disposition,' *Scientia* October, 1920) Lloyd Morgan again seems to come very near to accepting my view. He there distinguishes instincts of three levels: (1) simple motor tendencies; (2) mid-level instincts — "those with which many writers on instinct, Dr. McDougall for example, almost exclusively deal"; (3) two comprehensive instincts comprizing "(a) all the behavior which falls under self-preservation; and (b) all the behavior which falls under race-maintenance." He observes: "It is of course with respect to these low-level instincts, swimming, pecking, scratching the ground, and the like, that it may appropriately be said that the overt behavior just comes as a completely integrated system of reflexes. The case is different with the mid-level instincts. It would savour of extravagance to assert that the instinctive behavior observed when a male warbler in his first year proceeds to secure a territory is nothing more than a compound reflex. I should not describe what Dr. McDougall calls the instinct of pugnacity, which, as he treats it, is distinctly of mid-level status, in such terms." On this I would comment that most of the alleged lower level instincts are not instincts in any proper sense but rather motor mechanisms and that the alleged high-level instincts are merely what Dunlap calls teleological groupings of activities which may spring from a variety of instincts.

for the most part, the number and complexity of such fixed innate reflexes in man is very small relatively to the number and complexity of the nervous paths which are built up in each of us during the course of growth and education and which constitute the essence of all that they understand by 'mind.' Hence, in the adult, they hold, though the innate reflex paths may continue to exist and function as subordinate constituents of acquired 'reaction patterns,' (and for this reason they for the most part are willing to admit an instinctive element or 'core' in human behavior), such innately organized arcs are of vanishingly small importance in the vast complexity of pathways of the adult-brain.

Lloyd Morgan holds 'the mechanistic dogma' consciously; telling us that as a man of science he holds himself bound by it, though as a philosopher he is free to throw aside its trammels. He tells us that to think in any other terms is to enquire into 'source,' a thing forbidden to men of science, though permitted to philosophers;¹² and he promises us a treatise in which he will write as a philosopher.¹³ Pending the appearance of this work, I can only say that his distinction between the functions of science and of philosophy seems to me ill-judged and ill-based; and that his own many grapplings with the problem of Instinct seem to me to illustrate most forcibly the hampering effect on scientific enquiry of any such fixed metaphysical doctrine as the mechanistic assumption.

In some of the other critics this mechanistic dogma seems to be so firmly embedded that they are hardly conscious of the fact that they hold it and that it is the implicit premise of their reasoning. They have imbibed it and assimilated it as they took their mother's milk; and they cannot conceive that any sane man of science may fail to accept it with their own child-like and happy confidence. Some express this confidence naïvely; in others it can be inferred from their language, e. g., when they bring against those of us who refuse to be bound by any metaphysical prejudices the charge of mysticism, theological bias, or metaphysics. This naïvely dogmatic attitude is exhibited very prettily in recent articles by Mr. L. C. Bernard¹⁴ and Mr. Z. Y. Kuo.¹⁵

Mr. Bernard begins with a dogmatic definition. "An instinct

¹² "Instinct and Experience."

¹³ Concluding paragraph of article, "Instinctive Behavior and Enjoyment," loc. cit.

¹⁴ "The Misuse of Instinct in the Social Sciences," *Psychological Review*, March, 1921.

¹⁵ "Giving up Instincts in Psychology," *Journal of Philosophy*, November, 1921.

is not only an inherited action pattern, but it is also definite. . . . Patterns of action, thus determined by the inherited organization of structures, we call instincts." He then cites examples of the loose usage of the word 'instinct' common among sociological writers, deprecating such usage. In this respect I am in entire agreement with the strictures of Mr. Bernard; as he will see, if he will look at the first chapter of my 'Social Psychology.' He goes on to say — "This vague employment of the term instinct finds its logical *reductio ad absurdum* in the application of the term to well-developed habit complexes, such as the 'instincts' listed in the classification in McDougall's 'Social Psychology.' . . . The most cursory analysis of the origin of the action patterns involved in such so-called instincts as the parental instinct, reproductive instinct, fighting instinct, and the instinct of self-preservation, the gregarious instinct, and the like will show that by far the majority of the action content is acquired. Most of what a parent does for a child . . . belongs to the category of acquired habit. . . . The same is true of the content of the other so-called instincts mentioned in this paragraph. To characterize such habit complexes as instincts implies either the abandonment of the accepted and desirable definition of instinct as stated above or a failure to analyze the structure of the acts involved." These passages exhibit clearly the purely deductive origin of the anti-instinct bias. The same note runs throughout this essay. Its conclusions are always deduced from one implicit metaphysical assumption, namely that the mechanistic dogma is true; the use of any conceptions which imply an open mind towards this ultimate metaphysical problem is characterized as mystical, metaphysical, animistic. Those who conceive that instinctive action implies a 'tendency' or 'urge' or 'motor impulse' are further charged with having failed to fall under the domination of the theories of Mendel and Weismann. Mr. Bernard *knows* that natural selection has been the sole and sufficient agency of organic evolution and is, therefore, able to deduce the nature of instinct from this dogma also. He disposes of my theory of the relation of emotion to instinct in the same easy deductive fashion. "A purely instinctive action pattern, functioning without interruption or hindrance, should develop no consciousness and therefore should be without a characteristic emotion such as McDougall insists upon. However, when the inherited action pattern . . . does not work smoothly . . . it is probably impossible for any instinct to function with complete automaticity — consciousness, including

emotion, enters into the process. . . . Consequently, the less instinctive an act is, the more emotion . . . it is likely to develop. The complex habit dispositions should therefore have more emotional content than any constituent instinctive element." They should have; therefore they have. The conclusion is thus deductively established that emotion "is the result of the weakening of an instinct rather than of its dominance. This line of argument," he continues, "leads us to deny some further implications of certain highly sophisticated types of definitions of instinct. For example, the claim of some authors that instinct involves a conscious element is clearly untenable. Such writers have lost sight of instinct as it appears in its purest form in the lower animals." One is tempted to suppose that Bernard's confidence in the rightness of his views is here based on an introspective report from some lower animal. But he cites no such evidence; his conclusion is reached by pure deduction from his accepted dogmas.

Mr. Kuo is the most radical and logical of the deniers. He denies all instincts, not only to the human species, but also to all the animals; for he carries the campaign against instinct to the logical termination of the deductive process. "The so-called instincts are in the last analysis acquired trends rather than inherited tendencies. . . . To assume any inborn tendency is to assume *a priori* relation between the organism and stimulating objects. . . . Such an assumption is no less objectionable than the theory of innate ideas. As a matter of fact both the theory of instinct and that of innate ideas are based on the same conception; namely the conception of a *priori* relation of the organism to external objects. If it is true that one cannot have an idea of a tree before one has actually seen or learned about a tree, it must be equally true that one cannot have any food trend before one has ever eaten food."¹⁶ Other deniers make similar use of the fact that 'innate ideas' are out of fashion, feeling apparently that it suffices to liken instincts to innate ideas, in order to establish their 'mystical' or mythical nature. But here they are not true to their deductive logic. If, as these mechanists suppose, 'ideas' are a kind of phosphorescence upon cerebral processes, it is not at all clear why cerebral connections should not be innately organized in such a way as to 'phosphoresce' on the first occasion of their exercise. It

¹⁶ Observe the beautiful simplicity of the deductive method. This argument — It must be so, because we cannot understand how it can be otherwise — this has been responsible for most of the monstrosities which have long defaced the text-books of psychology and has been a principal obstacle to the progress of the science.

remains a question of empirical fact. And, as I have pointed out, there is good ground for maintaining that purely instinctive actions are in some cases initiated by acts of complex perception, activities which imply 'cerebral phosphorescence' just as clearly as do activities that involve memory of past experience.

I cannot refrain from citing yet another beautiful example of the deductive method. "Should we have inherited the same instincts as our ancestors of a few thousand years ago, how awkward we would be in adapting ourselves to modern society." From which sage reflexion, it is implied, we may deduce the conclusion that we have no instincts. Has Mr. Kuo never heard of the view, generally current in the medical world, that the wide prevalence of neurotic disorders is due to the difficulty of adapting our instinctive equipment to the demands of modern society? How do the deniers of human instincts propose to account for, interpret, and deal with these disorders? In this important sphere of applied psychology, as in all the others, they would take away the one fruitful working conception that we have, without offering us any constructive suggestion in place of it.¹⁷

Mr. Kuo then proceeds to 'a reinterpretation of man's native equipment.' "The human infant is endowed with a great number of units of reaction. . . . The reaction units are what we find in the child's spontaneous activities and random acts. . . . Such spontaneous and random acts are all that we can credit to the native endowment of man. These are non-specific instincts, for they are reflexes in character and involve few, if any, complex neural patterns. . . . These reaction units are the elements out of which all the co-ordinated acts of the organism are integrated." Mr. Kuo out-Watsons Mr. Watson and proceeds to take the master-behaviorist to task, logically enough. "We may state that such a theory we

¹⁷ In this connexion I would emphasize the fact that the whole of the Freudian psychology, and the analytic procedures founded upon or allied to it, assume the essentially purposive or teleological character of mental life, and are absolutely incompatible with the notion that human nature comprizes no innate factors beyond a multitude of mechanistically operating reflex arcs. Though I for one regard the Freudian psychology as defective in many respects, especially in its over emphasizing of the sex-instinct, its world-wide spread and the success in many instances of the procedures based upon it, suffice to prove that it contains much truth and that its fundamental conceptions are not to be destroyed by the deductions from first principles of academic psychologists, whether of the laboratory or the armchair schools. The same may be said of the applied psychology of Dr. Morton Prince, and of those many physicians who in England arrived at a form of analytic mental therapy in the course of handling many thousands of 'shell-shock' cases during and after the war. This British method is represented by the writings of Dr. W. H. R. Rivers and the authors of "Treatment of functional nerve disease," a volume edited by Dr. Crichton Miller and published in 1920.

have so far advanced is not an altogether new one.¹⁸ The importance of the spontaneous and random activities of the young organism has been duly emphasized by Professor Watson. But we cannot agree with him that, besides the activities of this sort, there is another group of innate reactions or instincts. . . . For we have found that the random or unorganized acts in the young babe are sufficient to account for all complex and organized forms of behavior in adults, and that it is not only superfluous but harmful to our genuine understanding of human behavior to assume the existence of any specific instinct." Mr. Kuo writes "We have found," with the implication "I have shown that." In reality he has merely asserted these things, and asks us to accept them upon his *ipse dixit*. Only this and nothing more.

Professor E. Thorndike is sometimes classed by the 'deniers' with the exponents of human instincts. I hardly think that he can fairly be held guilty of the misdemeanor charged. He is, so far as I can judge, really the most vigorous and thorough exponent of the view that there are no human instincts, but only reflexes. An instinct, as I conceive it, namely as an innate disposition which, when brought into play, generates an impulse, an urge, a striving, or a desire for some change in the situation that evoked it, an impulse which keeps the organism uneasy, restless, striving in this way and that so long as it is not inhibited by a stronger impulse or satisfied by the attainment of its natural goal, the changed situation of a specific kind, an instinct so conceived he calls 'a magic potency.' He states that a main *purpose* of his book (he should, I think, in consistency have said 'the main reflex,' for purposes must be for him 'magic potencies') is to advance "thought about the life of man . . . to a level of description which will exclude teleological bits having as their themes such mythical potencies."¹⁹ He describes (pp. 81 and 82) the behavior of women towards children and their interest in children in a way which might seem to be a full acknowledgment of the reality of a maternal instinct in the human species, such as I have claimed for it. "All women possess originally, from early childhood to death, some inter-

¹⁸ Of course it is not a new one. It is the same theory that was elaborated by the British association school from Locke (with his *tabula rasa*) and Hartley (with his vibratiuncules) to Bain with his genesis of mother love by association of the pleasures of contact. The only difference between James Mill and Mr. Kuo is that the former ascribed some 'magical potency' to pleasure and pain; while Mr. Kuo and the other mechanists feel no need for that hypothesis.

¹⁹ "Educational Psychology," vol. I, p. 15.

est in human babies, and a responsiveness to the instinctive looks, calls, gestures and cries of infancy and childhood, being satisfied by childish gurglings, smiles and affectionate gestures, and moved to instinctive comforting acts by childish signs of pain, grief and misery. . . . To a woman who has given birth to a child, a baby to see and hold and suckle is perhaps the most potent satisfaction life can offer, its loss the cause of saddest yearning. . . . In all this, original nature is the prime mover and essential continuing force."

No wonder that, in face of these and similar passages, the deniers include Thorndike among the exponents of Instinct; in spite of his hard-headed remarks about 'magical potencies'! But their reproaches are undeserved. Thorndike is really on their side. In the next paragraph he goes on to say that "This series of situations and responses constitutes the 'maternal instinct' in its most typical form." And the tenor of many chapters is the insistence that any such 'instinct,' so-called, is nothing but a name for a bundle of reflex actions, or of motor mechanisms, each of which is directly connected in the brain with some sensory point through which it may be thrown into action. When the mother kisses her child, suckles it, strokes it, speaks to it, sings to it, weeps over its loss, is consumed with anxiety and works herself to exhaustion during its sickness, she is displaying only so many distinct responses to 'stimuli,' each of which is determined by some one sensori-motor chain of neurones; each of these responses, we are to suppose, has no essential connection with the others; all these displays of maternal love have no relation to one another, beyond the fact that they are all evoked by 'stimuli' proceeding from the same object, and are grouped together by shortsighted psychologists and popular speech by the use of the word 'maternal.' What has become of the 'magical potency' which Thorndike has so eloquently described, the potency of love?

In passing, I would complain that Thorndike, in the course of his criticism and rejection of the alleged instinct of imitation (a criticism and rejection which follows closely my own remarks on this question), takes certain statements of mine from their context and handles them in a way which must give his readers the impression that I have alleged the reality of an instinct of imitation; in fact, one recent writer has been misled into claiming for him this stand against the instinct of imitation as an original stroke of distinguished merit.

I submit that there are two possibilities of error in this deductive

denial of the human instincts. First, it is possible that, even within the limits of the mechanistic dogma, a place and an important place may be found for Instinct in human nature. It may be that the pattern of the nervous system is not constructed on principles so simple as most of our mechanistic behaviorists seem to suppose; that the whole complexity of the brain is not built up by the mere adding of one sensori-motor arc to another. I have myself attempted to sketch a plan of brain-structure which, by the aid of the principle of 'drainage,' would enable us to conceive of instincts mechanically as innate nervous structures, and yet to credit them with a dominant role in adult human life.²⁰ That sketch is admittedly speculative; but I know of nothing that renders it untenable. I would recommend it to the notice of the deniers as a constructive effort within the limits prescribed by their prejudice.

Some of the mechanists have the merit of seeing that instinctive action has at least the appearance of being purposive, and of attempting to imagine mechanisms within the brain whose workings may result in this appearance of purposiveness. Professor Perry and Dr. E. C. Tolman have recently made such attempts, attempts which, as I have said, seem to me perfectly legitimate; although I do not think that either of these gentlemen has achieved more success in this direction than my own attempt in the article of 1913 mentioned above. Tolman's contribution consists of two parts: first the recognition that instinctive trains of behavior are very variable under similar external circumstances or 'stimuli'; and that the successive actions of such a train exhibit a certain continuity of endeavor, a persistence towards an end, what Stout calls 'conative unity'; in short the recognition that instinctive action cannot be brought under the fashionable formula which he himself lays down so dogmatically, namely the formula of external stimulus and response. It is only by illegitimately denoting as 'stimuli' complex external situations, and also internal processes with which we are acquainted only under the form of memories and conscious expectations and anticipations and conscious emotional attitudes, that the mechanists achieve an appearance of fitting to this formula the facts even of animal behavior. Tolman, for example, becoming aware of this truth, writes as follows:—"Thoughts, or at least the kind of thought with which we are here concerned, can be conceived from an objective point of view as con-

²⁰ "The Source and Direction of Psycho-physical Energy." A paper read at the opening of the Phipps Psychiatric Institute of Baltimore in 1913 and published in the *American Journal of Insanity*.

sisting in internal presentations to the organism (on a basis of memory and association) of stimuli not actually present but which would be present, if some hypothesized action were carried out." He hastens to add: — "Such a definition says nothing about the subjective 'immediate-feel' side of thoughts as such" and therefore, is strictly behavioristic and mechanistic. Could anything be more delightfully simple? By this simple trick of legerdemain 'thoughts' are converted into external 'stimuli,' and behaviorism is saved from bankruptcy.

Tolman's second contribution is to attempt to define the mechanism by which the appearance of purposiveness is achieved. This attempt consists, first, in suggesting that the nervous system is not a one-level, but a two-level, organization, that there exists, in short, a brain as well as a spinal cord. — Surely not a novel suggestion! Has Mr. Tolman never heard of Hughlings Jackson? Secondly, in invoking the aid of the formula 'release of a specific determining adjustment.' But, when we look for some account of the mechanism so denoted, we find no glimmer of a suggestion as to its nature. 'Let us here stop and assert that determining adjustment as thus characterized is a definition of *instinct*.' But Mr. Tolman stops just where the problem he sets out to solve begins. We may agree that an instinct may not inappropriately be called a 'determining adjustment.' But what is the nature of the adjustment mechanism? And how does it determine? These essential questions Tolman makes no attempt to answer. Tolman has the merit of having glimpsed the nature of the problem; but of a mechanistic solution of it he exhibits no vestige. The only clues to the nature of such tendencies offered by him are passages which mention "determining adjustments . . . whether one of curiosity, one of anger, or one of fear" and a "man's general socio-domestic adjustment."

Professor Perry²¹ carries the matter a little further. He sets out by claiming for behaviorism the Aristotelian conception of the organism. I do not think that this claim can be allowed. First, because Aristotle neither denied the difference between a physical object and thinking of that object, nor proposed to neglect as worthless the facts that he introspectively observed. Perry writes — "The behaviorist concedes that introspection and all its works must find a place in any comprehensive and adequate view of mind." But this is not behaviorism, if we may, as I think we fairly may, regard Pro-

²¹ "A behavioristic view of Purpose," *Journal of Philosophy*, February, 1921.

fessor Watson as its prophet. "The time seems to have come when psychology must discard all reference to consciousness; when it need no longer delude itself into thinking that it is making mental states the object of observation." "We can write a psychology . . . and . . . never use the terms consciousness, mental states, mind, content, introspectively verifiable, imagery, and the like. . . . According to my views, thought processes are really motor habits in the larynx. . . . Psychology, as the behaviorist views it, is a purely objective, experimental branch of natural science which needs introspection as little as do the sciences of chemistry and physics." Such are the uncompromising terms in which Watson laid down the program of behaviorism.²² They can hardly be reconciled with Perry's statement that "he (the behaviorist) does not deny or intend to neglect any of the data of introspection." Secondly, for Aristotle the organism was essentially a being striving to realize ends; purposive activity, or striving towards an end, was for him a fundamental category of biology, not an appearance to be explained away in terms of mechanical sequences of cause and effect.

Referring to my description of instinctive conation, Perry remarks, "All the characteristics of conation are borrowed from the behavior of the organism except what is comprised under 'feeling of' or 'consciousness.'" But in my description, which Perry quotes, I used neither the term 'feeling of' nor 'consciousness.' I wrote of 'conative experience,' of 'desire and aversion,' of 'impulse,' 'craving' and 'uneasy sense of want.' I submit that the experience of persistent desire or craving is essential to the formation of our concept of conation, that my language implies this, and that the characteristics of conation are not 'borrowed from the behavior of the organism' alone.

Perry also frankly admits the impossible nature of the program indicated by the stimulus-response formula. "In proportion as the organism is unified and functions as a whole its behavior is incapable of being translated into simple reactions correlated severally with external events. . . . Its behavior is 'spontaneous' or internally conditioned. . . . The better the organism is understood, the more does it assume just those characters which James insists upon as the prerogatives of mind [namely purposive selection and interest]." He also recognizes the impossibility of accounting for behavior with-

²² "Psychology as the behaviorist views it," *Psychological Review*, 1913.

out reference to 'meaning.'²³ It will be agreed, I think, that Professor Perry, attracted to behaviorism in the interests of his new realism, hardly achieves his purpose of becoming a full-fledged behaviorist.

Nevertheless, or perhaps because of this half-heartedness of his behaviorism, his attempt to describe behavior in mechanistic terms is interesting. He selects the term 'determining tendency' as best suited to his purpose. "A determining tendency is a general response-system, tentatively advancing towards completion, or tentatively renewing itself. Interested or purposive action is tentative action adopted because the anticipatory responses which it partially arouses coincide with the unfulfilled or implicit phase of such a determining tendency." This is a considerable advance upon the reaction-pattern and the stimulus-response formulæ pure and simple, beloved of true behaviorists. But does Perry succeed in making the work of the 'determining tendency' intelligible as a mechanical or physico-chemical fact and process? As Perry rightly says, it has to account for two main features of behavior, (1) the subordination of means to ends, (2) determination of present action by reference to the future. "It is evident that no account of human conduct which fails to set apart some special feature as the connotation of these expressions ('for the sake of' — 'in order to' — 'with a view to,' etc.) will, either in or out of scientific laboratories, seem to cover the facts. It is not sufficient to conceive the organism as making random efforts instigated by a determining tendency; nor is it sufficient that these efforts should cease when one of these efforts succeeds. For there is as yet no act of which it can be said that it is done *with a view to* or *for the sake of* a future act. Random hit-or-miss action is essentially unguided action, which so far as its own immediate determination is concerned is as disposed to miss as to hit."

"The solution would seem to lie in the action of present dispositions which are correlated with future contingencies. A calendar of engagements filled out for the next month exists and acts in the present. Nevertheless it is correlated serially and progressively with the future. Similarly the responses organized and serially adjusted so as to be executed in sequence exist now among the determining conditions of present events. Nevertheless they are functionally

²³ "We do not get the means selected because of its future or implicit relation to the end until the factor of meaning becomes effective." He writes also that man, as compared with animals, "must be capable of a much more complicated far-flung play of meaning."

correlated with a sequence of events in the historical future — in their own future. A series of dated anticipatory responses is thus a projection of the future upon the present spatial field, and provides a means by which the contingent future may be translated into the physically existent present.” If we put aside the self-rectifying function of actions directed to a desired end, the capacity of the organism to maintain or restore its train of activity in the direction of the end, in spite of unforeseen disturbing factors, we may accept this scheme as satisfactory. But Perry has neglected to note that his scheme says nothing of the way in which this series of anticipatory responses, this calendar, becomes correlated with the future contingencies. If it exists, it will do its work; as the printed calendar, when it has been made, will do its work. But mind made the printed calendar; and it is just the essential function of purposive, planning, foreseeing mind to prepare, to organize, the anticipatory responses, so that, as the occasions arise, the appropriate responses may be made. The plan, when made, will work; and, if nothing unforeseen happens, may be supposed to work mechanically; but the making of the plan, the seeking it, the selecting of the appropriate steps in anticipation of, and for the sake of, the end, that is the essentially purposive activity, which Perry’s scheme merely takes for granted.

It is, however, much that Perry recognizes ‘instincts’ as other than, and more than, ‘reaction-patterns.’ Instincts are ‘determining tendencies.’ “In the typical animal instinct a series or concatenation of responses is innately determined, owing to the fact that the successful completion of each component response in turn furnishes the stimulus for the next. This is sometimes spoken of as a chain-reflex; but the term is misleading because it suggests that the component responses are pure reflexes, whereas the reflexive character lies rather in their sequence. *The component responses themselves are tentative and intelligent.* The segments of the nest-building operation, for example, . . . are performed more or less experimentally and adapted to local conditions. The purposiveness of the behavior lies not in the appropriateness of the several phases to the end-result, but in the persistence and resourcefulness exhibited in each phase regarded by itself.” All this is very true. He adds that in the human builder the several phases are subordinated to the end-result as their purpose. “In the case of the latter the domestic complex is guiding the action throughout. Everything which the human agent does from the first consultation with his architect is in some measure

qualified by this meaning and selected on this account. . . . The human builder has subordinated his auxiliary acts to his determining tendency to a greater depth; and in order that this should be possible, he must be capable of a much more complicated far-flung play of meaning." Exactly; the play of 'meaning' is essential to the human builder, and 'meaning,' less rich and adequate, is necessary also to the bird-builder. But of 'meaning' we have no physical account. Purpose and meaning continue to elude the mechanist, however well-meaning he may be and however resolute in the pursuit of his purposes.²⁴

The second possibility of error in the deductive denial of Instinct is that the mechanistic dogma may not be the last word of metaphysical truth. I, for one, prefer to approach the problems of psychology with an open mind, and to seek such fundamental categories as may seem most useful and fruitful in the interpretation of human experience and human and animal behavior, without prejudice. I refuse to be bound within the categories of the physical sciences, just because those sciences are, for historically intelligible reasons, more advanced than the biological sciences. I submit that the present time, when all those categories of the physical sciences are so obviously in the melting pot, is one when even the least independent biologist might be expected to find the courage to claim for his science its elementary rights. I claim that for psychology the most fundamental category is that of purposive action; and that we are entitled to use it freely as such, leaving to the future the problem, at present insoluble, of determining the relation of purposive action to mechanical process.²⁵

I submit, then, that the deniers, rather than the exponents, of instinct are determined in their attitude to our problem by metaphysical prejudice; and that, if the mechanistic dogma be put aside and the facts of human experience and of human and animal behavior be impartially surveyed, we are fully justified in accepting the conception of instincts in the human species as innate tendencies to pursue

²⁴ Here I may refer to my discussion of meaning in 'Body and Mind,' Chapter XXII.

²⁵ It is unfortunate from the point of view of my standing in this controversy that I am known as the guilty author of a book entitled 'Body and Mind, A History and Defense of Animism.' For it is natural that the conclusions towards which that enquiry inclined me should be held to have determined me to a vitalistic or mystical or theological view of Instinct. In defense, I can only point to the fact that my 'Social Psychology' was written four years before the other book, and that, to the best of my belief, my view of instinct was not determined by, and is not now appreciably affected by, any firmly held view of the 'Mind and Body' problem, but arose out of an unprejudiced survey of the facts as I saw them. But, worse still, I am known as one who takes an interest (I had almost ventured to write 'an intelligent interest') in the problems of 'Psychical Research.' This aberration from the path of sanity I must not attempt to excuse on this occasion. I shall hope that it will be attributed to nothing worse than a single kink in some one brain-path.

by purposive actions certain biological ends, roughly definable as mating, the cherishing of offspring, the escape from situations of certain types, the breaking down of opposition to impulsive or purposive striving, the better acquaintance with strange objects, the dominance over one's fellows, the presence or companionship of one's fellow creatures.²⁶

It is convenient to insert here the third part of the program of this paper as stated in the opening paragraph, namely a concise statement of the principal change which my view of instinct has undergone, since the first publication of my 'Social Psychology' in 1908.

At that time I was still influenced by the widely accepted view that an instinct is merely a motor mechanism, a system of motor neurones so organized that, when excited in any way, its excitement issues in some particular movement, the co-ordinated contractions of certain muscles. This view was at that time held, not only by Professor Lloyd Morgan and by the dogmatic mechanists, but also by Professor Stout and also by Mr. Shand (by whom I gather it is still held), two psychologists to whom I am glad to acknowledge my indebtedness. Accordingly, I attempted to combine that view with the hormic view of instinct, the view that instinctive action involves or expresses an urge, an impulse, a striving towards some goal by the attainment of which it may be allayed and satisfied. My attempt was, as it now seems to me, necessarily unsuccessful; because the two notions are radically incompatible. It has been pointed out by many of the recent critics of instinct (especially by Professor Dunlap and Mr. Kuo) that the behavior which is regarded by 'instinct psychologists' as the expression of some one instinct may involve a succession of very various co-ordinated movements. Dunlap remarks that "there are very few actual responses of the animal which do not form part of a number of 'instincts,' whatever the system of classification. The same physiological processes, and in part the same conscious processes are involved, in primitive man, in pursuing a deer for food, and in pursuing a female for amatory purposes. In other cases the same reactions may now be classed as mere 'flight,' now as manifestations of 'gregariousness,' now as manifestations of 'self-abasement.' . . . I am sure that all the activities, physiological and psychological, of which the animal is capable, participate

²⁶ I hope to publish shortly a more complete restatement of my view of the instinctive endowment of man.

at some time or other in the expression of the 'reproductive instinct.'

The observation is perfectly just. But the conclusion, that there are no instincts, does not follow from it. It follows rather that we must remodel our conception of Instinct and must reject altogether the notion that the essence of instinctive action is the utilization of innately organized motor mechanisms. The facts pointed to by Dunlap and others are especially clear in the case of human activities; but on close inspection of the instinctive activities of animals they are obvious enough. The activities of a pair of pigeons which result in the production of a full-fledged pair of young (so well described by Mr. Wallace Craig) are undoubtedly instinctive in the main, a prolonged cycle of several well marked phases, courtship and pairing, choosing a nest-site and building the nest, brooding, feeding the young, etc.; and these phases involve practically all the motor activities of which the birds are capable, the use of all their motor mechanisms both innate and acquired. The same is approximately true even of any one phase of this cycle. Shall we, therefore, conclude, with our friends the mechanists, that these actions are not instinctive, but merely a series of mechanical reflex responses to sense 'stimuli'; that, when the birds select a suitable corner and laboriously construct their nest, each action involved in this train of activity is a mere isolated stimulus-response, unrelated by anything in the constitution of the animal to the many other movements by which the common end of all these actions is achieved, related only externally and indirectly by their common relation to the physical objects of the environment, the corner chosen and the growing heap of sticks and straws?

Mr. Kuo remarks — "that an instinct has a definite inherited neural pattern few students will deny. But such a conception cannot be applied to many of the supposed instincts. General observation tends to show that the so-called instinctive reactions are very variable. Swindle has reported that even nest-building in birds, which is always supposed to be perfect and definite, involves a great deal of variability of response."²⁷ When we cannot find any definite responses in instincts,

²⁷ *A propos* of the same observation by Swindle, Mr. E. C. Tolman remarks, — "The startling thing about this account is that it indicates that, even in the case of those supposedly perfectly adaptive instinctive activities such as nest-building, careful observation may show a considerable amount, and in this case indeed a positively shocking amount, of variability." ("Instinct and Purpose," *Psychological Review*, 1920.) Since Mr. Tolman begins his article by likening man to a penny-in-the-slot machine and sums up the whole nature of man in the sentence — "The human being is a mechanism which makes responses to external stimuli," it is no wonder that he is startled and shocked at the

we wonder as to the definiteness of inherited neural patterns. The teleological conception of instinct seems to reduce it to a 'trend' or tendency of action, and gives up its neural correlate altogether. But we have shown that the trend is acquired rather than inherited." *Ipsa dixit*. The argument is sound enough. It may be stated succinctly as follows. All instinctive actions are merely the mechanical outcome of a stimulus applied to an innately organized motor mechanism or 'reaction pattern.' The actions commonly attributed to an instinct, such as the nest-building instinct of a bird, are extremely various and variable, according to the conditions obtaining at different times; therefore, they cannot be attributed to any one instinct, but are the outcome of stimuli successively applied to a correspondingly large array of motor mechanisms, some of which may be innate, but the majority of which are, in large part at least, individually acquired. Therefore there are no instincts, but only an array of discrete motor mechanisms, some innate, many acquired. The conclusion follows inevitably, if we accept the premises. We stand, then, before the following alternatives. Either we must, with Mr. Kuo, give up instincts in psychology, both animal and human; or we must give up the notion that an instinct is merely a motor mechanism. To me the latter alternative seems preferable.

The fact is that the conception of instinct was formed largely under the influence of accounts of instinctive behavior of animals, which, like those of Fabre, accentuated unduly the appearance of perfect regularity, precision and definiteness of all such behavior. More impartial descriptions²⁸ show that instinctive action is everywhere and always, if the circumstances demand it, variable and adaptive; that instinctive action is always in some degree intelligent, or expressive of that capacity for purposive adaptation which is the essential function of mind. Even when we go so low in the scale as the simpler animalcules and protozoa, the same fact is revealed by that variation of response which is commonly called 'the procedure of trial and error.'

variability of the behavior of a mere bird. One gets the impression from reading this (and other similar articles) that it was written by a Martian, a dweller in a world of perfected mechanisms such as Mr. Wells has imagined, who has never seen, still less observed, an animal, and who speculates as to the kind of machinery inside these fabulous monsters; and then, on reading a detailed account of two minutes' actual behavior of an animal, is flabbergasted to find all his guesses upset and the animal totally different from the naively speculative accounts with which he has long been familiar.

²⁸ For example, the admirable description of the behavior of wasps which we owe to Mr. and Mrs. Peckham.

Here, then, is the parting of the ways clearly defined. Either instinctive action is purely and wholly reflex action, more or less compound (as Herbert Spencer said), and the mechanists are right in asking us to reject the conception of Instinct from psychology; or instinctive action is distinct from mechanical reflex action, and an instinct is not, and does not essentially comprize in its organization, any motor mechanism. If we take the latter view, we must recognize that an instinct, or a given instinctive impulse, may make use at need of a large array of motor mechanisms, different instincts expressing themselves on different occasions through the same motor mechanism; although it may be true that any one instinct most readily finds expression through some one such mechanism, or through some one co-ordinated system of such mechanisms. This is the alternative which, I believe, we must accept.²⁹ This is the novel contribution to the theory of Instinct which I herewith propound. I have needed nearly twenty years of observation and reflection to reach this conclusion—so strongly was I influenced by the reflex-arc concept and the mechanistic dogma. €

It is, I think, true to say that, with the outstanding exception of Professor Lloyd Morgan, the deniers of human instinct are not authors who have made any profound study of animal behavior or of the problems of organic evolution. It is difficult to understand how any one who has made such studies can deny the importance of human instincts, without denying it also in the mammals in general, or without denying the continuity of evolution of man from the animals. Few or none of them would, I suppose, adopt the latter alternative. And, if they choose the former, how are they to account for much of the behavior of the higher mammals, without ascribing to them a degree of intelligence quite incompatible with the clear evidences of their relatively low intelligence? Surely the similarities and analogies between human and animal behavior in the sphere of sex alone suffice to require an essential similarity of the principles of explanation that we apply to them and to ourselves. Among close students of animal behavior we do not find many who reject or minimize the importance of Instinct, whether in man or animals. I would cite

²⁹ There is a third possibility which it is hardly worth while to mention at the present stage of the controversy; for it would shock our mechanists too cruelly. Namely, it is possible that even the most typical spinal reflex movements, such as those of the scratch-reflex of the dog, are not truly mechanical, that they cannot be adequately explained or described in terms of the physics, chemistry and mechanics of the present day; that they are rather to be assimilated to the type of the purposive instinctive action; that they are **lowly members of that family.**

especially Professor Wallace Craig³⁰ and Professor W. M. Wheeler.

Professor Wheeler has made some observations which are so much to the point that I cannot forbear to cite them. "After perusing during the past twenty years a small library of rose-water psychologies of the academic type and noticing how their authors ignore or merely hint at the existence of such stupendous and fundamental biological phenomena as those of hunger, sex and fear, I should not disagree with, let me say, an imaginary critic recently arrived from Mars, who should express the opinion that many of these works read as if they had been composed by beings that had been born and bred in a belfry, castrated in early infancy and fed continually for fifty years through a tube with a stream of liquid nutriment of constant chemical composition."³¹

I am inclined to offer a more realistic explanation of the attitude of some of the deniers of instinct. I would suggest that their type of psychology, the strictly behavioristic and mechanistic type, may be characterized as the psychology of the Apartment House, the abode where children, servants, and animals are reduced to the minimum and mechanism reaches its acme of development. Who knows how much and how subtly he is molded by his environment, in spite of his instincts?

An objection to the use of 'Instinct' in human psychology of a different type comes from Mr. G. C. Field.³² Like so many others, he does not confine his criticisms to any one exponent of instinct, but flits over the field, picking holes wherever he sees a soft spot. Some of his criticisms seem to me to be well founded, especially perhaps his strictures upon Mr. Trotter's riotous use of the conception of 'herd instinct.' But his main contention I cannot accept. It is this. To explain any human action by referring it to an instinct is, he says, strictly similar to explaining it by reference to a faculty, in the sense of the old faculty-psychology. For, says he, we know nothing of the alleged instinct beyond the action from which we infer it and which we take to be its expression. And he rightly insists that, unless the attribution of any particular action to an instinct conveys or implies some knowledge which is not obtainable by mere inspection of the action, such attribution is otiose and merely a mode

³⁰ Author of a most admirable series of studies of animal behavior. His paper on "Appetites as constituents of Instincts," I would especially commend to the attention of 'the deniers.' (Biological Bulletin, Vol. XXXIV.)

³¹ "On Instincts," this Journal, vol. XV.

³² "Faculty Psychology and Instinct Psychology," 'Mind,' July, 1921.

of concealing our ignorance. Therefore, we may legitimately assert an action to be instinctive, implying that it conforms to a certain type, just as we describe another as intelligent; but we have no justification for attributing any action to an instinct, or to an instinctive tendency or disposition for such action. "We think of Instinct as something in our innate mental structure of which all that we can say is that by virtue of it a person or an animal performs certain actions without previous experience and without foresight of the end. But now what happens when we cease to talk about Instinct and begin to talk about the instincts? What information does it convey to us when we are told that a certain action is due not only to Instinct but to some particular instinct? If such a statement is to give us any real information, it must tell us something more than the general facts which are conveyed to us by saying that the action is instinctive and what is more important, it must tell us something more than we can gather from an inspection of the action itself."

This demand is perfectly just. But Mr. Field is mistaken in supposing that the ascription of an action to a particular instinct conveys no more information than can be obtained by the inspection of the action or conveyed by the statement that it is instinctive or due to Instinct. Consider a concrete example. I return to its cage, after handling it, a young white rat. Its mother hops about it in an agitated manner, then seizes it in her mouth and drags it to the back of the cage. An onlooker, knowing that rats, when short of food, sometimes eat their young, says "She's going to eat it." I reply confidently — "No, it's all right. It's the maternal instinct." In saying that, I imply much that is given neither by simple inspection of the action nor by the statement that the action is instinctive. If the mother-rat proceeds to devour the young one, that shows that I was mistaken. But, if I had merely remarked that her behavior was instinctive, I could not be accused of error; for the act of dragging the young one to the back of the cage was instinctive in this case also, though perverted; was an expression, not of the maternal instinct, but of a very different one, the food-seeking instinct. Thus, in such a simple case, the correct ascription of an action, or a phase of behavior, to a particular instinct enables us to forecast the further course of the train of behavior, and enables us, if desired, to intervene to modify the further course of behavior. In a similar way, if, at a children's party, a lady, usually genial and friendly, displays a perverse irritability which entirely destroys the harmony of the occasion, one might

infer from the general irrationality of her behavior that it was instinctive. But a close observer might be able to explain it more fully by pointing out that she was resentful of what she took to be a neglect of, or insufficient attention paid to, the charms of her own children; and, if he were an 'instinct psychologist,' he would ascribe her perverse behavior to the thwarting of the maternal instinct; further he might, in the light of this interpretation, succeed in restoring the harmony of the proceedings by a little judicious attention to the particular objects of that particular instinct. Now, of course, my critics will rush at me in a body and wildly assert that the lady's cutting remarks and disdainful attitudes are not instinctive, because they imply a vast amount of acquired knowledge and skill. I admit that they do so, and that perhaps no single one of her movements can be regarded as the outcome of an innately organized brain-path. Yet I maintain that, if she had no maternal instinct, her behavior under the circumstances would have been very different; just as the white rat would not have dragged her young one to the back of the cage, if she were not endowed with a maternal instinct.

These are very simple examples of the kind of knowledge conveyed, when we rightly attribute a particular action to a particular instinct. In reality we imply in so doing all the knowledge that we may have gained by a life-long study of Instinct in general, of the instincts of many animal species and of the human species. We imply also the more special knowledge we may have gained of the particular instinct alleged to be operative in the particular action, a knowledge built up by the study of that instinct in men and animals. Further, we imply any still more special knowledge we may have gained of that particular instinct in that individual by long study of the individual. Take the case of the sex instinct. There can be no doubt that we understand any phase of the sexual behavior of a particular man, say a patient suffering from partial impotence of the mental or functional type, the better, if we have studied Instinct in general and if we have studied the sexual instinct in particular; and that we understand it still better, if we have studied in detail the sexual history of that individual and all that bears upon it. The whole of the success of the modern treatment of the psycho-neuroses testifies to the value of such knowledge. Take a case of a common type. A young man appears in the police court, charged with cutting off the hair of young girls on the street, in the theatre or in other public places. He expresses the greatest contrition and shame, and

asserts that he has vainly struggled against the temptation to commit this offense. And it appears perhaps that he has secreted a dozen or more such trophies during as many years. The action is clearly irrational and in some sense instinctive. Mr. Field would have us leave it at that and send the young man to prison without more ado, in the good old way, while we return to discuss ethical problems of freewill and personal responsibility, well satisfied with our philosophic ignorance.

The mechanistic deniers of instinct will say — It is absurd to attribute this action in any sense to instinct, because there is no evidence that the cutting off of the 'pigtailed' of young girls is an innate motor response to the stimulus of the 'pigtail'; there is no evidence that this response is connected with this stimulus by any innate brain-path or neurone-chain; for no new-born infant has ever been observed to react in this way to this 'stimulus.' But, in spite of these puerile objections of the philosopher on the one hand and of the behaviorist on the other, the medical psychologist knows that he has to do with a case of perversion of the sexual instinct and that, by applying judiciously the knowledge that he has of the sexual instinct in general, and by adding to it the knowledge that he may gain of the sexual instinct in the prisoner, he may deliver him from a life of shame and torment and restore him to normal and happy living.

Mr. Field admits the propriety of the conception of mental structure, comprising permanent dispositions which express themselves in activities. For has he not the authority of Aristotle behind him? But he will not allow us to attempt to make use of the conception. But if a disposition (I would not say 'permanent,' for though dispositions endure, they constantly undergo changes of growth, of decay, of differentiation) expresses itself in various ways, may we not hope to learn, by studying these successive expressions, something of its nature that is not wholly revealed on any one of these occasions; which knowledge is then implied and conveyed (to those whose minds are prepared to assimilate it) when a particular activity is attributed to that particular disposition? Mr. Field's position is even more resolutely unprofitable than that of the mechanistic behaviorists; for they are at least prepared to recognize 'reaction patterns' in the nervous system, and to believe that we may acquire some useful knowledge about them.

It is not even true that our knowledge of instinctive dispositions is inferred only from the observation of their expressions in behavior

and in experience. For it is highly probable that instinctive dispositions are Mendelian units; and, if further evidence should establish that view, our knowledge of them would be enriched by all that has been gained through the study of Mendelian inheritance.

A word upon Dr. Lloyd Morgan's remarks on mental dispositions.³³ Following Professor Stout, Aristotle and other writers, I have used the word 'disposition' to denote a fact of mental structure, and I have attached great importance to the drawing of a clear distinction between facts of structure and facts of activity. Lloyd Morgan refuses to accept this usage and insists upon regarding a disposition as something 'within the field of experience,' as of the nature of a felt inclination to certain behavior, an 'attuned preparedness, accompanied by enjoyment.' This seems to me unfortunate. We are seeking a neutral term to denote facts of mental structure, one which will commit us to no theory of the mind-body relation, and we propose to use the word 'disposition.' Lloyd Morgan objects that this involves "a pretty wide departure from popular usage." It does involve such departure, and that is just what we aim at. For popular usage and much of the writing of psychologists perpetuates the confusion between facts of structure and facts of activity. Lloyd Morgan points out that in popular speech the word 'disposition' is used in both senses, and insists that we must therefore perpetuate this confusion and ambiguity when we use the word in psychology. Surely an insufficient reason! The word 'idea' as commonly used affords the best illustration of this ambiguity; it is generally used to denote both thinking in a particular way and the latent capacity to think in that way. That the tendency to such confusion is very strong I know too well; for I have tried in vain to make clear that I desire to use the words 'sentiment' and 'instinct' for facts of structure.³⁴ But is that

³³ "Instinctive Dispositions," *Scientia*, October, 1920.

³⁴ Exactly the same problem arises in connection with the usage of the word 'sentiment.' In popular speech it is used to denote both a variety of feelings and also enduring emotional attitudes or fixed tendencies to emotional reaction of a certain kind, in face of certain objects. And it is in the latter sense that I have tried, following Mr. Shand, to specialize it for psychology. That is to say, I have proposed to use the word to denote facts of structure only. That common speech uses it in this sense is clear. Suppose that we see a man seated comfortably in his arm-chair, replete with food, smoking a good cigar and smiling affectionately upon his family circle. It is difficult to imagine him displaying anger or any other harsh and hostile emotion; and if he were questioned he would no doubt admit only the most genial feelings. Yet one who knows him may know that he harbors a strong hatred of a certain distant person and that he is of an irascible disposition. This hatred and this disposition are recognized by common speech as persistent facts of the man's nature, even at the time when they are exerting no influence upon the course of his experience and behavior. Why then should Lloyd Morgan insist that in deference to common usage we must regard disposition as a weakly felt impulse, that "impulse is dis-

a good reason for refusing to attempt to clarify psychological discourse by securing recognition for this all-important distinction? If we wrote of 'neuro-grams' or 'engrams,' or used other such terms, which imply that the structure we have in mind can be adequately described in terms of neurones and synapses, probably neither Professor Lloyd Morgan nor Mr. Field would have objections to raise. Perhaps such description is in principle possible; but we need a term which will commit us to no such speculative dogma; and 'disposition' is the term we propose to use. Instincts, then, or instinctive dispositions are one class of mental dispositions among others; and all psychological study aids in throwing light upon mental 'dispositions'; that is in enriching and refining our knowledge of them.

A word may be said on the attitude towards human instinct revealed by Dr. F. H. Allport.³⁵ He reports and promises to continue a wholly praiseworthy series of experiments on the social reactions of individuals; but incidentally he disparages the use of the conception of instinct. He admits that "there may well be innate physiological patterns of response . . . embodying fundamental drives"; but he would restrict very narrowly the field of such instincts. "For the data and laws of social psychology we must search in other fields of behavior than that of instinctive response. . . . One observation of a baby's first laugh, or of the early use of language, is worth more than treatises on instinct and emotion." Again — "the time has come to abandon speculations about types of groups, social organizations, self and crowd consciousness, instinct and imitation. When social psychologists focus their attention upon the behavior of the individual under direct and incidental stimulation from the behavior of others, then the most vital questions of the social order will find their solution." On this I would comment as follows. By all means let us have as much as possible of observation and experiment upon the social reactions of babes and adults. But let us be clear that the mere piling up of detailed reports of these will not constitute the science of

position with added emphasis"? And why should we not specialize the word sentiment in that one of its two popular senses for which we have no other word, instead of continuing to use it in the confused ambiguous sense of common speech? I have only recently learnt that R. H. Lotze conceived sentiments in this fashion. On reading for the first time his 'Outlines of Psychology' (Eng. Trans.) I find the following passage: "In like manner must we distinguish the 'Sentiments,' — that is to say, permanent species of mental constitution, which proceed from this, that a definite value is once for all placed upon certain contents of ideas; they are, therefore, — for example, piety or patriotism, — not themselves simple definite feelings, but causes from which the different species of feelings can originate according to the nature of circumstances." (p. 77.)

³⁵ "Behavior and Experiment in Social Psychology." This Journal, December, 1919.

Social Psychology. The data so provided are merely the raw material of science. They must be co-ordinated in general statements by the aid of hypotheses, if the science is to take shape. Miss Shinn's careful account of her infant niece was an admirable piece of work. But not a thousand, nor yet ten thousand, such books as hers will constitute a social psychology. I have myself devoted a chief part of ten years to the observation, simple and experimental, of my young children, and the results are embodied in my 'Social Psychology.' I would not expect to find readers, if I published the contents of my many note-books as undigested raw material. The problems of social psychology will not 'find their solution' of themselves, no matter how great a mass of detailed observations be accumulated. Social psychology can only be built up from such data by the aid of fruitful hypotheses. And of all the hypotheses that have been tried, that of human instincts remains, in spite of much loose use of it, the most fruitful and the one which we can least afford to reject.

COMMENTS ON SOME RECENT CONTRIBUTIONS TO THE THEORY OF
HUMAN INSTINCTS

Dr. W. H. R. Rivers in his 'Instinct and the Unconscious'³⁶ accepts in the human species an array of instincts which differs little from my list. He conceives their role and function, their relation to the emotions, and their part in the genesis of sentiments and morbid complexes in much the same way as myself. In fact he refers to all this fundamental part of the theory of instinct as an accepted part of 'orthodox psychology.' He makes a number of interesting suggestions towards the development of the theory on this basis. The most novel of these suggestions was first put forward by him at a meeting of the British Psychological Society in an extreme form.³⁷ In the book he has modified it and toned it down in the light of criticisms made on that occasion. The essence of the suggestion is that instinctive reactions are of the 'protopathic' type, the type, as shown by Dr. Head and himself, of the reactions in which the thalamic centres play a predominant role. I am disposed to believe that there is a certain amount of truth in this view, though I do not think that the 'all or nothing character' can be usefully adopted as the criterion of the instinctive. And in my opinion Dr. Rivers, in his book, still

³⁶ Cambridge 1920.

³⁷ See British Journal of Psychology, vol. X. "Instinct and the Unconscious," 1920.

overstates the 'protopathic' affinities of instinctive actions. But I am more concerned to criticise his interesting chapter on 'the danger instincts.'

Rivers follows the not uncommon plan of classifying the human instincts into groups according to the general character of the ends they subserve. This seems to me an undesirable, because somewhat artificial, procedure, which brings us no advantages but rather tends towards confusion. He distinguishes a group of instincts of self-preservation, which he divides into two sub-groups, the appetitive (including those which subserve the function of nutrition) on the one hand, and the danger-instincts on the other. Of this group of danger-instincts he recognizes five members, as follows: flight, aggression, manipulative activity, immobility, collapse. He accepts my generally disputed proposition regarding the relation of emotions to instincts. "Through the work of modern psychologists," he writes, "and especially that of Shand and McDougall, we have come to see the close relation between affect and instinct. Each of the emotions can be regarded as an affective aspect of an instinctive reaction. Thus, fear is especially connected with the instinctive reaction to danger by flight; anger with the reaction to danger or injury by aggression, etc." He speaks of this as the current view; but, though it is gratifying to me to find it so described, I must point out that it is by no means generally accepted. Almost all the recent critics of instinct have taken occasion to comment adversely upon this view of the relation of emotion to instinct, and it is not accepted by Professor Drever who in other respects agrees most nearly with me; nor is it accepted by Mr. Shand, as Rivers erroneously implies. For Shand, the instinct is essentially a motor mechanism; and the unit of the innate constitution which in his system most nearly corresponds to what I have regarded as an instinct is what he calls an emotional disposition. Thus, in Shand's system, what I have called the instinct of flight or escape is called the disposition of the emotion of fear; and the various motor mechanisms through which (in my view) the instinct of escape most readily finds expression in action, such as the mechanisms of running, shrinking, crying aloud, are called by Shand the instincts through which the emotional disposition operates. So much by way of straightening out the relations between these allied views. Flight, then, in Rivers' view, "is probably the earliest and most deeply seated of the various lines of behavior by which animals react to conditions which threaten their existence or their integrity"; and

fear is the 'affective aspect' of this instinctive reaction. So far I am in agreement. But, when Rivers goes on to list aggression as a second danger-instinct, I cannot agree with him. He recognizes anger as the affective aspect of this instinctive reaction; and this instinct is clearly to be identified with what I have called the instinct of pugnacity. Now it is true, as I have pointed out, that, when a frightened creature is thwarted in its efforts to escape; when the fleeing animal or man is brought to bay, fear may give place to anger and aggression. But in this respect the instinct of escape does not differ from all the other instincts. Anger and aggressive behavior are apt to be provoked, both in men and animals, by the thwarting of any conation. Anger and aggression have no special relation to "danger or injury by aggression." To attempt to take away a dog's bone, or to come between a male animal and his female, to interfere rudely with the young of the mammalian mother, these are the surest provocatives of anger and aggression; but the thwarting of the mild impulse of curiosity, or of submission, or of any other impulse or desire, whether on the instinctive or on a more intellectual plane, is equally provocative of anger; though, in general, the anger impulse seems to be provoked more or less strongly in proportion to the strength of the impulse thwarted. Rivers' classification of aggression with 'danger-instincts' is thus an illustration of the drawbacks of such attempts to group the instincts in classes according to their functions.

I feel sure that Rivers' recognition of an instinct of manipulation as one of his 'danger-instincts' is mistaken. Almost every one of the instincts might equally well be called an instinct of manipulation. Curiosity certainly seems to be the root of much of the manipulative activity of children and of monkeys. And every other instinctive impulse, working on the plane of adult human life, may sustain manipulative activity. Rivers speaks of manipulative skill as 'man's most natural response to danger.' But surely this kind of response is the product of much training and discipline. It is true that the man who has spent half a lifetime in dangerous pursuits, such as warfare or big game shooting, in mountain climbing, or in criminal detection, may respond to every danger with well disciplined manipulation of his weapons, natural or artificial; and he may be so inured to danger of particular kinds and so practised in meeting them, that, when the danger suddenly threatens, his whole energy is concentrated upon appropriate skilled action, a concentration which may inhibit almost completely all the natural reactions of fear. But even he,

if he could be examined minutely at such moments, would probably be found to exhibit some slight trace of the symptoms of fear, a slight increase of pulse rate, some change of distribution of the blood stream, some slight increase of adrenalin in the blood. And, if the danger is of an unaccustomed kind, or unusually appalling, even he may show and feel fear with all its natural instinctive symptoms. I would recall Edward Whymper's description of the behavior of his two experienced Alpine guides, when the rope broke during the first descent of the Matterhorn, and four of the party slid over a precipice before the eyes of the remaining three. Whymper displayed manipulative activity of a high order; but it was with the greatest difficulty that he induced his terrified guides to exert the needful manipulative activity. The many soldiers who during the war felt and yielded to an uncontrollable impulse to flee to cover, when shells began to fall about them, exhibited the true instinctive reaction to fearful impressions in all its crude simplicity.

Rivers affirms truly enough that "there seems to be in action [that is, skilled controlled action] a process of suppression of the fear or other affective state." But this is true of all emotion; the resolute exercise of the higher mental functions in the emotion-exciting situation diminishes the intensity of the emotion natural to the occasion. We may interpret the fact physiologically by supposing that the nervous energy which, in the absence of such higher-level activity, would vent itself in the instinctive symptoms and reactions is led off to and utilized in the higher levels of the brain. The fact insisted on by Rivers seems to be merely a special case of the general law of inhibition as the correlative of intense activity of any kind. There remain certain instances in which men have reported absence of fear in situations that seem just such as might have been expected to excite it in the highest degree. One such is that of David Livingstone when mauled by a lion. I do not know how such cases are to be explained. But this one at least cannot be explained by Rivers' principle. For Livingstone was inert and helpless, while the lion stood over him and tore his shoulder with his teeth. The absence of pain on some such occasions presents a similar problem, equally insoluble by Rivers' suggestion. The facts seem to be allied to the panoramic vision of a life-time reported at moments of imminent death by many men. I should be inclined to seek an explanation along the lines suggested above. The situation seems to evoke a very intense intellectual activity, combined with an attitude of complete resignation to the

inevitable. Are not such instances allied to the painless triumphs of the Christian martyrs at the stake?

Rivers' fourth 'danger-instinct' is immobility. "The instinctive reaction by means of immobility has the end of concealing the animal from the danger which threatens it." I agree that this behavior is instinctive, but I cannot agree to regard it as the expression of an instinct distinct from the instinct of escape and fear. I submit that the escape instinct is one that naturally manifests itself in two phases: first, the phase of flight, lasting so long as the creature is in the open; followed by a phase of immobility, as soon as cover is reached. The change of situation, the attainment of cover, brings about a change in the outward expressions of the instinct; just as in instinctive combat, the phase of aggressive approach is succeeded by the phase of 'manipulative activity,' of striking, tearing, biting, which may involve almost every motor mechanism of the nervous system, whether innate or acquired. We see this succession of phases of escape most simply illustrated by the child or woman who, startled by some unfamiliar noise on rising from bed in the night, springs back into bed, pulls the bed clothes over her head, and lies still with thumping heart; or by the ignorant maid-servant who at the first crash of thunder flees to her room and takes refuge under her bed or in a closet.³⁸

There is no reason to suppose that the frightened animal or human being that has attained to cover and lies hidden and immobile ceases to feel fear. Many accounts of such experiences by men, women and children forbid any such supposition. When an animal is discovered in such a situation, it may be noticed that its heart is pumping at a great rate, and that it is ready to renew its flight at the instant its cover is withdrawn.

Rivers' fifth 'danger-instinct' is collapse with tremor. He admits that this reaction is 'accompanied by that excess of fear we call terror.' And he rightly, I think, ascribes collapse to conflict of impulses. The tremor which was so distressing, so frequent and so long continued a result of fearful impressions made on soldiers in the war seemed to be essentially the expression of a conflict of tendencies, a

³⁸ For the deniers of instinct such actions are not instinctive, because the motor mechanisms involved in running upstairs and in jumping into the bed or crawling beneath it, or opening the door of the closet are not innate; for stairs and beds and doors do not exist in nature; and in doing these things, the frightened girl is making use of acquired mechanisms. How they propose to explain such behavior, I do not understand. I suppose they would have us assume that, on the first occasion of hearing a crash of thunder, the girl happened in the course of random movements to crawl under the bed; or that the sound rendered her negatively phototropic for the time being; and that the pleasure of being under the bed (or its neural correlate) then 'stamped in' this mode of reaction.

conflict between the impulse of fear and the counteracting efforts of control. It is when we try to control our fear that we tremble; and it is noteworthy that we tremble also, when we try to control fierce anger or fierce lust and even, perhaps, fierce hunger or curiosity. In the soldiers in whom the tremor became a chronic symptom, the conflict was continued subconsciously; and in many cases ceased as soon as the conflict was resolved. The most obstinate tremor I ever saw was the leading symptom in a very fine soldier who had been through many terrible experiences at the front and had earned promotion and distinction. He was consumed with eagerness to return to the front, with patriotic anxiety, and a fierce anger against the enemy; but he could not stand in the presence of an officer without violent tremor of all limbs, an inability which caused him the most acute distress and mortification. My sympathies were deeply enlisted. I admired the man and pitied him profoundly. I exerted myself to the utmost to solve his problem during many weeks that he remained under my care. He told me of many terrible adventures and of most painful domestic affairs; and I explored his dreams and his past life, without avail; until at last he reluctantly confessed that in a moment of fierce vengeance he had thrust his bayonet through a wounded German. Only after a cool discussion of this incident had restored it to its due proportions in his mind, did the exaggerated horror and repulsion attaching to it pass away and the tremor cease. This was the conflict that maintained the tremor, a conflict between the horror with which he remembered this deed and the rest of his highly moral nature. This is but one of many similar cases that came under my care during the war.

Conflict, then, is the condition of the tremor and collapse which are apt to supervene, when escape is morally or physically impossible. And it is not necessary to postulate, with Rivers, an instinct of collapse in order to account for the facts.

Rivers accepts as established in 'orthodox psychology' my conception of the sentiment and protests against the tendency, introduced by Dr. Bernard Hart and followed by Mr. A. G. Tarsley,³⁹ to extend the denotation and narrow the connotation of the term 'complex' until it becomes synonymous with 'sentiment.' I am glad to endorse this protest; for, as Rivers says, "There is no hard-and-fast line between the healthy and the morbid, and it is possible, if not probable, that the complex will in some cases shade off into the senti-

³⁹ In his valuable treatise, 'The New Psychology.'

ment, but I believe it is useful that pathology shall have its own terms and concepts. I believe that it will be best to reserve the term 'complex' for products which partake, in some degree at any rate, of a morbid quality [i. e. of some degree of repression or dissociation] and that nothing but confusion can result from the inclusion in one category of definitely pathological processes and such absolutely normal and necessary processes as the sentiments." But, while endorsing this protest, I would add a protest against the description of either the morbid complex or the healthy sentiment as a process. Both the complex and the sentiment are facts of structure, not facts of activity; and we shall not get rid of confusion, until we learn to observe this distinction and cease to describe facts of structure as processes.

In his very interesting and original chapter on suggestion and hypnosis, Rivers attributes to me the view that suggestion, sympathy and imitation are three modes in which the gregarious instinct operates; and, adopting this view, he goes on to make his own contributions to the subject. In attributing his view to me Rivers is in error. I did not propose it in my *Social Psychology*; rather I described suggestion, sympathy and imitation as pseudo-instinctive, meaning that they have so nearly the appearance of instinctive processes that many writers have been led to attribute them to as many distinct instincts or to one. I went carefully into all three processes, distinguishing their varieties, and propounding what seemed, and still seem to me, the true interpretations of each. Especially I took the view that in suggestion, the curative force at work is generally, if not always, that of the instinct of submission. In an article published in 1920⁴⁰ I have adduced further evidence in support of this view. The view which Rivers attributes to me is rather the view of Mr. Trotter, who, in his brilliant but loosely thought treatise on the herd-instinct, has assumed without question that all these processes of imitation, suggestion and sympathy, as well as many others, which are dependent upon the operation of highly elaborated and refined sentiments, can be adequately explained by pronouncing the blessed word 'herd-instinct.' Trotter's procedure in fact gives some justification to those critics who accuse 'instinct-psychologists' of making of Instinct a 'magic potency,' a universal solvent, and an 'open sesame.'

Among those who recognize instincts in man, there is still much division of opinion as to the relation of instinct to emotion. In my

⁴⁰ *Journ. of Neurology and Psycho-pathology*, Vol. I, pt. 1.

'Social Psychology' I proposed a view of this relation which seemed to me to have been very nearly formulated by others (especially James and Dr. Rutgers Marshal) and to be so obviously true that, when once formulated in general terms, it would be at once accepted as a truism. My formulation was that instinctive activity is naturally accompanied by some degree of a general felt excitement; that this felt excitement, accompanying the operation of any instinct, is specific in quality to that instinct; that these qualities of felt excitement, naturally accompanying instinctive strivings, are what may properly be called the primary emotions; that the felt excitement is apt to be strong and of highly specific quality in the operations of some instincts, less strong and of less specific quality in other cases; that, whether or no we accept literally the James-Lange theory of emotions, these specific qualities of excitement are correlated closely with the visceral adjustments which are integral features of the instinctive reactions, and which in the main are adjustments serving to render the instinctive strivings more efficient.

Rivers, as we have seen, seems to accept this as the view of 'orthodox psychologists'; and it is true that it has been embodied in several recent text-books. But it is not accepted by Ward, Thorndike, Warren, Shand, Watson, Titchener, Stout, Woodworth, Lloyd Morgan or Drever, all of whom have discussed the emotions or instincts in authoritative books published or revised since my formulation was proposed; and it is, of course, rejected explicitly or implicitly by all the recent deniers of the instincts of man. And it has not, so far as I am aware, been accepted by any continental psychologist.

It is then hardly true to say that this view is generally accepted. It is true that some of the authors mentioned above have written sentences which seem to imply the view; as when Stout writes: "The combative tendency is the pre-disposing cause of that emotional seizure we call anger"; or Woodworth writes: "The close connection of emotion and instinct is fully as important to notice as the distinction between them. Several of the primary emotions are attached to specific instincts." It is true also that the authors of most of the recent books on psychology acknowledge some relation, in treating of emotion and instinct in successive chapters or even in the same chapter. The principal grounds of rejection offered are two. The first may be stated in Woodworth's words: "It has been suggested accordingly, that each primary emotion is simply the 'affective' phase of an instinct, and that every instinct has its own peculiar

emotion. This is a very attractive idea, but up to the present it has not been worked out satisfactorily. Some instincts, such as that of walking, seem to have no specific emotion attached to them. Others, like anger and fear, resemble each other very closely as organic states, though differing as impulses. The really distinct emotions (not impulses) are much fewer than the instincts."⁴¹ Here it is clear that the objection to my view arises from the identification of instincts with motor mechanisms; a fallacy which I have sufficiently discussed above. But it is perhaps worth while to notice Professor Watson's handling of this question.⁴² "A serviceable way to mark off an *emotional* reaction from an *instinctive* reaction is to include in the formulation of emotion a factor which may be stated as follows: The shock of an emotional stimulus throws the organism for the moment at least into a chaotic state. When in the first shock of an emotional state, the subject makes few adjustments to objects in his environment. The subject in an instinctive act usually does something. . . . When the adjustments called out by the stimulus are internal and confined to the subject's body, we have emotion, for example, blushing; when the stimulus leads to adjustment of the organism as a whole to objects, we have instincts."⁴³

Watson admits only three "emotional reactions as belonging to the original and fundamental nature of man: fear, rage, and love." — He is "of the opinion that most of the asserted emotions are of the consolidated type (that is, emotion plus instinct, plus habit) or emotional attitudes." This consolidation is effected in the course of individual development. "Possibly the activities we see in 'anger' or its more active attitude, 'fighting,' best illustrate the points to be presented. . . . In the human race certainly the exciting stimulus is usually one which hampers, jostles, crowds or constrains the individual — the stimulus to rage. The instinctive factors are striking out with the arms and hands, grasping, running toward the object, probably biting it, the while unflensing the lips. Defensive movements also occur of the instinctive kind. The habit factors express themselves in the scientific form 'of attack and defense.' . . . The whole group is integrated, the part reactions work together. . . . In the above, rage predominated as the emotional constituent, the hereditary attack and defense movements as the instinct,

⁴¹ "Psychology," p. 134.

⁴² In his 'Psychology from the Standpoint of a Behaviorist.'

⁴³ Op. cit., p. 197.

and the trained activities as the habitual. Probably all other forms of emotion . . . show the types of combination shown above." (P. 217.)

"In our discussion of emotion we brought out the fact that there is no sharp line of separation between emotion and instinct. Both are hereditary modes of action. . . . Probably every stimulus which leads to a definite instinctive act leads at the same time to some change in emotional tension. It seems easier to believe that emotion can occur without overt instinctive response than that instinctive action can occur without at the same time arousing emotional activity. We should define instinct as an hereditary pattern reaction, the separate elements of which are movements principally of the striped muscles. It might otherwise be expressed as a combination of explicit congenital responses unfolding serially under appropriate stimulation." (P. 231.)

"Although we are not prepared to insist upon it we are inclined to believe that man is originally endowed with various kinds of positive reaction tendencies, but with few negative reaction tendencies. The few negative tendencies are to be seen in the 'avoidance' of loud-sounding objects, the struggle to escape from those which excite rage and fear generally, and the guarding or fending movements used in connection with any object or person that tends to injure the subject's own tissue. . . . Every object either by virtue of the original constitution of the individual or through associative connections of one kind or another . . . calls out, in addition to the ordinary overt or delayed response in the striped musculature, a definite and complex group of reflex activity in the erogenous zones. When thus stimulated this area may, according to the way in which it has been excited, arouse two fundamental kinds of impulses, (1) a group connected with tumescence. . . . This group, if functioning alone, would lead to the positive seeking movements, and ultimately to the unfolding of the instinctive mechanism of the act of reproduction. (2) A group connected with detumescence inhibition and relaxation of other muscular tissue and with inhibition of secretions. These impulses gaining the motor centres would, if no inhibitory factor were present, release the movements of avoidance." "This theory has been objected to on the ground that it seems unduly to emphasize the instinctive factors connected with love. It in a way maintains that action is determined and evaluated by such factors." Watson then goes on to discuss, "some asserted instincts in man."

The following passages are noteworthy in the present connection. "Fighting is listed as one of the principal instinctive tendencies. We have already in part discussed this under emotions. Where the overt, explicit activity is emphasized, it is properly classed as an instinct, and an all-important one." He gets rid of the parental instinct very summarily. "We have observed the nursing, handling, bathing, etc., of the first baby of a good many mothers. Certainly there are no new ready-made activities appearing except nursing. . . . The instinctive factors are practically *nil*. The emotional activity of both parents may be intense, but this is often the result of many factors. . . . There is a stronger and stronger tendency among educated women to break away from the sentimental drivel connected with the rearing of the child and to make a scientific problem of it. Just to the extent to which convention permits it, rationalization occurs. This is a strong argument that maternal behavior is not mainly instinctive." After all this fine confused feeding, Watson winds up on the following note. "The fact of the matter seems to be that in most cases there is no need of detailed analysis of these attitudes. Those that we have cited and many others function as wholes in the daily lives of all individuals. They are as potent and real as if they were inborn and began to function in earliest infancy with all the completeness they exhibit in adult life." The sex instinct is dealt with as follows, — "We have already discussed some of the implicit factors in connection with the emotion of *love*, and indicated there how attachments (conditioned reflexes) might grow up to persons and objects that stimulate the erogenous zones of the child. . . . We are dealing here, though, with a primitive order of habits and not with instincts. There seems to be no original tendency to approach the sex organs with the hands." But "Undoubtedly there are a large number of purely instinctive responses connected with those organs. The sex instinct as a whole has very many ramifications. Habits of the most varied kinds are built upon and around it." Finally, — "We cannot help but feel that there are enough instinctive leanings present in early youth to properly shape any child's future activities. . . . Individuality seems in some way to depend upon man's original tendencies, not upon the presence of the completed pattern type of instincts, since these do not exist in any large number, but apparently upon factors which, when taken singly, are difficult to detect, but which when taken together are most important. There is not much experimental evidence for this con-

clusion, but there is a great deal of common-sense data." "The principal role of all instinctive activity, neglecting the vegetative and the procreative, . . . is to initiate the process of learning."

Surely a lame conclusion, almost a capitulation, after a half-hearted effort to divorce instinct from emotion and reduce it to the type of reflex response to stimulus. It is no wonder that Watson's younger disciples, the devotees of the stimulus-response formula, are showing a decided tendency to throw him overboard. For, after all his wobbling utterances, Watson arrives at a common-sense position almost indistinguishable from my own. The truth seems to be that he has too much knowledge of human and of animal nature to be a consistent stimulus-response behaviorist. Shall I add also that he has too much 'common-sense'? It would be tedious to criticize in detail the utterances I have cited. They criticize themselves. I will only remark that Watson, beginning his discussion with extreme behaviorism and ending it with 'common-sense,' would seem to aim at reconciling his beginning with his end. The task is an impossible one.⁴⁴

A different objection to my view of the relation of the primary emotions to instincts is brought forward by Professor Drever, who insists on a doctrine which has been advocated by Professor Dewey and others. Curiously enough the view adopted by him is the converse of that stated by Watson and developed by Professor Kantor.

⁴⁴ The one serious feature of behaviorism is its power of securing the adhesion of young students. This, I think, is due to the fact that it immensely simplifies his tasks, by authorizing him to ignore most of the problems of psychology. Behaviorism seems to me to have arisen as a reaction against, or rather a natural development of, what may perhaps be called Titchenerism. One often hears discussions in which it seems to be tacitly assumed that the student of human nature has to make his choice between two alternatives, behaviorism and Titchenerism. I venture to suggest that there remains a third alternative, namely psychology. If I were asked to define Titchenerism in a few words, I would say — it is the abortive psychology which stultifies itself by refusing to attempt to deal with 'meaning and motive.' In his 'Beginners' Psychology,' Professor Titchener demonstrates very clearly the reality of 'meaning' as a part of experience (pp. 26-29); but insists that his 'Science does not deal with value, or meaning, or uses'; that it is not concerned with motives; that "mental processes do not intrinsically mean, that meaning is not a constituent part of their nature." Yet "meaning is of very great practical importance; we communicate meanings, we apprehend meanings, we act upon meanings." But the 'psychologist' must not allow himself to be interested in these facts; for — "the psychologist has nothing in the world to do with knowledge or awareness" (p. 324) and is not concerned with human nature (p. 3). Titchenerism, then, excludes from the province of psychology all knowing, all awareness, all 'meaning,' all motives, leaving only meaningless clusters of sensations and images; behaviorism, rightly seeing that these meaningless clusters are of no help to it in the interpretation of human behavior, throws them out of the window after the 'meanings.' Thus Titchenerism and behaviorism are two stages of the same process, by which the science of human nature is degraded to an arid waste of 'stimuli' and shadowy meaningless 'reaction patterns,' a world of 'moving shadow shapes that come and go,' empty of all knowledge, value, motive and meaning.

Watson regards instinct and emotion as distinct in origin and function and more or less incompatible; and emotion checks or prevents action. According to Drever, on the other hand, emotion arises in consequence of some check to instinctive action. He holds that all instinctive action is accompanied by 'interest.' "The alternative hypothesis to McDougall's is that the affective element in instinct-experience becomes emotion, only when action in satisfaction of the interest is suspended or checked, when . . . interest passes into 'tension.' If impulse immediately realizes itself in the appropriate action towards the situation, then there is no emotion in any strict sense of emotion."

Again Drever writes: "We seem then compelled to take the view that the instinct-emotion is not an invariable accompaniment of instinctive activity, but that the instinct-interest is, that the instinct-emotion is due to what we previously called 'tension,' that is, in the ordinary case, to arrest of the impulse, to the denying of immediate satisfaction to the interest."

He suggests that animals, being provided with innate motor mechanisms through which their instinctive impulses readily find appropriate expression in action, experience little emotion; the emotion being less in proportion to the perfection and adequacy of these motor-mechanisms; whereas in man, these mechanisms being for the most part vestigial and imperfect, a checking of instinctive impulses occurs during a period in which a suitable mode of action for the pursuit of the natural end is intelligently selected; and in this period the emotion arises. There is, on the face of it, something plausible in this view. But I cannot see that it is supported by direct appeal to our experience. Surely a sudden injury or insult, a sudden threat, a pistol suddenly levelled, a yawning chasm suddenly revealed, a sudden cry of terror, a sudden noise of any unknown origin breaking through the stillness and solitude of night, a single admiring glance, the entrance of a commanding personality, the child's cry of distress, surely all these and many other impressions are apt to evoke in us an attitude which immediately, on the first moment of perception of the object, is emotionally toned. We cannot reject the evidence of such experiences, because some animals seem to carry on prolonged trains of instinctive activity with no signs of emotion that we can confidently interpret. Yet even in animals the appropriate signs of emotional excitement commonly accompany the excitement of instinctive activity. The mating pigeon, the hunting dog, the shying horse, the hen-bird or the mammalian mother whose young utter cries of

distress, all these display immediately signs which the popular mind interprets unhesitatingly as emotion; and even the wasp and the bee are quick to evince their changes of instinctive activity by outward signs of emotion. Just as a tactful and efficient treatment of human beings is only possible to him who delicately appreciates the signs of emotions in human beings and interprets them as indicators of tendencies to action; so also the successful handling of animals depends upon an exactly similar appreciation and interpretation of the symptoms of emotion as signs of instinctive excitement. A bee-keeper, a horse-trainer, a lion-tamer, a dog-owner, who should ignore this relation of the primary emotions to the instincts, influenced whether by the theory of Drever and Dewey, or by that of Watson and Kantor, would have little success and a most uncomfortable time. Let us admit that popular practice has, in this matter as in many others, long embodied a psychological truth which it is mere pedantry to ignore or deny.

Drever himself writes: "Though we cannot accept McDougall's view, that the primary emotion, as such, is merely the affective element in instinct-experience, we are in entire agreement with him on what appear to be the main points. There are certain instincts of vast importance in both human and animal life, of which an emotion is, under normal conditions, one of the most prominent characteristics. At the same time there are, it is true, in addition, minor instincts, characterizing the behavior of the young child, where the interest is not usually of the emotional type. But the important point is that the great instincts of human nature have all their accompanying and typical emotions. We must, therefore, in the case of man and the higher animals, distinguish between instincts, which approximate the 'pure' type, and the great instincts which are characteristically emotional."⁴⁵ The difference between us seems small. Drever recognizes an affective element or aspect of all instinctive action, but refuses to call it emotion. His distinction seems rather fine-drawn. His divergence from my view on this question seems to be due chiefly to his attaching a narrow connotation to the word 'affective.' He tells us that, — "Biologically the function of emotion is apparently to reinforce impulse and interest." This implies that emotion is in itself, apart from instinctive impulse, a motive power or conative energy, one which on occasion supervenes upon and reinforces instinctive striving. That is a doctrine which

⁴⁵ 'Instinct in Man,' p. 161.

seems to me to have nothing in its favor and which involves great difficulties if we try to conceive it in terms of phylogeny.

Another feature of Drever's treatment which I cannot accept is his setting apart of a certain group of instincts as appetites, especially the nutritive and reproductive instincts. The ground of this distinction is the prominence of the chemical or other internal bodily factors in these instinctive activities. But the difference here is purely one of degree. It is probable that the operation of every instinct has its conditioning factors within the visceral zone; and that these are of greater importance than has commonly been recognized; though such writers as Dr. Berman⁴⁶ exaggerate in assigning to them an almost exclusive and dominant role. Mr. Wallace Craig has well shown the role of appetite in various instinctive activities of animals. If we were to accept the distinction, we should find much difficulty in distinguishing between appetites and instincts. Shall we refuse to call the migration of birds instinctive, or the sexual impulse of men and animals, because appetite is clearly involved? In this matter, it seems to me, Drever has been unduly influenced by a pious deference to Dugald Stewart and others of his eminent Scottish predecessors; whose interesting treatment of the active side of human nature has been too much neglected by the recent fashion.

In conclusion, I would insist that those who deny instincts to the human species are not, as some of the younger of them seem to imagine, boldly striking out a new line. They are true reactionaries. They would have us revert to the *tabula rasa* of Locke, the vibratiuncule of Hartley, and the unmitigated associationism of James Mill. In so doing they would deprive us of all possibility of building up any intelligible account of character and volition. To those psychologists who are convinced that human nature has instinctive bases which become elaborated into what we call character, I would suggest that the time is ripe for the discussion of this process of organization. In my 'Social Psychology' I have offered an account of the process which for the first time brings volition into intelligible relation with lower simpler forms of action, exhibiting it as the outcome of the organization of the instinctive bases in a hierarchy of sentiments. This, the most important contribution of my book to psychological theory, to which my account of the instincts and emotions is but the propaedeutic, has been ignored by all but a very few. I invite the attention of the critics to it. To those who cannot accept the view

⁴⁶ "The Glands regulating Personality," New York 1921.

that human volition is mechanical reflex response to a 'stimulus,' I would point out that the alternatives are either some such account as I have offered or the conception of volition as a mysterious 'fiat of the will,' a bolt from the blue, an irruption of some force of an order *sui generis* among the orderly processes of nature.

Lastly, I would insist that the issue of this controversy is a matter of the largest practical importance. If the deniers of instinct should gain the day, that would mean a return to the social philosophy of the mid-nineteenth century, hedonistic utilitarianism, with its belief in the absence of all significant differences between individuals and between the races of mankind, and the belief in the limitless perfectibility of all mankind by the processes of education alone. To some of us it seems that much harm has been wrought by these dogmas, and that the Western world is just now beginning to find a better way than that which has led it to the brink of irretrievable disaster. I, for one, am convinced that social health and national prosperity and stability require that we shall fully recognize the complexities of human nature and the large differences of innate constitution between one man and another.

THE VALUE FOR SOCIAL PSYCHOLOGY OF THE CONCEPT OF INSTINCT¹

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IN view of a recent tendency among certain psychologists to deny the existence of human instincts in any proper sense of the term, I propose to attempt a brief review of the instinct theory, with special reference to its meaning and value for social psychology. My own position may be indicated at the outset by a quotation from Professor Dewey's address given before the American Psychological Association in New York, December, 1916. In this address Professor Dewey traced some of the chief steps in the development of social psychology, as follows: "It would be ungrateful to engage in any discussion of the past and future of social psychology without recalling a few rich pages of the *Principles* [James' *Principles of Psychology*] which are devoted to the social self, and, in the discussion of instincts, to the native reactions of human beings in the presence of one another. . . . I hope I may find general agreement in pointing to the work of McDougall and Thorndike respectively as indicative of the next great force [following the work of Tarde] in social psychology, together with such writings as those, upon the social side, of Graham Wallas. . . . The problem was presented . . . as the problem of the relationship of original or native activities to acquired capacities and habits. *Henceforth our social psychology is placed upon the sure ground of observation of instinctive behavior.*" (*Psychological Review*, Vol. 24, pp. 266-68. Italics mine.)

Professor Dewey's prophecy as stated in the last sentence quoted above is being fulfilled so far as the main line of emphasis in social psychology is concerned. However, the instinct theory is being subjected to criticisms of which account must be taken. There are two principal types of opposition to the instinct theory. In the first place, for the purpose of discrediting the instincts an alleged analogy has been pointed out between instinct psychology and the discarded faculty psychology. If this analogy were exact, it would be

¹ [Editorial Note: The present article will be followed in a short time by another in which Dr. Wells promises to develop his theory of the effect of the environmental factors in inherited traits by bringing forth additional biological evidence.]

fatal to the cause of instinct. In the second place, the claim has been made that, in the human animal at least, all behavior which, under the influence of such psychologists as James and McDougall, has been commonly called instinctive, is in reality behavior of the acquired type and hence a matter of habit rather than of instinct.

Mr. Field has made an analysis ("Faculty Psychology and Instinct Psychology," *Mind*, N. S. Vol. 30, pp. 257-70) of the instinct problem in the effort to convict instinct psychology of "the Fallacy of Faculty Psychology of attempting to describe what we know in terms of what we cannot know" (*ibid.*, p. 270). Dr. Allport speaks of this fallacy, saying that text-books of social psychology still cling to the faculty psychology in their acceptance of social instincts (*This Journal*, December, 1919, p. 297). Mr. Field distinguishes between instinct and the instincts. He accepts the notion of instinct, defined "as something in our innate mental structure of which all that we can say is that by virtue of it a person or an animal performs certain actions without previous experience and without foresight of the end" (*ibid.*, p. 259). He admits that "to say . . . that an action is instinctive or due to instinct gives us valuable information" (*ibid.*). But the Fallacy of Faculty Psychology is committed, he insists, as soon as we go beyond instinct and begin to speak of particular instincts. "What information does it convey to us," he asks, "when we are told that a certain action is due not only to instinct but to some particular instinct?" (*Ibid.*) As will be shown more fully below, however, there is a definite explanatory value in the concepts of the special instincts. To ascribe a person's responses in a given instance to the particular instinct of pugnacity, for example, is to say more than that he fights because he fights: it is to say that the person's present response is due to the existence in his nervous system of synaptical connections which are inherited; and it is further to explain in part why man at the present time possesses these inherited synaptical connections. It says by implication that the mutations resulting in the structures underlying the fighting instinct had survival value during probably millions of years of ancestral life, human and pre-human. Man's present response is explained in this case by a description of one of the prominent aspects of remote ancestral life. We are the "heirs of all the ages" in respect to this instinct just as in respect to other specific instincts. One can understand present human behavior only if one constantly looks beneath the surface appearance of responses acquired through the educative influences of civilized

society and sees the ever-present background of behavior characteristic of man's savage and animal ancestry.

The second criticism of the instinct theory, as I have indicated, is the claim that the responses commonly attributed to instincts are really acquired responses, and therefore habits rather than instincts. Thus Dr. Allport says, "The 'instinct fallacy' errs in injecting social experience and habit into the germ-plasm" (*Psych. Bulletin*, Vol. 17, p. 87). Mr. Kuo says, "In the present paper we attempt to deny not only the classification of instincts, but their very existence" (*Jour. of Philos.*, Vol. 18, p. 648, note). Mr. Ayres, speaking of human instincts, says, "There is nothing of the sort in human behavior" (*ibid.*, p. 564). Professor Kantor affirms: "Human instincts . . . in the adult individual are completely absent. . . . Mature persons possess no instincts" (*Psych. Rev.* Vol. 27, pp. 52, 56). And Mr. Bernard says: "The most cursory analysis of the origin of the action-patterns involved in such so-called instincts as the parental instinct, reproductive instinct, fighting instinct, instinct of self-preservation, the gregarious instinct, and the like will show that by far the majority of the action content is acquired" (*ibid.*, Vol. 28, p. 102).

The last two psychologists cited, however, do not deny completely the existence of human instincts. Thus Mr. Bernard says: "The actual instincts are at once much simpler and more elemental and much more numerous than those set forth in the classifications of such writers as McDougall, Thorndike, and other psychologists. There are probably hundreds or even thousands . . . of these inherited mechanisms" (*ibid.*, p. 109). Professor Kantor's position is not unlike Mr. Bernard's on this point, for Professor Kantor recognizes what he calls "instinctive behavior," that is, acquired complex action-patterns developed from "the acts which are properly called instincts" (*ibid.*, Vol. 27, p. 50). What Mr. Bernard and Professor Kantor here refer to as instincts are what would ordinarily be called reflexes rather than instincts, however. In fact, Mr. Bernard admits that he includes reflexes among instincts. Some psychologists, however, as has been shown, deny completely the existence of even the simplest human instincts, apparently believing that no synaptical connections can be inherited.

Both those who deny the existence of human instincts outright and those who accept them in the sense in which Bernard and Kantor accept them, would reject entirely such a position as that of Professor

Hunter when, though giving due recognition to habit-formation, he finds in addition a place for a limited number of complex human instincts which arise wholly through heredity, appearing either at birth or, as is the more usual case, at some time after birth. Professor Hunter admits the fact of modification of instinct by habit, not only after, but often before, the appearance of the instinct; but he denies that all complex action-patterns are habits. Thus he says that in many cases "certain habits or customs have been fixed upon the individual before the normal time for the instinct to appear. Therefore when the instinct manifests itself, it does so from the very beginning in modified form. . . . The modifications of instinctive performance are not all variations . . . produced after the instinct first appears. . . . Other modifications occur because of influences at work before the instinct makes its initial appearance" (*ibid.*, Vol. 27, pp. 252, 255). Such is the position which I would maintain, namely, that over and above habits, due solely to environmental conditions, there are instincts, which are inherited action-patterns.

I would define instinct as Watson does, calling it "an hereditary pattern reaction, the separate elements of which are movements principally of the striped muscles" (*Psychology*, p. 231). Watson admits that there is no sharp line of separation between instinct and emotion, though in the definition of emotion he lays special though not exclusive emphasis upon the visceral and glandular systems involved (*ibid.*, p. 195), and in instinct he places special but not exclusive emphasis on responses of striped muscles. Since emotions, considered in their physical aspect, as well as instincts are hereditary *reaction-patterns*, and especially since the visceral responses involved in emotion constitute an important source of internal stimulation for definitely instinctive responses involving the skeletal muscles, as in the case, for example, of fear, anger, and the sexual emotion, it certainly does not seem feasible to attempt too sharp a division between instinct and emotion. When one compares Dr. Cannon's adrenal theory of the emotions with the view of instinct which ascribes to instinct the chief motivating power in human behavior, as, for instance, in McDougall's theory, one is prompted to ask whether this instinct theory may not find its correct explanation partly in the adrenal theory of the emotions. A great amount of energy for human achievement is supplied during emotional stress through the effect of adrenalin in liberating sugar from the liver, neutralizing fatigue products in the muscles, and increasing the blood pressure. At any rate Dr. Cannon

has contributed evidence that emotion and instinct cannot profitably be considered separately.²

Much of the opposition to the instinct theory arises from the belief among some psychologists that by instinct is meant some mysterious force inaccessible to scientific explanation. The position taken by Mr. Jacques Loeb, however, shows that it is possible for a mechanistic biologist, without recourse to non-scientific principles, to conceive of the existence of instincts as complex as the food instinct, the sex instinct, the parental instinct, locomotion, gregariousness, and even the instinct of workmanship, all of which he mentions.³ Loeb accepts such hereditary action-patterns as facts, and says that the physico-chemical analysis of them is only a question of time. Regarding the hereditary aspect of instinct he says: "The analysis of the instincts given in the previous chapter places us in a position to answer the question as to how they can be transmitted through the egg. . . . The form and instincts of the full-grown animal are only the resultant of a few simple elements which can readily be transmitted through the egg" (*Physiology of the Brain*, pp. 201, 202).

Much of the confusion regarding the question of the inheritance of instincts arises from a failure to get clear concepts and to use precise terms in discussing the mechanism of heredity. The inheritance of so-called characters, or characteristics, is determined not by germinal factors alone, but by these together with environmental conditions that are normally present during at least a part of the time of individual growth. It is the factors in the germ-plasm, which Weismann called determinants and which Johannsen calls genes, that are transmitted from generation to generation. Characters as such are *never transmitted*, they are *all* "acquired" anew during the lifetime of the individual. But some characters we call hereditary, namely, those which are "acquired" as a result of germinal factors and constant environmental conditions. The environment, so far as separate parts of the organism are concerned, may be either external or internal to the organism as a whole. Now action-patterns which are called instincts, just like other hereditary characters, are inherited because of the two sets of conditions, namely, the transmission of germinal factors and the constancy of certain environmental stimuli during

² See W. B. Cannon, *Bodily Changes in Pain, Hunger, Fear and Rage*, especially pp. 188f.

³ See *The Mechanistic Conception of Life*, pp. 30, 31; *The Physiology of the Brain*, pp. 194, 197, 242; *Forced Movements, Tropisms, and Animal Conduct*, Ch. 18.

the development of the individual. The environmental stimuli required in co-operation with the germinal factors are to a large extent internal in the case of the instincts. As Professor Goodrich said in his presidential address before the British Association for the Advancement of Science, Edinburgh, September, 1921: "Instinctive behavior is carried out by a mechanism developed under the influence of stimuli, chiefly internal, which are constantly present in the normal environmental conditions. . . . Hence [it] is inherited" (*Science*, Vol. 54, p. 537).⁴

We should keep clearly in mind that it is only determinants (now more frequently called determiners), not characters, which are transmitted in the germ-plasm, and that *all* characters are "acquired" during the growth of the individual; though some of these characters are determined by germinal factors (plus environmental stimuli, external or internal). At the end of fertilization, when the transmission of germinal factors has already taken place, there is not present a single character. But none of those who object to calling instincts inherited, since they are "acquired" during individual growth, object to calling hair- or eye-color, for example, hereditary, although the "acquisition" of such characters during the development of the individual is obvious. The chief error in the view of many psychologists who deny that there are inherited action-patterns rests upon a failure to observe that not only all action-patterns, but *all* structural characters whatsoever, are "acquired" in the sense that none of them, since they are somatic, not germinal, structures, are present in the germ-plasm at the end of fertilization. It is true that all racial instincts are "learned," in one sense of the term, by the individual during pre- or post-natal development, but so are all other hereditary characters "learned," or "acquired," in a similar manner.

There is little doubt that many action-patterns involving the autonomic nervous system and the unstriped muscles are inherited. Thus what are commonly called emotions, such as fear, anger, the sexual emotion, etc., when considered in their physical aspect are clearly hereditary action-patterns. But, admitting this, one must admit the further fact that the visceral and glandular responses which constitute the physical side of the emotions are themselves internal stimuli, which have been operative from the time of primeval savagery,

⁴ Professor Goodrich's article, "Some Problems in Evolution, pp. 529-538, contains a valuable discussion of problems of heredity. See also Babcock and Clausen, *Genetics in Relation to Agriculture* (New York, 1918), pp. 20ff.

and before, down to the present, making possible the inheritance of action-patterns which involve the skeletal muscles and which are called instincts in the strict sense of the term. The visceral and glandular responses involved in the emotions have been constant in the midst of changing external environmental conditions; and this constancy of internal environmental stimuli has co-operated with germinal factors in producing among individuals in civilized society *some*, at least, of the same hereditary responses of skeletal muscles as those which characterized the instincts of pugnacity, flight (or concealment), etc., in the life of our remote ancestors.

Moreover, many of the external environmental stimuli have existed in ancestral life down to the present time in unchanged form, thus making possible the inheritance of action-patterns dependent in part on external stimuli. James, McDougall, and others have pointed out the chief stimuli that call forth the instinct-emotion of fear, namely, strange objects, intense stimuli such as loud noises, etc. Now such external stimuli are constant factors of any conceivable environment, savage or civilized. Watson and McDougall have singled out interference with one's activities, the "hampering of the infant's movements" (Watson, *op. cit.*, p. 200), the "opposition to the free exercise of any impulse" (McDougall, *Introduction to Social Psychology*, 5th edition, p. 59), as the constant external environmental condition which arouses the instinct-emotion of anger. The presence of inferiors, a situation where one is in some respect superior to the group (McDougall, *op. cit.*, p. 64), is the constant external environmental factor in the case of the instinct of self-assertion. The presence in groups of others of the same species has been a constant external environmental factor in the case of the instinct of gregariousness. Thus one might go on for other instincts, such as those of self-abasement, of curiosity, the parental instinct, the sexual instinct, etc., and might point out ever-present external environmental stimuli for each of them.

For convenience, and in order to accord with the most common usage among psychologists of the terms "acquired" and "hereditary," we may continue to apply simply the term "hereditary" to those characters the "acquisition" of which during the individual's development is inevitable from the fact that it is dependent both on determiners transmitted through the germ-plasm and on constant environmental conditions; and we may apply the term "acquired" to those characters which are not inevitable since they may or may not appear

in individual development inasmuch as their appearance depends on environmental conditions alone, and on environmental conditions which are not constant. Thus, conforming to the common though not the strict present-day scientific usage of the terms "acquired" and "inherited," we may say that habits are acquired while instincts are inherited. Instincts are all "acquired," but only in the sense in which all hereditary characters whatsoever are "acquired."

Those who assert that there are no human instincts properly so called, those who deny that there are inherited action-patterns, are asked to account for the following facts of behavior as they are recorded, on the basis of extensive observations, by Darwin in *The Expression of the Emotions in Man and Animals* (The references are to the New York edition of 1886):—

"Rage, anger, and indignation are exhibited in nearly the same manner throughout the world" (p. 247). "Young children when in a violent rage roll on the ground on their backs or bellies, screaming, kicking, scratching, or biting everything within reach. So it is with the young of the anthropomorphous apes" (p. 241). Anger mixed with the attitude of defiance or sneering, as is well known, often expresses itself by "the upper lip being retracted in such a manner that the canine tooth on one side of the face alone is shown" (p. 249). "The action is the same as that of a snarling dog" (p. 251).

Darwin accounts for the sneer as follows: "The expression . . . of a playful sneer or ferocious snarl . . . reveals [man's] animal descent; for no one, even if rolling on the ground in a deadly grapple with an enemy, and attempting to bite him, would try to use his canine teeth more than his other teeth. We may readily believe from our affinity to the anthropomorphous apes that our male semi-human progenitors possessed great canine teeth. . . . We may further suspect . . . that our semi-human progenitors uncovered their canine teeth when prepared for battle, as we do still when feeling ferocious, or when merely sneering at or defying some one, without any intention of making a real attack with our teeth" (p. 253).

"As the sensation of disgust primarily arises in connection with the act of eating or tasting, it is natural that its expression should consist chiefly in movements round the mouth" (p. 258). "From the answers received from my correspondents it appears that the various movements which have now been described as expressing contempt and disgust, prevail throughout a large part of the world" (p. 260).

"With respect to fear, as exhibited by the various races of man,

my informants agree that the signs are the same as with Europeans" (p. 294). "We may . . . infer that fear was expressed from an extremely remote period in almost the same manner as it now is by man; namely, by trembling, the erection of the hair, cold perspiration, pallor" (p. 362).

In summarizing his discussion of the expression of the emotions and instincts Darwin says: "All the chief expressions exhibited by man are the same throughout the world" (p. 361). "That these . . . gestures are inherited, we may infer from their being performed by very young children, by those born blind, and by the most widely distinct races of man" (pp. 352, 353) [and by many of the animals, as Darwin says elsewhere]. "Whenever the same movements of the features or body express the same emotions in several distinct races of man, we may infer with much probability that such expressions are true ones, — that is, are innate or instinctive" (p. 15).

With the advent of Darwinism a half-century and more ago man for the first time came to be recognized distinctly as an animal. It is possible, of course, to overemphasize the animal-like aspect of human nature; but with certain psychologists at the present time there seems to be a tendency to react against the sane teachings of biology, and to emphasize too much the gulf between man and the animals. This tendency is illustrated especially by some of those who deny wholly or in part the existence of human instincts. Thus Ayres says, "The human species is not wild" (*Jour. of Philos.*, Vol. 28, p. 604). Now one does not have to go even to the trouble of observing the life of savages in the jungle to find evidence that man is rather "wild" after all. The observation among civilized peoples of mob-action in strikes, race riots, and even in some forms of popular religious revivals (See Davenport, *Primitive Traits in Religious Revivals*) reveals many traits of genuine animal "wildness" in man. Ayres says: "The dictionary compresses the characteristic activity of the orang into four lines; what, could it say, are the normal acts of man?" (*Ibid.*, p. 603.) The answer to this question, of what are the normal acts of man, can almost be summarized adequately in four *words*, as follows: To eat, create, procreate. Schiller said that hunger and love, sexual and parental, are the fundamental human motives. Certainly only half-a-dozen other deep-rooted motives need to be recognized in addition to these, and chiefly subordinate motives at that, in order to account for most of the behavior of man in the creation of his institutions. Ayres says, "When instincts fall out, institutions get their due. . . .

The social scientist has no need of instincts; he has institutions" (*ibid.*, pp. 561, 565). Now if instincts *should* fall out, institutions could not continue to exist; and without the motivating force of the instincts in direct or (and especially) in sublimated form, the characteristic human institutions could not have arisen. And instead of saying that the social scientist has no need of instincts since he has institutions, we are forced to say that the social scientist must measure the soundness of institutions in terms of their fitness to satisfy the demands of the human instincts.

A social psychology that does not base itself upon the instinctive motives of mankind is not getting down to fundamental principles. Due recognition, of course, needs to be made of the great part played in human life by habit-formation, or by education in the broad sense of the term, and by the arts of civilized society. The power of reason, too, belongs probably to man alone of all the animals. As Veblen says, however (*The Instinct of Workmanship*, p. 6), "Men take thought, but the . . . racial endowment of instinctive proclivities decides what they shall take thought of, and how and to what effect."

A HYPNOANALYTIC STUDY OF TWO CASES OF WAR NEUROSIS

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THE METHOD

IN the following account, the term "hypnoanalysis" is used as Doctor Hadfield and Professor McDougall, respectively, use it.¹ I believe my method is essentially the same as the one they have employed with such success in shell shock cases,² except that I always give the "explanation" while the subject is still under hypnosis. At that time he seems to be in such an objective, dispassionate frame of mind, that he can check up or revise any hypothetical explanation which is submitted to him, provided he is requested to do so.³ Then, after its test in this fashion, I feel that the explanation, when positively stated and followed up by forcible suggestions, "takes" better than if given when the subject is wide awake.

This would not be true, of course, were not the positive suggestion given that the subject must remember the whole hypnotic experience upon waking. To make sure that such remembering occurs, I always test the completeness of recall, by the aid of notes taken by some third person. It would seem that such complete waking recall obviates any possibility of a forgotten hypnotic incident itself becoming a little dissociated system. That re-integration must always be a conscious process, is shown by the experience of the Freudian psychoanalysts, whatever be the limitations of their method; and it is waking recall, as is well known, which establishes hypnoanalysis as a more efficient method for re-integration.

In the two cases which follow, I have sought to explain the disorders, and their adjustment, in behavioristic terms. It might be well, therefore, to point out that if this effort is at all successful, it is not because the men studied here are of the same temperament.

¹ Cf. *Functional Nerve Disease*, edited by H. Crichton Miller, pub. by Oxford University Press, 1920.

² As described in pages 67-73 and in Prof. McDougall's chapter in that work.

³ This experience is quite contrary to Judd's statement that "the hypnotized subject is quite incapable of subjecting any ideas to critical comparison" (*Psychology*, Second Completely Revised Edition, p. 291). It is a fact that he is relatively incapable of resisting ideas which are urged upon him. But this is why he must criticize ideas, to the limit of his capacity, if he is urged to do so. With the rest of Judd's account of hypnosis, and of its relation to sleep and to the neuroses (aside from his opposition to the use of hypnosis), I can heartily agree.

Rather, they are of very different types. The subject called DR, in particular, is by no means a born "neurotic."

Both studies were carried out in the summer of 1921.

I

A CASE OF "SOLDIER'S HEART"

HT is a promising college graduate, aged twenty-five years. His ancestry, which is of Scandinavian and British blood, consists of a vigorous stock. His father, however, has a quick temper, is unreasonable and threatening toward his relatives, and has deserted the wife and mother. The first home of the family was in a lonely district, where HT grew up very shy and self-conscious in regard to outsiders. "Always of a rather timid disposition," he had a number of severe scares in childhood. He seems to remember these shocks fairly well, however, although he had not thought of the one mentioned below for many years.

At the time of the hypnoanalysis, he complained particularly of a rapid pulse (often reaching 120), which would appear "without cause," as when he was merely reading or talking; and which would always come up upon the slightest physical exertion, refusing to go down to normal for perhaps hours. Strictly speaking, the pulse never went down to normal. For while his lowest ordinary pulse at this period was 92, at the time of his enlistment it had been 72. In addition to the heart trouble, there were intense headaches, nervousness, poor sleep, complete lack of appetite for breakfasts, and general inability to work and recreate. Several medical examinations having revealed no organic defects, HT was hypnotized, and during the hour the following story was obtained:

He is an eldest son. He resembles his mother, and has always gotten on splendidly with her. For his father, on the other hand, he has no affection. His father and mother have disagreed constantly; and shortly after HT's enlistment for oversea's service, his father disappeared without making provision for the wants of the large family.

This desertion on the part of HT's father left the young soldier much depressed. He wanted to be up at the front "with the boys," it is true, but he feared that in the event of his death his mother would lose her home, and his younger brothers and sisters would have to go to work. For he was now their only support; after his enlistment as "without dependents," he had had to make out allotment papers.

He soon came to the conclusion that under such circumstances he was worth more to Uncle Sam alive and well, than through death at the front. In order that his mother might entertain the same hope, he wrote frequent letters telling her that he was in no danger of bodily injury, and that he would probably be kept behind the lines until the war was over.

One day an officer told HT that shell shock involves a rapid heart and general nervousness.⁴ Within twenty-four hours from the time of this conversation, as it happened, a shell exploded near our subject. He was seized with a violent trembling, ran some distance, and was shelled again. (At this point in the narrative HT was asked, "Did you ever have a childhood scare in connection with a 'bang' of any kind?" He remembered that when seven years old he had bitten a small powder-cap, with the result that it exploded in his mouth. This had frightened him to the point of violent trembling. His fear had been intensified by his mother's excitement and anxiety about tetanus. The incident had been followed by a headache which lasted for some days.) The night following the shock from the shell, HT lay awake until towards morning. Then after a short sleep he awoke with a severe headache, a rapid, paining heart, general nervousness, and complete lack of appetite. These, it will be noted, are the symptoms which have recurred since the time of shock.

These incidents having been recalled, HT was asked whether, regardless of his conscious intentions, his neurosis had not served as a resolution of the conflict between devotion to country and devotion to mother; whether, that is to say, the neurosis had not made it possible for him to be at once a soldier in France and a living eldest son. He saw at once that this was the case, and assented to the idea heartily.

He was then put much deeper into hypnosis. The operator placed his hand over the subject's heart, and said, "Now, you feel the nervous energy coming back into your heart."⁵ This means that you

⁴ This item, which came at the beginning of the original course of events, was not obtained from the hypnotic subject until late in his narrative, and then only after close questioning.

⁵ Although I believe heartily in the stimulus-response type of deterministic psychology, I do not regard this suggestion to the patient as a mere metaphor. Rather, his report upon waking that he "felt as though electric needles were going through his heart" (sensations which came purely from suggestion, of course), denoted a real breaking-down of synaptic resistances, a redistribution of nervous energy. One is reminded of Münsterberg's remark, regarding the production of blisters, nose-bleeds, and pulse and temperature changes under hypnosis, that "our understanding of these indubitable facts indeed does not go further than the acknowledgment that the paths for such central connections exist." (*Psychotherapy*, p. 302.)

will be bothered no longer by any defective innervation causing rapid pulse. From this moment on, your heart will work as it should. Nor will you be bothered by the other symptoms. Your cure will be complete, partly because I tell you so now; but principally because you have recalled the determinants of your troubles, so that you no longer need to behave as though you were still back in that original war situation.⁶ And you now *understand, how* you were predisposed to allow that shell shock type of behavior to 'set,' and *why* it is absolutely unnecessary for the reaction to continue. In short, you are cured.

"Now you will remember all these things upon waking, so that you can tell me about them. You will feel fit, able to meet all the ordinary eventualities of life. Tonight, you will sleep well. You will be hungry for your breakfasts, your headaches will disappear; and your heart will be normal. Hereafter, no one will be able to put you into this condition without your deliberate, express, consent. Now as I count ten, you will wake up, cured, and able to tell me all that has been said during this hypnosis."

When awake, the recall, the explanation, and the suggestions were repeated, and HT felt convinced that further trouble was unnecessary. The whole time taken, including that required for the preliminary explanation to the patient, for the hypnosis, and for the waking recall, was approximately two hours.

OUTCOME OF THE TREATMENT

One month after the hypnoanalysis, HT reports verbally that from the day of hypnosis he has had no further trouble from the heart; he enjoys a hearty breakfast every morning; regularly he experiences sound and refreshing sleep; the headaches recur with about their usual intensity, but only after severe excitement; and he feels stronger and more sure of himself. (The recurrence of the headaches would suggest either a psychically irreducible organic weakness, or an earlier, as yet uncovered functional predisposition toward this trouble.)

About a week after the foregoing report, it developed that HT was operated on for a deviated nasal septum. The operation revealed

⁶ Hollingworth's explanation of "redintegration" describes this mechanism exactly (Cf. his *Psychology of Functional Neuroses*, Chs. II-IV). As a theory to explain the neurosis as a whole, however, it seems to me that Hollingworth's conception of redintegration is only half of the explanation. For while *redintegration* may account for the welding of a system of responses into an undiscriminating functional unit, it is *dissociation* which accounts for the breaking-off of this unit from the mass of conscious responses, so that the now independent system is beyond subjection to what Hollingworth calls the individual's "sagacity."

considerable nasal catarrh and inflammation which had been affecting the eyes and possibly the ears. Correction of the trouble has made his head feel lighter and clearer, and has enabled him to breathe through his nose instead of through his mouth.

Two months from the time of the hypnosis, he writes: "I know you are expecting a word from me, and I certainly owe you a debt of gratitude. When you last saw me I was weak — but I have had a fine vacation since and now weigh nearly as much as I ever did. I feel better — surer of myself in every way — thanks to you and Dr. Walton [whose book, *Why Worry*, I had lent HT in order to insure a good mental attitude. W. S. T.], I don't feel the morbid curiosities I used to. If you were the discoverer of 'Tanlac' I could write a wonderful newspaper testimonial and tell the world about it — but as it is, all I can do is to tell you of my sincerest gratitude for your interest and help."

Three months after the hypnoanalysis, HT writes as follows: "I have continued gaining weight, and now weigh within a pound of what I weighed when enlisted. The Veteran Bureau nurse . . . took my pulse and was surprised to find it 75, standing. . . . I get a great deal of exercise regularly, and the heart is normal. . . . Dr. Walton taught me how to go to sleep, and I sleep soundly. My general efficiency is greatly improved — greater than it ever was before, it seems to me. I have no more of those sharp, splitting headaches which were so troublesome. My morbid curiosities were due to introspection. — 'Was I subnormal in bravery?' 'Inferior to others?' 'Were others more intelligent than I?' 'Why didn't I have special gifts like others for music, baseball, or some specialized activity?' I constantly pictured myself inferior to others by comparing myself to them. This may be due to poor teaching early in life. I am getting over this attitude once and for all. I have a career motive now that does away with all this."

Of course it is impossible to say how much of the improvement in HT's condition has resulted from the hypnotic treatment, and how much from the surgical operation. But I believe that each amounted to a sudden removal of a great part of the burden upon his system.

SUGGESTED IMPLICATIONS OF THIS CASE

HT's neurosis is clearly a result of conflict.⁷ But there is nothing

⁷ This conception, conflict, is examined below. (P. 354, par. 2 and 3.)

“teleological,” or “purposive,” about it, in any other sense than that all behavior is purposive, from one point of view. The neurosis was a resultant of forces, these forces being response systems, set at various pressures, awaiting opportunity for release. At first, there was prepared, through education, the system for responding to a call to the Front. HT’s behavior followed that system, and he went to France. Then all reflexes naturally antagonistic to that course of action were re-enforced by his father’s desertion, and were organized into a “wish”⁸ to remain alive. The antagonism between these two systems of approach and withdrawal, respectively, was intense. He must inhibit one of them; he must develop a new and peace-making response system; or he must be broken between the urges.

At this juncture, there appeared a third action-possibility in the form of the officer’s suggestion as to the nature of shell shock. The suggestion fell upon ground prepared somewhat by heredity, perhaps, but certainly by a childhood experience (the cap explosion) and doubtless by occasional general phantasies about shell shock.⁹ This new, implicit sensory-motor “set” was soon touched off as an explicit system, and became the final common path for the opposed major systems.

But the new system also became a neurosis. This resulted from several conditions. In the first place, the new system was “stamped in,” or fixated, in a moment of great fear; and fear may be, like hypnosis, a time of general dissociation, in which the then unrestrained mental elements can easily be bound into complexes. In the second place, the ideational factors of this system were painful. Hence as their integration would be difficult, they continued their life in the realm of amnesia; i. e., as a system whose cortical portion was dissociated from the rest of the subject’s cortical life.¹⁰ Again, this separation was perpetuated through a struggle for its own integrity on the part of the system of higher social responses (often called “conscience,” “ethical self,” or “Censor”). For obviously, these higher responses, as then organized, could not function at the same time that the self-protection (the withdrawing) system was functioning; at least not through the same central apparatus. Hence the

⁸ As behavioristically interpreted by Holt in *The Freudian Wish*.

⁹ Cf. Bernard Hart, *The Psychology of Insanity*, Chapter on Phantasy.

¹⁰ Prof. McDougall’s theoretical picture of this state of affairs, in terms of nervous organization, appears in his discussion of *The Revival of Emotional Memories and its Therapeutic Value*, in the Brit. Jour. of Psychology (Medical Section), Vol. I, Part I, October, 1920, pp. 26-27.

higher system found it most difficult to come to terms with one component of the neurosis, and did not effect an intelligent correction of that response pattern. And finally, there was no immediate environmental demand, no great ambition, which compelled an alignment of all the forces of the personality, had such an organization been possible.

The net result was the neurosis: an action pattern, protected by high synaptic resistances from inhibition by the rest of the brain; an automatism, a reintegration, which, being dissociated, must function mechanically, like a spinal reflex. The individual had suffered a division of his response forces, a division which persisted until he found the desire and the means to attain to re-integration.

Now for the Freudian, this conflict would be a clear case of the "œdipus complex": The son was in love with his mother. It happens, however, that this man was genuinely in love with some one else, and that there was no "dammed up libido" awaiting "conversion" into somatic symptoms.¹¹ It would seem preferable to regard the "œdipus" aspect as an infantile fixation of mutual-understanding-and-protection responses, which had grown up through the principle of the conditioned reflex; and which would not have loomed so large in the young man's life had he ever been provided with a wider horizon for his behavior.¹² In this sense it is true that his close home life had not fitted him for meeting the world of facts.

II

A CASE OF WAR DREAMS

DR is a veteran of twenty-two. He is intelligent, well-balanced, and very virile. His ancestry, home adjustments, and personal history have been eminently normal.

Upon learning from a friend that I had been working in this field, he came asking to be hypnotized purely for the sake of the experience, not knowing that hypnosis could be put to a practical use. Upon being asked whether he had any morbid fears, or mental bothers of

¹¹ Under the circumstances I can only say that this assertion is made with full recognition that some Freudians insist such "damming up" must not be interpreted in any crude sense. Cf. Dr. H. W. Frink's *Morbid Fears and Compulsions*, p. 268. I think, however, that the "cathartic" aspect of that theory finds adequate answer in Prof. McDougall's article, cited in the preceding footnote; and that the more strictly ontological (libido) aspect receives sufficient treatment in, for example, Dr. George Humphrey's *Education and Freudianism*, *JOURNAL OF ABNORMAL PSYCHOLOGY*, Vol. XV, Nos. 5-6, December, 1920-March, 1921, p. 384.

¹²Cf. Watson's discussion of the readjustment of out-worn habit systems, in his *Psychology from the Standpoint of a Behaviorist*, pp. 415-420.

any kind, he remarked that since his return from France he had been generally "on edge," and unable to concentrate well; that he could not sleep more than six hours at a stretch; and that about four nights a week he had a certain nightmare, as a result of which he frequently awoke in the act of choking his bed-fellow, or found himself on the floor in all sorts of queer postures. The dream which inspired this behavior was about a time in France when he was "cornered up." Of the dream, however, he could remember only the beginning, just as in his waking state he was unable to recall the climax of the actual incident.

Under hypnosis, by the aid of much urging DR recalled the events of a thirty-seven hour gap in his memory. At 2.00 A.M. on a summer's day the sentry had deserted, and his dugout was surprised by Germans. All but four of his party were killed by hand grenades; and of the four, two were captured. The remaining two, the Captain and the subject of this study, escaped into a ravine. Although the place was full of gas, they removed their masks in order to see the way. In spite of this precaution, however, DR became separated from his Captain and never saw him again. DR went on until a piece of shrapnel struck his hand, wounding it and knocking his revolver out in the darkness. At the same time he received sensations of warmth and wetness, which never came into consciousness, however, until this hypnosis, explaining the origin of a wound on his buttock. He tried to press on, but found himself bleeding from the lungs and unable to rise from a creeping position.

After a time DR felt a kick in his side, and looked up to see two Germans standing over him. He tried furiously to get his trench knife, but found that his wounded hand could not be made to grip it. In the struggle, one of the Germans, called Hans, hit him over the temple with the butt of a Mauser revolver, saying "Gott verdammt Sie, Schweinhund," as he did so. Hans was for leaving DR, but the other German's suggestion that they might be able to get information out of the American resulted in his being carried back to a German dugout. Although at least partially unconscious at that time, under deep hypnosis DR was able to recall the appearance of Hans, the stretcher made of two guns and a gray coat, and the bleeding from his buttock upon the coat.

The Germans carried him some distance to a deep new dugout. Here a German Lieutenant and his orderly tried to force DR to drink some black coffee, in order to make him talk. (DR explained at this

point that when he got back to the hospital, the doctor said that hot drinks were very bad for those whose lungs were full of chlorine. "For some reason" this remark made a great impression upon him, in spite of his amnesia for his own hot drink.¹³) The Germans' effort to get information was not successful, however, as he "did not wake up."

In a short time a heavy barrage started. This was followed by the appearance of a party of Americans who took possession of the dugout. One of the Americans, a Sergeant of DR's own Company, was bayoneted so that his intestines hung out. A big Prussian was bayoneted to the doorway and was left standing there, dead. The remaining Germans were marched off as prisoners by American marines.

Finally DR was picked up by rescuing hospital corpsmen (one of whose number had been killed on the way to the place) and was put in an ambulance with several wounded German and American soldiers. The roads were very rough, and he experienced such difficulty in breathing that one of the ambulance men gave him a dose of morphine. At the same time the fellow stole DR's spy glasses, remarking: "If this keeps up much longer, it'll be said that the hospital corpsmen won the war, because they'll have all the souvenirs." After the morphine, according to DR, "there were no more rough roads." He woke up in a hospital some hours later, when a nurse was sponging him; and he remembered nothing of all the events that had occurred since he was struck by shrapnel in the ravine.

As this story seemed to cover "every bit of space," DR was told to remember it all upon waking. He was then given the usual positive suggestions, and was aroused gradually.

When awake, DR was most reluctant to repeat the story, because he feared it would give the impression that he was fabricating. Evidently he was so surprised by the outcome of the hypnosis, that he completely forgot the explanation which had been given at the start. His waking narrative was punctuated by such remarks as these:

"Why, a member of my Company just the other day told me that Sergeant K— was wounded, but he did not know how. . . . This must be everything that happened during those thirty-seven hours. . . . Is *that* how I got the scar on my temple? The

¹³ This is evidence for the essential similarity of a traumatic amnesia to one hypnotically induced. A number of such instances of connection between "the conscious" and "the subconscious" are given by Jastrow in "The Subconscious," p. 291, circa.

nurse asked me but I never knew before. . . . So the doctor was right about the buttock wound. He said that it was probable that I got it at the same time that my hand was hit, only I felt no pain from it because I was thinking of my hand. . . . Did that fellow take my spy-glasses? Gee, I'm sorry to remember this, for I know him. If I should meet that guy again . . ."¹⁴ etc.

Thus DR retold his story. At its conclusion, he felt that he understood the situation so well that he would have no more nightmares of the war experience.

As in the preceding case, the total time required was not more than two hours.

OUTCOME OF THE TREATMENT

One month after the hypnosis, DR reports verbally that he has had only one bad dream, and that he remembered that one upon waking. Otherwise his sleep has been fully up to normal. He has felt a new fitness, and a balance, which has made his work a pleasure.

Three months from the time of treatment, DR writes: "Since last interview, I had *one* of the old dreams; that night I had eaten welsh rarebit; perhaps this accounts for the dream."¹⁵ From time of experiment to present date, have gained ten pounds and my general condition is improving all the time."

SUGGESTED IMPLICATIONS OF THIS CASE

Especially interesting is DR'S gain in strength after re-integration. Sometimes this phenomenon can be observed through physical measurement. One of Professor McDougall's cases had the strength of his grip increased 200 per cent (from 30 to 90 kilograms) through sudden recovery from a large amnesia.¹⁶ And this would seem to be the natural result. For when antagonistic action systems are in com-

¹⁴ Thus far we have been unable to locate the spy-glass man for corroboration of this tale.

¹⁵ Perhaps the welsh rarebit only occasioned the release of a small unrecalled portion of the original amnesia. True, he had stated, near the end of his hypnosis, that the history was complete; but I did not urge him to be "absolutely certain" that such was the case, because he had already recalled so many distressing experiences, and because by that time he had been under hypnosis for nearly an hour and a half. But upon waking, he hesitated a great deal when describing the happenings in the German dugout, and said he felt "there was something more." As he had repeated all that was told during the hypnosis, however, I urged him to recall the rest when awake, or to come back for another, short, exploration of that portion of his memories. This was never done.

¹⁶ *Functional Nerve Disease*, p. 192. It is gain of this sort, I would add, which explains such sayings of psychoanalysts as "The patient has attained to a soul."

petition for the effector apparatus, only the free margin of the victorious forces can be expected to move that machinery. Or if the competition is such that one third of the cortical apparatus, in repressing another third, is in a state of deadlock with it, the free third which remains is naturally overworked.

Perhaps, as Doctor Humphrey proposes, the *discomfort* of conflict (perhaps even a great part of the nervous damage that results¹⁷) is "due to the partial excitation of a system of reflexes"; since "there is no evidence that mere inhibition does psychical harm, any more than, according to Sherrington, it does physical harm"¹⁸; and since "partial excitation of one trend [e. g., hunger] can produce exactly the same result."¹⁹ But while such partial excitation may account for the pain of conflict, it does not follow that Sherrington's work makes conflict itself a superfluous conception.

Inhibition, indeed, is perfectly normal. But in the case of a neurosis, there is not the real, complete inhibition through drainage which Sherrington calls "reciprocal innervation." There is only "distraction," or mutual inhibition of *two* stimulus-response mechanisms.²⁰ In other words, there is between response systems an antagonism at a level lower than that of the proper co-ordinating center; there is physical conflict between physical forces, instead of the healthy "switching" of reserves into unified action, so characteristic of cerebral co-ordination. Hence until some more satisfactory mode of description appears, we should acknowledge our indebtedness to Freud for calling attention to the importance of conflict in the neuroses.

However, while this much of Freud's language is valuable here, it does not follow that DR's neurosis is at all capable of being squeezed into the Freudian system. Even less than in the preceding case, that of HT, can we hold "the libido" accountable for the trouble. In DR, apparently, we find a robust constitution which was simply broken by excessive environmental demands. The break occurred when DR's powers of resistance were at their lowest ebb; that is to say, in this instance, when his dissociability was greatest. For he was exhausted by severe fighting; he was depressed by the casualties in the ranks of his fellows; he was deprived of the moral support of

¹⁷ Cf. Crile, *Man — An Adaptive Mechanism*, pp. 153-155.

¹⁸ *The Conditioned Reflex and the Freudian Wish*, JOURNAL OF ABNORMAL PSYCHOLOGY, Vol. XIV, No. 6, February, 1920, p. 392.

¹⁹ *Education and Freudianism*, JOURNAL OF ABNORMAL PSYCHOLOGY, Vol. XV, No. 6, March, 1921, pp. 372-380.

²⁰ Cf. Smith and Guthrie, *Chapters in General Psychology*, p. 37.

comrades, even of the strength that comes from fresh air, during his effort to escape; then he was shelled, wounded, unexpectedly struck on the head by his enemies, and was subjected to further mental torture. Much of all this occurred while he was in a partially unconscious condition; and the distance from his waking life was increased by a morphine sleep.

But while the only important conflict in this personality seems to have been that between a pleasant system and a painful system, the methods of repair were essentially the same as those employed in the preceding case: Preliminary explanation, hypnotic recovery of the dissociated system, and re-integration through (hypnotically suggested) waking recall.

Note: The captions HT and DR are abbreviations of the symptoms merely.

A NOTE ON DARWIN'S WORK ON THE EXPRESSION OF THE EMOTIONS IN MAN AND ANIMALS ¹

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I

BEFORE discussing Darwin's work it will be best to present a short statement as to the significance of the expressive behavior of men and animals, so far as we can judge this matter in the light of all the knowledge at our command at the present day.

Expressive behavior is of very great importance. It is important because of its meaning to the agent (the organism that is behaving in an expressive manner) and to other organisms that perceive the expressive signs. Or, to state the same thing in another way, expression is important because of the psychological effects which it produces both in the expressing individual and in other individuals that perceive the expression. In many cases the agent directs his expressive behavior definitely toward a certain other individual, who is called the patient, in contrast to the agent, and who receives an *impression* corresponding to the agent's *expression*.

As the effect on the perceiving individual, the patient, is the most obvious, I shall mention it first. When I am angry, this state is revealed in the expression of my face, in the tone of my voice, and in my entire attitude and bearing. This fact is of great importance, because it makes other persons beware of my wrath, and it helps me to bring it about that they shall obey my will. What is true of anger is true of other emotions, and what is true of men is also true of other animals. Indeed, our thesis is in some respects even more true of infra-human animals. Because man has come to use words and these have in some degree supplanted the natural expressions; but the other animals, having no words, are under necessity of doing all their communicating by means of so-called "emotional expression." The effectiveness of such communication is striking. The cat with her back up, her tail thickened, and with spitting and growling, tells her tormentor, more forcefully than words could tell it, that she is ready to scratch and bite. The reader has seen plenty such examples, of course, in dogs, cats, hens, and all other familiar animals. There is

¹ Darwin, Charles. *The Expression of the Emotions in Man and Animals*. New York, 1873.

no need for me to take time for details.² Darwin's book is full of interesting examples, and his descriptions of them show that he had a keen understanding of animal nature. He says (p. 11): "Man himself cannot express love and humility by external signs, so plainly as does a dog, when with drooping ears, hanging lips, flexuous body, and wagging tail, he meets his beloved master." Such expression on the part of the agent is of great importance because of the impression which it makes on the patient. Our first point is, then, that expressive behavior is important because it is perceived and understood by other individuals.

Probably one of the most important laws governing the evolution of expression is this, that the expressive behavior and the faculty of perceiving such behavior and being moved by it are evolved *pari passu*. The voice has developed no faster than the ear. Display of form and color and gesture have evolved in intimate connection with the evolution of the eye and visual perception. The agent and the patient have evolved together.

Our second point is that expressive behavior is important because of its meaning to the agent himself, and its psychological effect on him and on his overt behavior. This point would not be quite so evident to the layman, but it is obvious to all who are conversant with modern physiology and psychology. Expressive behavior consists partly of physiological changes, such as those in internal secretions and the circulation, which are important psychologically because they have to do with "warming up," "tumescence," "enhancement"³ and all that sort of thing.

The other part of expressive behavior is the muscular, largely in the voluntary muscles, which is equally important psychologically, because, as all modern psychology teaches us, slight muscular movements are of great importance in connection with meanings.

To illustrate: I find this, our second point, very clearly exemplified in my own experience whenever I feel called upon to say something which I know will be resented by others. My feeling is strongest when I rise to express, before an audience, an opinion which I know will be unpopular with that audience. This situation was experienced more often in my younger days: as we grow older we are less ready to hurl our thoughts recklessly against opponents. But I

² I have given many details in other papers, especially in the *Voices of Pigeons Regarded as a Means of Social Control*, Amer. Jour. of Sociology, July, 1908, Vol. 14, pp. 86-100.

³ Hirn, *Origins of Art*.

meet the same experience in milder form now when I am called upon to tell a tradesman that he has cheated me, and that I intend to have it out with him. I shall describe my experience frankly, knowing that the reader will be able to recognize it and duplicate it in his own experience. Well, when I used to rise before the hostile audience I felt my limbs trembling, my knees unsteady, tightness in my throat accompanied by swallowing movements, and a general change in the body which probably included a host of details that could not be detected by introspection. The importance of these was that they gave a meaning to the situation, an unpleasant meaning, one of "danger"; and their effect was, in some cases, to prevent me from going too far — in other cases, to prevent me from even entering upon my unpopular course. Now, if expressive behavior can so profoundly affect the agent, and dominate him — if it can keep him from going too far, from running heedlessly into danger — it is for that reason of the utmost importance.

What I have just said of the human being applies also to other animals. Dogs and cats and other mammals and birds show us unmistakably that they, like us, are profoundly influenced by the "workings of their insides," in what we call fear, anger, joy, love, and various other emotional states. My dog has sometimes shown plainly enough that he would like to fight a certain other dog, but he is held back by the trembling of his limbs, the palpitation of his heart and the general sinking of his poor frame. But, as these are examples of negative action, the animal being held back, I should like to mention one on the positive side. A broody hen furnishes a good example. When she becomes broody, her vitality is lowered, her body sinks low down, her wings droop, she is weakened and impelled to sit. When she sees her nest full of eggs this stimulus arouses in her very definite reactions, — such as stepping gently into the nest, covering the eggs, and hooking them with her bill, all of which actions are, to the hen, strongly emotional. These reactions give a new affective meaning to the sight of the nest and eggs. This guides and controls the hen's behavior, swaying her by the powerful impulse to incubate the eggs. Similarly, if we examine a host of cases of emotional expression in birds and mammals, we find that the expressive changes are of great importance because of their meaning to the agent and their control of his (or her) behavior.

We have thus pointed out briefly that emotional *expression* is important in man and other animals. We need also to emphasize

the more fundamental fact that *emotion* is important. The importance of the emotions was not sufficiently recognized in Darwin's day, but has gained much more recognition in our day. Adequate appreciation of the significance of emotion can be gained only by very wide and deep study, including not only psychology of the emotions but also social psychology, esthetics, cultural anthropology, and mental mechanisms. Emotion is a great part of human life. Emotion lends force and guidance to the life of every human being, from the most ignorant devotee of the blood-curdling "movie" show, to the philosopher who is impelled by an emotional search for truth.

This thesis, that emotion is important, that it supplies motive and guiding power, is true of all mammals and birds. The study of the emotional life of animals is a vast field which has scarcely been touched. When this field has been adequately developed we shall have a psychology of the emotions of animals, social psychology of animals, animal esthetics, and animal mental mechanisms. The dog has sentiments, as truly as we do, and the fundamental laws governing the sentiments of the dog are the same as those worked out so admirably by Shand⁴ for the human being. In animal life, as in human life, emotions are of the utmost importance.

Darwin raised the question, How did the emotional *expressions* of the higher animals come about by evolution? He did not see so clearly as we see, in our day, that this question is very closely related to the more fundamental one, How did the *emotions* arise and develop in the course of evolution? A strict behaviorist would say that these two questions are really one. Now, how should we answer the question? We should answer it by saying that since the emotions and emotional expression are of very great importance, they have evolved probably according to the same laws as have governed the evolution of a host of other useful adaptations. The problem of the *method* of evolution is one for the biologist to solve: the psychologist should let it alone. When the psychologist has shown that emotions and emotional expression are a necessary factor in the life process of all the higher animals, he has shown that we do not need to posit any peculiar or exceptional laws to account for their evolution. I shall recur to this point, briefly, at the end of this paper.

II

Having presented very briefly, in Section I, the modern view of

⁴Shand, A. F. *The Foundations of Character*. London, 1914.

emotion and emotional expression, we shall now take up Darwin's view. I can take it for granted that the reader is quite familiar with Darwin's "three principles," namely: (1) The principle of serviceable associated Habits; (2) The principle of Antithesis; (3) The principle of actions due to the constitution of the Nervous System. Of these three, Wundt suggested that the third really ought to be placed first. Naturally, the forms of expression are due in part to the constitution of the nervous system, regardless of the utility of the particular expression. That principle is readily admitted, it is not peculiar to Darwin, and we shall pass it with this brief mention. The second principle, that of antithesis, is a subordinate one, and we shall take it up presently. The principle which Darwin placed first, that of "serviceable associated Habits," is the one, of the three, which is most characteristic of his work. His discussion of it, with his abundant illustrations, contains much that is true and interesting together with much that we must now regard as erroneous. The principle itself is not very clear and definite; a complete criticism of all that Darwin says on it would require a long treatise. Therefore, in this short paper I wish to take up chiefly not the principle itself but rather the fundamental idea that lay behind it.

This fundamental idea Darwin states on p. 355 thus: "There are no grounds, as far as I can discover, for believing that any muscle has been developed or even modified exclusively for the sake of expression." He tells us in this work (p. 10) and also in the *Descent of Man* (p. 4) that his purpose in writing this work on *The Expression of the Emotions* was to prove the thesis which we have quoted. Thus, Darwin's aim throughout his work was to prove that expressive behavior was not evolved as such. It evolved from behavior which originally had some utility other than expression. In some cases it still has this utility other than expression. In the cases in which it has lost its other utility and become mere expression, it is a useless trait, persisting merely because of the laws of heredity — a vestigial trait, to be classed with the vermiform appendix and other remnants that have lost their utility. He says (p. 42) "My object is to show that certain movements were originally performed for a definite end, and that, under nearly the same circumstances, they are still pertinaciously performed through habit when *not of the least use.*" (Italics ours.)

This view we must regard as containing a great error. It is contrary to all that we set forth in the first part of our paper. We there

set forth two principal theses, the first of which was that expressive movements are useful as a means of communication between organisms, a means by which one individual can influence or control another, and they must have evolved as adaptations to this end. This thesis Darwin denies.⁵ Our second thesis was that expressive behavior is of great importance because of its meaning to the agent himself and its effect on his own behavior, and this is one of the most important facts to explain the evolution of expressive behavior. This thesis, Darwin does not mention; it belongs to our age rather than his, and it is contradicted by his statements.

In pointing out the error of Darwin's view we are not criticizing him individually, but rather his age. For when we come to inquire how Darwin could have set forth a view so utterly erroneous, we find reasons for it which we can readily understand, and they all pertain to the characteristics of his age. To make this clear, I shall give six reasons which go to explain how Darwin came to expound so erroneous a thesis.

1st. The task of Darwin and his co-workers was to convince the world of the truth of evolution, and to refute the arguments of those who believed in special creation. The special creationists taught that language and the other means of expression could not be explained by a utilitarian theory of evolution; but were given to man solely that he might express his feelings. In so far as Darwin refuted this doctrine, we are indebted to him. In so far as he taught that emotional expression is a product of evolution; and found its origin in utility, he was right. But his conception of its utility was too limited.

2nd. Darwin and his co-workers set themselves the task of proving not only that evolution took place but also how it took place. We now know that they tackled far too large a problem. They were in too great haste to solve all the problems of evolution at once. In so far as this made their work popular, took Europe by storm, and at once convinced the whole world of the truth of evolution, it was good. But for pure science it was unfortunate. It was this unfortunate haste that led Darwin into the generalization that all expressive

⁵ Darwin's statements are not altogether clear on this point, but there can be no doubt that his intention is as I have stated. His principal idea is that no characteristics have been evolved for "expression." This might leave some doubt as to whether he meant to include communication under "expression." But in other places he makes clear his idea that utility for purposes of communication cannot explain the evolution of emotional expression. On pp. 60-65 and 355-356 he takes pains to explain that certain actions which are very useful for the purpose of communication cannot have been evolved for that end.

movements are merely vestigial. We must make this point clear by an example. A human being, when defying another, sometimes bares the canine tooth. Darwin explained this as a relic inherited from ape-like ancestors who had large canine teeth, used in fighting. We think that as a matter of history this is probably correct. But why has the action of baring the tooth persisted to this day, long after it ceased to have any connection with fighting? Darwin's answer is that such traits persist because they were so often repeated that they became hereditary, by virtue of the supposed law of the effects of use and disuse. We must regard that answer as contrary to the best scientific knowledge of our day. In place of it we must substitute the answer that the movement of baring the canine tooth has persisted to this day because of its utility as a piece of emotional behavior. For, in the first place, it communicates to the person at whom it is directed a message of defiance and, in the second place, it constitutes a part of the bodily change in the agent which gives him the feeling of defiance, and which influences his behavior accordingly.

Again, the eagerness of Darwin to reach a complete account of biological evolution is seen in the haste with which he dismisses the case of the vocal muscles. For when he expresses his belief that no muscle has been developed exclusively for the sake of expression, the vocal muscles naturally came to mind as an exception to this rule. Darwin dismisses this, saying that the vocal muscles were developed by sexual selection. We must say, on the contrary, that the entire theory of sexual selection rests on a doubtful foundation. And even if we knew that sexual selection could be an important factor in evolution at all, it certainly could not explain the development of the vocal muscles and of the nervous apparatus which controls those muscles in singing and in speech. Unseemly haste to reach a complete theory of evolution is of course more evident in many of Darwin's co-workers than in Darwin himself. Thus Weismann,⁶ writing on the evolution of music, says that the best the evolutionist can say in regard to the music of man is that it is a sort of accidental by-product of the development of voice and ear, which were evolved for crass utilitarian ends. We think this statement of Weismann's is an example of the absurd length to which a theorist will go in order to bring all facts into subordination to his theory. We should say, in contradiction, that the musical voice and the power to appreciate music were both evolved

⁶ Weismann, Aug. Gedanken ueber Musik bei Thieren und beim Menschen. Deutsche Rundschau, 1889, vol. 61, pp. 50-79.

because of their psychological importance, because of their psychological influence on both the singer and the listener.⁷

3rd. The third reason for Darwin's emphasis on the idea that expressive behavior developed from the non-expressive was that he was particularly interested in discovering the *origins* of traits. He took more pains to discover their very beginnings than to account for their later evolution. In so far as this was his intention, his main idea has much truth in it, and is very interesting. It certainly is interesting to know that the human sneer developed from the baring of the canine tooth preparatory to biting the enemy. But the further question as to why this movement persisted after it had lost its original utility is a very different question, and we believe that Darwin's answer to this question was wrong, as we have already explained.

Our view may be made clearer by two other examples. When a pair of pigeons mate, they go through a process of "billing," which is a movement as if the male were feeding the female, although (so far as we know) no food is passed. The Darwinian explanation of this would be, doubtless, that originally the male did feed the female, and that the present movement which resembles feeding is a mere useless remnant which has persisted as an "inherited habit." We should say that this is not correct; the feeding movement has persisted because of its affective meaning to both the male and the female, for it is powerfully stimulating to both.

A second example. At the consummation of mating, in the case of some birds such as the domestic fowl, the male seizes and holds the female by the feathers on the back of her neck. The male pigeon never does this, yet he invariably makes a movement as if he were about to do so. The Darwinian explanation of this movement of the pigeon would be that in a remote ancestor of the pigeon of today the male did hold the female by the feathers on her neck, and that the present-day movement is a mere remnant of that former act and is now useless. We answer that the movement is very far from useless: it is exceedingly useful to orient the male into exactly the proper position. And while it thus guides the male it probably also stimulates the female to hold herself in readiness for the male.

We have admitted that there is this much truth in Darwin's fundamental thesis: that the very beginnings of expressive movements are not expressive, or not merely such. If we trace back an expressive movement far enough, we find that it arose out of some-

⁷ See footnote No. 2.

thing else. But we would now add that this thesis, although true, is not of great importance for psychology, and it has not the special significance which Darwin supposed. It is not a new thesis, distinguishing the evolution of expression from any other kind of evolution. Indeed, so far as this fundamental idea is true at all, it is merely a restatement of the idea of evolution itself. Just as legs developed from fins, and wings developed from legs, and a hand developed from the fore-foot, — so expressive movements arose out of something that was not such. But the evolutionary progress of the pigeon's wing at the present day depends upon its efficiency as a wing, not as a foot. Similarly, the evolutionary progress of the male pigeon's instinct to "bill" depends upon the efficiency of this act as a stimulus to himself and to the female, and does not now depend on the fact that it formerly (perhaps) served to feed the female.

4th. A fourth reason for Darwin's error lay in the fact that in the human species the natural forms of expression have been largely supplanted by conventional language. When we communicate with each other, we tend to give all our attention, both when speaking and when listening, to the words used, and we thus fall into the egregious blunder of supposing that the "mere" expression of face and voice is of no importance. Darwin was especially exposed to the danger of this mistake because he was an Englishman, for the English tend to do away with all conspicuous gestures. And English psychology, especially that of his day, tended to neglect the margin of consciousness. But all our recent studies in psychology recognize the importance of the slightest movements, or even mere tendencies to movement, and show us that these, although in the margin of consciousness, or even unconscious, are nevertheless of the utmost importance.

5th. The fifth reason for Darwin's error is closely related to the fourth. It is this. He supposed that if any movement is developed as expression, it must be voluntarily used for that purpose, the agent having a perfectly clear and intelligent grasp of the purpose. This is brought out especially in his treatment of his second principle, that of antithesis. This principle, rightly interpreted, is, I believe, one of the most important in regard to the evolution of emotional expression. The dog when friendly wags his tail, even wags the entire hind part of his body, and in every other way acts in a manner as contrary as possible to his manner when hostile. The reason for this is that his signs of friendship are thus most easily understood, can be understood even at a distance, and make the quickest and most desirable

impression on the friend toward whom they are directed. What is true of this expression in the dog is true of a host of expressions in many animals. Darwin saw all this — but then he went on to say that this could not be the explanation of the evolution of such expressions because the animals are not intellectual enough to reason out the principle of antithesis and (p. 62) “deliberately invent” such signs! To us, Darwin’s thought here seems very strange; it is part of the extreme intellectualism of the school to which he belonged, which is very foreign to our ways of thinking. I trust that no reader nowadays will think that I am guilty of the absurd intellectualism which Darwin supposed to lurk in every psychological view of animal expression. I am defending the view that expressive movements have evolved as such because of their meaning; and antithetical movements have evolved for antithetical meanings, because the antithesis in the expression gives it the greatest efficiency. But I do not for a moment suppose that the animals understand these things and “deliberately invent” them.

6th. The sixth reason for Darwin’s error is one which is not so obvious as the other five. Yet it will be obvious, I think, to any one who has ever really become acquainted with a dog, or other pet animal. It is this. Darwin did not sufficiently realize what a wealth of meaning there can be in the expressions of an animal below man. This again is not a criticism of Darwin individually, for he shows that he understood animals deeply — far better than most men do. But no man yet has any adequate conception of the emotional life of the animals below man. Darwin’s book is, for a work purporting to deal with the fundamental principles of the evolution of emotional expression, too closely centered upon man. For the purpose in hand it would have been better to have centered the book upon some other animal. For instance, in all the book there is nothing to tell us satisfactorily why a pigeon coos. Inadequate understanding of the infra-human animals is revealed in the statement made on page 10:

“No one, I presume, would be inclined to admit that monkeys have been endowed with special muscles solely for exhibiting their hideous grimaces.”

That Darwin could express his thought in such terms shows that he himself was not sufficiently an evolutionist. He could not altogether escape the prejudices of his age. He did not sufficiently grasp the fact that the expressions of the lower animals have the same sort of importance for them as our own means of communication have for

us, and thus he failed to see that the basis of the evolution of emotional expression in all mammals and birds is psychological. But even in our day, the psychology of emotion in animals has hardly been born. I have touched upon this point above (page 359), and also in my other papers, and must not dwell longer on it here.

Before closing, it may be well to point out a larger aspect of the trend of thought presented in this article. The criticism of one book, which has been presented, is part of a larger criticism which might be directed against the whole of the latter half of the nineteenth century. The task of that age was to work out a theory of evolution and convince the world of its truth. This prodigious task it accomplished with marvelous efficiency. But in so doing it unduly exalted certain biological theories and unduly neglected psychology. It is necessary for us now to reverse that maladjustment and to free psychology from the undue domination of biological speculations. Darwin rejected the psychological explanation of the development of emotional expression, claiming that only the physical, mechanical, biological explanations are scientific. We must reverse that, and say that the utility of expression, which governs its evolution, is a psychological, not a grossly physical utility.

THE QUEST FOR OBJECTIVITY IN THE STUDY OF HUMAN PHENOMENA

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NEW YORK

IF the path of wisdom has led from the more exact to the less exact sciences, and if, as Poincaré says,¹ man's early success in predicting the courses of the heavenly planets alone encouraged him to attempt more hardy adventures with his puny reason, should we then be petulant over the small measure of objective truth that attends our latest intellectual endeavors? Truth and objectivity are not necessarily identical in meaning, for besides the truth that is objectively demonstrable we also conceive of the truth that is intuitively understood. Thus an intelligent man may understand the psychological mainsprings of an individual's character without being able to demonstrate the truth of his understanding to a third person. The truth in this instance is grasped through analogy with one's own conscience, and is subject to the refining process of the reasoning intellect. This truth differs from the so-called objective truth only by the larger place left to what engineers call the "human equation," for not even the most objective truth attains the mark of one hundred per cent objectivity.

The school of behavioristic psychology, instead of frankly recognizing psychology as a subjective science, has undertaken to apply to the study of the human mind the objective methods of the laboratory which have proved so successful in the natural sciences. In so doing this school has necessarily limited its work to the observation of the external manifestations of the individual's activity. Now while theoretically it may be possible to constitute by this method a complete science of psychic phenomena, yet in practice so many facts are bound to be lost and non-observed as to render the method both incomplete and fallacious. In the early days of chemistry the absurd theory of phlogiston was invented to interpret and explain the new phenomena of gases which had then been discovered; this theory was quickly thrown into the discard when new facts were found which would not fit the old conception. But in behavioristic psychology we may find ourselves inventing phlogiston theories without much possibility of overhauling them by subsequent observation. For how

¹ H. Poincaré: *La valeur de la science*, ch. on astronomy.

long will it be, for instance, before we shall be in a position to make a precise and objective definition of the normal and the abnormal in human conduct? And without this keystone definition of so vital a subject how can any solid scientific structure be built up by the purely objective method?

In many ways more modest than the American and British schools of psychology, the French psychologists recognize the actual limitations of their science. Professor Janet believes that "a good collection of monographs and memoirs on special points might be the best service that psychology can render for the moment."² It is also his opinion that introspective psychological explanations are better than none. And in fact the entire French school is ready to accord a prominent place to introspective study. "Without it," declared Ribot in one of his last writings, "nothing can be commenced; with it alone nothing can be finished."³ According to Rauh, psychology must not aspire too soon to explanation by fundamentals nor to any comprehensive theories which would of necessity remain too abstract and too general. He also issues a warning against physiological interpretations, holding that "the description and concrete explanation of the psychic reality, taken as a whole and not decomposed into psychic or organic elements — which are most often hypothetical — is the surest method,"⁴ at least for the present.

Possibly the extraordinary scruples of the French psychologists are to be traced to the contact of these men with the other schools of contemporary French philosophy — in France psychology is regarded distinctly as a province of philosophy — particularly with the sociological group led by the late Emile Durkheim and M. Lévy-Bruhl. This school began its work in the nineties as a reaction to what it considered the excessive pretensions of the psychologists, and sought to constitute the notion of society as a positive reality capable of scientific study. It was an attempt to transfer the objective quest from the field of psychology to that of sociology. So successful were the initial efforts of this school that at one time it constituted the most vital force in French philosophy, drawing to itself a large host of young and enthusiastic students.

The researches conducted by this group of thinkers have shown the fallacy of studying the individual isolated from his social frame-

² Quoted by Parodi in "La philosophie contemporaine en France," p. 89.

³ *De la méthode dans les sciences*, vol. 1er, *La Psychologie*, par Th. Ribot, p. 235.

⁴ *Revue de Métaphysique et de Morale*, 1893, p. 502-505.

work. These men have gone even further and have attempted to prove that everything which we customarily regard as individual is social in its origin — from the language which one uses to develop his thought as far as the promptings of the individual conscience, held to be formed by social pressure. Both Durkheim and M. Lévy-Bruhl have insisted that the collective conscience is more fundamental than the individual conscience, which is really but a reflexion of the sociological organization of the collectivity. By affirming that all human phenomena have social causes, the sociological school makes them appear relative to the form of society and variable with it. Such a conception, in the view of an eminent French critic, M. Parodi,⁵ tends to undermine our confidence not only in religion but even in logic and the very power of reason itself. For it is one of the achievements of M. Lévy-Bruhl⁶ to have shown the existence of a mystical and prelogical mentality among the savages, a mentality which does not obey many of the most elementary principles of thought as it is organized in civilized society.

The method of the sociological school, very fecund in its results at first, has gradually exhausted itself by virtue of its inner contradictions. Under this method the authority of the individual conscience is abandoned in favor of the representations of the all-powerful collective conscience. But how are these representations derived? The answer of the school is vague on this point and contents itself with describing the representations as the expression of the sociological organization of the social group at a given period. When the institutions change, the collective conscience evolves, says M. Lévy-Bruhl,⁷ using this term as a specific reality. But critics have not been wanting to question the real existence of this collective conscience. Institutions, morals, laws and customs exist, they say, but it is only by philosophic abstraction that we can declare them to be the expression of a hypothetical group conscience. Nor is this argument easy to refute.

With the death of Durkheim, the sociological school lost a great part of its prestige and driving power. Since the war only one book has come out bearing the stamp of the school — a treatise on responsibility, considered from its objective and legal side by Paul Fauçonnet. Otherwise there has been a marked tendency on the part of the rival

⁵ *La philosophie contemporaine en France*, p. 152.

⁶ *Les fonctions mentales dans les sociétés inférieures*.

⁷ *Ibid.*, p. 440.

schools of psychology and sociology to get together on many points. The comprehensive symposium on social psychology and sociology, organized two years ago by the *Journal de Psychologie*,⁸ revealed the decreasing gap which now separates the two groups of theorists. In these articles, prepared as they were by the most eminent minds in their respective fields, there is a common recognition of the futility of applying a single method to the study of human phenomena.

Most illuminating is the paper by Professor Seignobos on the use of the psychological method in sociology. He couples the attempt to found a sociology uniquely based on the external observation of social facts with Marx's economic interpretation of history, and considers both as "a legitimate reaction against the abuses made in the nineteenth century of the method of spiritualist philosophy and literary studies. . . . For not only the individual cannot live isolated from society, but his individual activity is itself the product of the society in which he lives; it is society which furnishes him the contents of his mind and which even fashions the mechanism of his intelligence: the individual facts revealed by the consciousness suffice to explain neither the conduct nor even the contents of the consciousness of the individual; aside from the action of the inconscient or semi-conscient phenomena of the individual himself, his acts and his thoughts depend upon the action exercised upon him by other individuals."⁹

Professor Seignobos refuses to entertain the idea of a collective conscience or consciousness. The only conscience we know, he says, is the individual conscience; by analogy with our own we learn to appreciate what passes in the consciences of other individuals. The method of analogy is the method of introspection, and it is obviously incomplete. Equally incomplete is the objective method, for two human acts may be externally alike but different in their significance, which naturally depends upon the distinct values attached to them by the individual conscience. Faced as we are, therefore, by the dual, hybrid nature of human phenomena, we are asked to study them by an alternating method, half objective, half subjective or psychic. By this method we are "to pass constantly from the material world of facts into the psychic world of the consciousness and vice versa. . . . "This alternating attack, without analogy in any science, will be repugnant to men habituated to the homogeneous methods of the

⁸ No. 6-7, 1920.

⁹ *Ibid.*, p. 496.

natural sciences. Its aspect has not the rigor of science, and yet it is a rational method, for it adapts itself to the special conditions of its object; if it is hybrid it is because our social life is hybrid. It is even scientific in so far as science can be only reason extended and perfected by reflexion and technique. . . . It does not permit the positive prevision of the future, it does not show the only way in which facts will follow, but it permits negative prevision by indicating the ways in which they cannot go. And above all, it alone can make comprehensible the general mechanism of society, because it can alone explain the processes of contact, co-operation and transmission among the individuals who constitute it."¹⁰

The dual method prescribed by Professor Seignobos for the study of sociology lends itself to psychology as well. Introspection, we have seen, is regarded by the French school as the essential base for any kind of psychological research. If this view is accepted, it means that psychologists, too, must employ the "alternating attack," combining objective experimentation with subjective interpretation in the light of their knowledge of their own individual psychic activity.

But this is not all. The work of the sociological group, one-sided as it has been in many of its conclusions, presents nevertheless a challenge to the accepted premises of psychology. This challenge is clearly formulated by M. Davy, a disciple of Durkheim, in an article printed in the symposium of the *Journal de Psychologie*, to which we have already referred. "We cannot be satisfied," says M. Davy, "to postulate either as an hypothesis or as having evolved out of simple animality, a *human nature* comprising a certain number of unchangeable fundamental emotions and concepts; we must explain this human nature itself, and we must explain it as a function of the social milieu to which it adapts itself. It is from the sociological point of view that we must constitute a psychology of emotions and a psychology of the understanding."¹¹

In concrete terms the sociologist's warning amounts to this: the psychologist must not consider as elementary that which is the product of social education. He must recognize that the psychology of the individual is formed by the pressure of physiological necessities on the one hand and by that of the social group on the other. The physiological necessities are both fundamental and relatively stable. The social environment continually changes under the influence of

¹⁰ *Ibid.*, p. 513.

¹¹ *Ibid.*, p. 552.

material conditions and the psychological contributions of the individuals of the group.

From one point of view we should simplify the study of both sociological and psychological phenomena if we adopted the idea of a collective consciousness — the esprit de corps of the group as a real thing. But the gain for objectivity would be more than offset by the philosophical complications resulting from our hypothesis. When we grant the reality of a collective consciousness, as the extreme French sociologists insist, we are adding a third form of reality to the two already known, *viz.*, objective reality and individual psychic reality. The last two have by themselves given birth to endless philosophic controversy concerning the relation of the mind to the body, but the new form of mind proposed is even more mysterious than the consciousness of the individual.

Rather than have to resort to collective psychism, a number of psychologists in France, including the late Gabriel Tarde, have sought to constitute a science of interpsychology, embracing the phenomena of the interaction of individuals one upon another.¹² This science, which is practically nothing else than a new name for the recognized phenomena of suggestion and imitation, can offer but little light on complex collective manifestations such as language and religion. The ideas of suggestion and imitation form the base of the crowd psychology of the American and British schools. This attempt to treat a crowd behavioristically and to seek in it the key to social psychology is ill-advised. The influence of crowd suggestion upon an individual disappears very quickly after he has left its ranks and has taken up his usual occupations; furthermore, sedentary individuals who have never mingled in crowds possess a socialized psychology just like the rest of us.

The psychologist has to rely upon an imperfectly-objectified sociology, such as has been sketched by Professor Seignobos. The sociologist in turn, who must interpret his sociological facts by the psychological method, has to take his psychology largely as a matter of intuition and introspection. The two sciences overlap in more than one field, so much so as to raise the question whether a new name should not be found to express the synthesis of human psychic activity stretching from the physiological to the social. The two extremes can be studied objectively, for they deal with material facts — the human organism and the human institutions. Somewhere in the

¹² Cf. *Ibid.* article by G. Dumas: *L'Interpsychologie.*

middle of the arc stands our introspective consciousness, a tool that is invaluable for the special nature of the psychic sciences. With its aid we have already been able to understand the general phases of our mind activity, and we still can do more with it.

This does not mean that we should despise the objective methods of the research parties working up from the two extremes. We ought not even to abandon the hope, illusory as it may prove to be, of some day reducing this whole field to objectively classified knowledge. But we must beware of false objectivity, of ingenious mechanical hypotheses which do violence to our introspective imagination. We must at all times be able to check our results from all three points of departure.

So far from our psychic activity proving refractory to the methods of science, the study of human phenomena is now seen to be the very crown of our scientific research, profiting as it does by the accumulated results and by the perfected technique of the previously developed fields of learning.

THE PROBLEM OF THE INDIVIDUAL

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THE problem of the individual is of long standing. It is the center of so many human interests, is bound up with so many other problems that it very early forced itself into the foreground of philosophy. Far back in Hindu thought one finds the thinker returning again and again to the problem of the self. He tirelessly ponders its mystery, and subtly sifts experience for a clue to its underlying principle. The history of philosophy contributes much that is significant to the study of this problem. The journey from Plato to Royce and Bosanquet is indeed profitable to the student who is interested in the many phases of what is now known as the problem of the individual.

The problem, of course, may be approached in many ways and be treated upon many levels. I am convinced, however, that no discussion of the problem today is complete without recourse to the data of psychopathology. In the study of the causes that tend to produce a disintegration of the self, some light as to what its principle of synthesis should be found. The disruption of a self is the result of enfeeblement of some bond. What the nature of this bond is should come to light in the study of cases of disorganization. Further, the development of incipient centers, the formation of various types of selves should reveal the presence of some constant factor.

By virtue of some innate ideational or cognitive structure, it has been claimed, the self is one. Its unity is, therefore, the result of a logical necessity. The thesis of this paper is that, in a larger measure than is generally recognized, barring the psychiatrists, the unity of the self is conditioned by the affections.

Descartes' *cogito ergo sum* is the classical statement of the rationalistic solution of our problem. Since that time rationalism has been forced to give much ground. So discredited has it become in certain quarters that the term "rationalization" has come to mean self deception. Such a statement, of course, does not pretend to be an adequate disposition of the rôle of reason. It probably has, however, a wider application than is generally conceded. B. Russell has recently characterized most philosophy, his own mathematical realism excepted, as dream projections. Metaphysics, according to

Russell has been largely devoted to "rationalizing" the world, giving it a suitable appearance. And Dewey asserts in his *Reconstruction of Philosophy*, p. 26, "that under the disguise of dealing with ultimate reality, philosophy has been really occupied with values embedded in social tradition." Everywhere today, the older rationalistic assumptions are being broken down. Reason is now seen as the instrument of life — not its essence. Darwin has made the approach to man biology, not theology. Biological considerations have pushed the feelings and instincts into the foreground, and have given them new meaning. The hidden and obscured forces in human behavior and experience are being brought into view. These have often been obscured by convention and theory. As Dewey has noted the meaning of experience is no longer derived from the attitude of passive contemplation. Such an attitude was the result of the idea that man's environment was unchangeable, something merely imposed. It was this assumption that led the Stoic to hold the feelings and emotions as pathological, something foreign to his "true nature." His real nature was to be found in the exercise of a contemplative reason. And this view is not essentially changed by philosophy until its absorption of biology altered its psychology and its logic. Organic needs and ends are no longer considered unwelcome intrusions, distracting man from his proper concerns and preoccupations. To a large extent they determine his nature and define his ends.

Such is the general setting which our problem has today. It provides the approach to that problem, namely, what conditions or determines what we call an individual? Before proceeding with the problem two comments are in order. The first is that there is an old doctrine that what is real must, in some sense, be individual. This very old feeling expresses the element of truth in all realistic philosophy. And if realisms, old or new, seem inadequate to some of us it is because they fail to make clear what is involved in individuality. Idealism has always drawn its strength largely from this defect in realistic theory. Hence any discussion of this problem has general philosophic significance. The second comment is less generally recognized but for our context is, it seems to me, even more important, namely, that individuality is a matter of degree, and that when the term is applied to selves or persons this fact should be kept in mind. In other words, the term describes a tendency rather than an accomplished fact. Human life shows a tendency in the direction of individuality, a tendency that may be arrested or checked or even disintegrated.

Put in biological terms the idea is, perhaps made clearer. The organism, at this stage of its development, is, to some extent a plurality of functions or organs rather than a perfectly integrated unity. The work of synthesis is by no means complete. That the human organism has gone far with its task is true, but that it is short of its goal is a significant fact, and one that often throws much light upon some problems in regard to its behavior. And much of what it has won may be lost, with the result that, at such times, it is more helpful to view it as a plurality of competing and rival functions than as a unit. Just so, in psychological terms, what is called a self is always an ideal rather than an accomplished fact, an ideal that is in various degrees approximated but never attained. The term never reaches what is actually found, and all too often blinds us to the real facts. And when institutions and laws are built upon the implications of the term, as such, injustice is, often, the inevitable result. Let it be repeated, then, individuality stands for a tendency. And further, it is a tendency, in this case, of a psychophysical organism. The problem, therefore, can be approached from either the physiological or the psychophysical point of view. Since, however, man is a psychophysical being any analysis in terms of either point of view, will, of course, be partial and abstract. The preference for the psychological approach is based upon the fact that, at present, analysis can be carried farther in its terms, and to my mind, there seems no reason to believe that this will not be true for some time to come.

I am reviewing the problem under the stimulus of a contact with a number of cases of dissociations, cases in which the individual has been, in various degrees disintegrated.¹ Such data gives a concrete setting to the problem, and cannot fail to create a fresh orientation. I believe that an intimate acquaintance with phenomena of this nature quickly leads to misgivings as to the adequacy of traditional rationalistic interpretations of the self and its structure. Once conscious of the actual conflicts of human behavior, normal and abnormal, the futility of any abstract metaphysical principle or noetical unity is apparent. Individuality, in view of the actual lack of correlation, cannot be deduced facilely from such hypothetical entities. Such deductions with their overhead principles, assume as innate and structural a fact that often does not exist, and in so far as it does

¹ *A Divided Self*, JOURNAL OF ABNORMAL PSYCHOLOGY, vol. xiv, No. 4, pp. 281-291. *A Subconscious Phenomenon*, Ibid., Vol. xiv, No. 6, pp. 369-376. *Patience Wohrt*, The Psychological Review, Vol. 26, No. 5, pp. 397-407.

exist is a result rather than an a priori possession. These rationalistic assumptions have little relation to concrete behavior. Further, they presuppose what we shall have good reason to deny, that organization is primarily due to cognition, that synthesis is essentially the result of the cognitive element.

In cases of dissociation vital constellations may be observed to form within the frame or scope of the minds' abstract or general ideas. A latent complex emerges, becomes active, and a new determination is given to the formal cognitive background. Something has happened that lights up and vitalizes certain aspects of the abstract whole. Something has reached out and touched certain possibilities and they have become living tissue in a vital organization, whereas before they lay, pale and impotent. What is it that has quickened them into life, that has drawn them out from their impotent and empty generality? The intellect is powerless to give definite content to its own abstractions. Any experience as construed by it includes the possibility of an indefinite number of selves. Being without preference it has no disposition to realize any particular possibility. Its neutrality holds it to bare generality.

It would appear, therefore, that the intellect, as such, cannot provide a clue to this strange alternating of selves. The dislocating factor must be sought elsewhere. In fact no organization of experience is ever the result of reason alone. That the contrary could have been assumed is due to the fact that in making a synthesis reason is prone to hold that it is the result of an objective necessity. Reason may provide possibilities but their organization awaits upon the adoption of a given end. It is the end that determines how experience shall be organized. It is the end that reaches out and calls into life what is implied in its realization. That which does not enlist in the service of the recognized end is without power to make its claims felt.

In observing the transition from one self to another (I have in mind cases of dual or multiple personality) one is conscious of a shift of ends or system of ends. In addressing the new self you are confronted by a new set of presuppositions, at the heart of which will be found, as their generating cause, a new group of impulses or desires. These impulses engender an atmosphere of feeling that warms and illumines the world in their own peculiar way. They light up and warm into life what is congenial to them. About them is built up such a constellation of elements as is implied in their realization.

Withdraw them, as they are withdrawn when the self is displaced by another, and the constellation disintegrates and disappears. What was plausible now seems unreal. If pressed its validity may be conceded but since it leads the way to no desire the will is left cold.

All of this may be said, also, of the normal individual. Formal admission followed by actual repudiation is common enough. In the behavior of a dissociated group or personality, however, it is an outstanding characteristic. It is so obvious that it cannot fail to be instructive. It brings unmistakably into the foreground the fact that it is some community of feeling that, in the last analysis, determines what associations are formed and how stable they will be. Some form of sympathy binds particular processes together, and some common bond of feeling is the condition of any wholeness or unity in a given experience. In some community of purpose, therefore, we shall probably find the principle that determines what is individual.

The study of the causes of dissociation tends, I believe, to confirm the above statement. Always there is found some deep seated emotional conflict. Tendencies that are apparently irreconcilable press their claims. In this conflict each elicits all the associations that are congenial to it. If the nervous system has a high degree of stability the strain may be borne. As with the British political life strong conflicts occur but they do not disrupt it. A common tradition weathers the shock. But if an instability exists the strain, in time, undermines the integrative forces. The way out is the way that life, in its evolution, so often takes when incompatible tendencies appear together. A bifurcation, or division takes place. This reduces the tension, as when two occupants of a room finding themselves hopelessly incompatible agree to occupy it alternately.

Now these alternating selves are incompatible for the same reason that individuals may be socially or conjugally incompatible, and that is that their emotional life is discordant. Difference in thought as such does not arouse antagonism. It is contrary currents of feeling that produce friction, some divergence of impulse and instinct. And this is true of relations between individuals and between processes that fall nominally within one.

If, then, discord can be thus explained, if it is, fundamentally, a matter of the will (the term is here used in the broad sense), we have found, it would seem, the principle of individuation. Since, however, the will turns out to have been, originally, a group of diverse instincts the problem becomes one of understanding how, out of these diverse

tendencies, a synthesis can take place. Such a synthesis, we have now seen, must itself be in terms of the will, that is, affective tendencies. Only through some inclusive desire can an organization be won.

Now the distinctive thing in our effort to answer this problem is the rôle that is attributed to the affective element in all organization. Pathological cases provide a convincing analysis. There the different systems of ends become sundered into more or less distinct selves, and the sundering is due to the weakening of affective bonds. It will be apparent that what has been said is in line with McDougall's emphasis of the instincts as the primary source of motivation, and, in particular, his discussion of sentiment. I accept his position that the basis of human behavior is to be found in the instinctive responses. More recently Rivers in his 'Instinct and the Unconscious' has adduced striking proof of the significance and truth of this thesis. He has shown that most of so-called disorders are due to a lack of adjustment between the instinctive mechanisms, the substructure of experience, and its later acquired rational or social controls. Upon the fusion and harmony of these two factors, the given and the acquired, what is called normal behavior rests. Rivers is interested in explaining special disorders in terms of such conflict, and the consequent effort of adjustment. It is true, however, that these two factors, the various inherited mechanisms and the later acquired controls, make up the structure of the individual. There is a basis, and there is an acquired superstructure. Our problem is largely to determine what is the character of this superstructure and how it is related to the given and various instincts.

The emotions, as such, urge only the claims of their respective instincts. They rise and fall as the several instincts press their claims and reach their goal. In themselves they afford neither permanence nor order. Emotional responses are without fixed attitudes, nor is there in such responses any concern for the interest of life as a whole. It is obvious that upon this level there is nothing that is worthy of the name individual. Not until experience possesses a permanent structure is it the expression of a self. Now such a structure arises with the formation of sentiments. As sentiments are formed experience acquires order and permanence. How much order will depend upon the nature and strength of the sentiment. Even hate establishes some order. In imposing itself upon behavior it acts as a regulative principle. Adams in his discussion of the self places a similar construction upon the rôle of sentiment. "To say," he asserts (Idealism

and the Modern Age, p. 209), "that the self is something of a total, enduring structure is but to carry out the insight which results from the very necessary distinctions between emotion and sentiment."

It is, then, to the fusion of emotions with ideas forming sentiments we turn for light on our problem. That problem has now reduced itself to the question as to how the given and diverse tendencies can be brought under the organized control of an acquired disposition or attitude. The term sentiment is here used as Mr. Shand defines it, as "an organized system of emotional tendencies centered about some object." It stands for a relatively enduring complex of dispositions focalized about an object, idea or ideal.

Experience, to be individual, must be organized and stable. Now, unlike an emotion, a sentiment is a more or less permanent disposition. Its significance extends beyond its existence as an immediate experience. To have a sentiment means more than to be experiencing, just now, a particular group of affective states. It means, and this is the point, that future responses, of a specific character, are already prepared. It is thus that the self is prolonged into the future and acquires a being that cannot be compressed into a cross-section of its experience. A structure is formed that predetermines experience, and thus assures it that continuity which characterizes the individual, and for which we have been seeking the ground. This structure of sentiment, it is, that binds the various moments of experience together, and provides the frame that insures the self against the sporadic claims of impulse and the emotions. "It is only," says McDougall, "through the systematic organization of the emotional dispositions in sentiment that the volitional control of the immediate promptings of the emotions is rendered possible." (*Social Psychology* p. 44.)

I have said this structure predetermines, in a measure, experience. It is worth noting, and here I touch upon a point well argued by Adams, that it is never wholly revealed in experience. Experience uncovers now this, and now that portion of the self's total structure. So fragmentary is consciousness that most of the self is, at any one time, hidden from view. Consciousness plays over its surface but is not identical with it. More problems, I recognize, are involved here than the one that immediately concerns us. I have in mind especially the non-temporal aspect of such a structure. We are only concerned with the part that sentiments play in its erection, and this part, we have seen, is a vital one. In that they control not only the

experience of the present but the future also, they erect it. Further, since they are not given but acquired that structure is no mere resultant but embodies a measure of choice. To think of the self as a whole as a product is, obviously, to fail to make the important distinction between the emotions and the sentiments, and their respective contributions to its organization.

When observed at work within experience sentiments are seen to be so many vital systems, so many forms of sensitivity. Each animates all that touches it, and as a man moves from one region of experience to another these established dispositions operate as controls. Ideas that do not find themselves within any of these systems are impotent. They are without influence on conduct. Hence, in so far as education fails it is due to the fact that it has not established just these affective attitudes or dispositions. Getting acquainted with a man is really the problem of discovering his sentiments, their character and strength, the rest follows. And unless these have been caught both his thought and action are unintelligible.

Thus we see how a higher, more inclusive and permanent type of response may be erected upon the basic material of instinct. The plasticity of the instinctive mechanisms make such a superstructure possible. So plastic are they that their allegiance may be won to many ends. Without becoming less basic they are sufficiently malleable to conform to the demands of the acquired types of response. Their incorporation in a larger organization requires, however, that that organization be affective in character, and this the sentiments are. In fact a sentiment may surpass, in intensity, the primary emotions.

But a group of sentiments obviously leaves us this side of individuality. As such it provides only loosely federated systems, between which all degrees of conflict may arise. And dissociation may be due, although this is less common to a conflict of sentiments as well as a conflict between instinct and sentiment. However, that such an acquired complex disposition can be formed, and can dominate and qualify innate tendencies are significant facts. For if such tendencies can be organized the way is open. Once having released itself from the tyranny of instinctive responses experience is free to fashion its own structure. By freedom we mean it can now mould those responses about ends that have been selected. That which is built or acquired is secure only when it is re-enforced by those responses, when they find in it opportunity for expression. The danger of any

form of so-called spirituality which is based upon repression is now well known.

I return to the statement that when innate types of response are modified by sentiment experience is prepared to become individual, has already made a step in that direction. While this change implies the appearance of idea it means more than that. It means that a new type of affective organization has been formed. From this point on in the development of the self nothing will be found that is essentially new in principle. That development consists in the establishment of more inclusive systems of response and the unification and solidification of those systems. The term individual anticipates the completion of that process. It presupposes an affective solidarity, beneath which would be found a thoroughly integrated structure. All responses would then be whole responses, every act a representative act.

The ultimate organization of experience, therefore, demands an all inclusive sentiment, or such a one as would dominate, and in turn be re-enforced by, all others. The existence of such a sentiment would suffuse all experience with a common feeling, and as a permanent disposition it would afford an inclusive control. But even granting that various affective systems can only be welded together by some master sentiment there remains the further problem of discovering just what that sentiment must be. We have seen that it must be inclusive, and therefore highly complex, but such a statement still leaves its exact nature undefined. This fortunately, is not our problem. We have been interested in analyzing experience with a view to determining what psychological elements are to be found in its structure, and, in particular, that portion of its structure that is acquired.

If our analysis is sound we have before us the general nature of those elements which condition experience as it becomes individual. Those elements are more living and vital than what is generally understood by the term idea. They are more continuous with experience than are ideas, as such. And it is because of this fact that they can provide its tissue, and organize its processes. When we turn to psychopathology and study cases of disorganized personality these are the elements that are found to be affected. There is now a pretty general agreement as to what such a condition implies. I give the words of Dr. David Forsyth, a man of wide experience in dealing with such cases. "There can be no reasonable doubt" he says "that neuroses are essentially disorders of the emotions." *Psycho-analytical Review*, vol. VIII, p. 117.

It may be said that in relying upon sentiments to unify and stabilize the emotions ideas are pressed into service, and that they, in fact, organize experience. It is true that ideas are essential but only such as are felt ideas. Among ideas that which distinguishes the quick from the dead is that through the former an affective current runs. And it is to this affective current that the idea owes its power and influence.

I believe that most attempts to understand what it is that actually organizes experience have failed to appreciate the function of feeling. It has been my contention that the solidarity of a life is due, primarily, to its emotional concord, and that this is achieved by such a selection of sentiments as renders this unison possible. The hope, therefore, of individuality rests upon the discovery and creation of some master sentiment, the triumph of which is without repression.

PSYCHOMETRIC TESTS IN ESSENTIAL EPILEPSY

BY WINIFRED RICHMOND, PH. D.

ESSENTIAL or idiopathic epilepsy, by which is meant an epilepsy that is referable to no organic lesion, is defined by L. Pierce Clark, the leading epileptologist of this country, as a "life reaction disorder." (1) In such cases the characteristic features or mental stigmata are present in a more or less marked degree from birth or early childhood, and are but little affected by the presence or absence of the seizures. The epileptic is a psychopath whose psychopathy manifests itself in a hyper-development of the ego, an extreme super-sensitiveness, marked emotional poverty and a rigidity of ideation and mentation. Psychometric tests are of value in epilepsy in giving us a mental level and in indicating the presence or absence of deterioration and its degree. The writer feels that they ought also to give us some indication of the presence or absence of the characteristic stigmata, to show some distinctive features of the "great disorder," which might help us to determine its presence when the history of seizures is vague or perhaps altogether wanting, as frequently occurs with the younger cases.

In a consideration of tests from this standpoint we find ourselves not so much concerned with the distribution, that is, the scattering of responses through a number of years on an age-level scale such as the Binet, but with the character of the individual reactions and with the mental and emotional attitude of the subject during the examination.

The following studies, extending over a period of several months, were made upon a carefully selected group of epileptics in the Wyoming State Training School. Only essential epileptics, those who had shown the mental stigmata in greater or less degree since early childhood, were included. Though the cases are few, they range from the greatly deteriorated, at the lowest point where it was possible to get repeated testings upon them, to those deteriorated little if at all. The psychologist was in daily contact with each case, and had an excellent opportunity to observe improvement or the contrary in conduct and general mental condition, and thus to check up the test results by clinical evidence.

Case No. 1, John, aged 25, has been 6 years in the institution. He has had the seizures since the age of 5, but held his own fairly

well until late adolescence. He then became so quarrelsome and irresponsible that he had to be placed in the institution. He is now deteriorating very rapidly. On the Stanford Binet his mental age is 6 years 10 months, the distribution ranging from the 4th to the 8th years inclusive; his highest test is the comprehension questions in the 8th year. John makes a great effort to comprehend the directions and carry them out correctly, but his reactions are on the childish level. His poor motor co-ordination shows in an inability to copy the diamond, though he does all the other 7-year tests rather easily. He cannot name the 4 colors, nor repeat one of the sentences in the 6th year without error. He is extremely slow reacting, and his attention is so unstable that things have to be repeated to him again and again before he grasps them. His abnormal egotism shows itself in an overweening desire to talk about himself and his own affairs; he can hardly be induced to leave the Laboratory, so enamored is he of the chance to talk about himself. The association test — the Kent-Rosanoff series of 100 words — takes 20 minutes, an average reaction time of 12 seconds, and is remarkable for the number of individual reactions. He gives 26 phrases and 44 words with a frequency value of zero. Perseveration of one idea or one type of response is strongly marked; he gives "short" or "shortness" 19 times. Nine days later, after a severe nocturnal seizure, he gives 52 phrases and 29 zero reactions, many of which are sheer nonsense, though several are associations to a preceding stimulus or response — perseveration in the sense in which Kent and Rosanoff (4) use the term. Three weeks later he is still further deteriorated, though he has had no seizures for several days. His reaction time is lengthened, and there are now 12 words to which he can find no response. He has developed a fondness for the suffix "ness"; he says "darkness," "whiteness," "workness," "cartness," "boyikness," "sleepness," the first syllable usually being an association to a preceding idea.

Case No. 2, Blanche, is 23 years old and has been in the institution since she was 16. The seizures began at 11, but she was always a nervous child and never able to remain in school an entire year. In the Institution she is usually pleasant, but is super-sensitive and suspicious of others' attitudes toward her. She has the seizures during her menstrual periods, though under medication goes long periods without them. On the Stanford Binet her mental age is 8 years, with a basal age of 6 and a range of 3 years above that. But she barely misses a number of higher tests, such as the absurdities,

reading and report, and comprehensions in the 10th year, and the ball-and-field and interpretation of pictures in the 12th year; she is quite evidently considerably deteriorated. She cannot copy the diamond, and fails in counting backward and making change because of her delayed reaction times. She is anxious to please, and keeps asking if her responses are correct. Her work is not nearly so childish as John's, but shows many of the same characteristics; i. e., she is slow reacting, her motor co-ordination is poor, and her interest is not so much in the things she is asked to do as in the examiner's attitude toward her work; she has an abnormal, childish desire for approval. The association test again shows the delayed reaction times, the average being 8.64 seconds. She gives 13 phrases, but aside from this her reactions are not markedly pathological. In 6 subsequent tests she reduces her reaction time but is never able to eliminate the phrases.

Case No. 3, Harry, is an over grown fellow of 15, whose grand mal seizures have been more or less frequent since babyhood. He had a history of quarrelsomeness and truancy, and general incorrigibility at home and school, but gets on fairly well in the institution, except that his lack of interest in his environment makes it difficult for him to remember instructions or to profit much from training. His mental age is 9 years 1 month by the Stanford Binet scale, with a range of 6 years above a basal year of 6. He succeeds on the diamond but fails the design, and though his ball-and-field plan is correctly conceived it is poorly executed. His memory is not inherently poor, but his attention is so unstable that he makes poor use of it; he repeats only 4 digits forward though he does the same number backwards; he can define only 18 words in the vocabulary test, which gives him less than 8 year credit; he reads well, but can recall barely 8 items out of the possible 21. He is indifferent to the test, but wants to talk about himself and his own experiences. The association test shows delayed reaction times, with 2 phrases and 20 zero reactions. In 4 subsequent tests he reduces both the reaction times and the number of zero reactions, though both remain considerably above the normal. He shows marked stereotypy of the type of reaction; on the 5th test 44 reactions out of the hundred are still identical with those of the first.

Case No. 4, Lewis, is also 15 years old. His seizures began at 3 and are of a very severe grand mal type; they occur every 2 weeks except when he is under medication. Lewis is in the main a good-natured fellow, with marked emotional apathy and a tendency to

day-dreaming. His mental age on the Stanford Binet scale is 9 years and 1 month. This is the third Stanford he has had in the last year, and he barely succeeds in the reading selection, fails the design completely, and though his ball-and-field is creditable it is poorly drawn. On the association test his reaction times are delayed and he shows perseveration of one idea, besides several instances of association to the preceding stimulus or response. The next day he had a severe seizure at 11 A.M. and at 3.30 he was given another association test, which shows the same peculiarities in a more marked degree. During the next 4 weeks he had 5 tests, in only one of which he succeeds in lowering his reaction times appreciably, and the last of the series has but 56 different reactions as against 69 on the first test.

Case No. 5, Mary, aged 17, has had petit mal since she was 5 years old, but developed grand mal about a year ago, shortly before being sent to the institution. She has frequent petit mal and an occasional grand mal for several days preceding and during her menstrual periods, and petit mal occasionally during the intervals. At first glance she shows practically none of the epileptic stigmata; she is quiet and fairly good natured, apparently unselfish and not at all sensitive; but she is stubborn, will do petty pilfering, lie until cornered, and has been sexually promiscuous since she was a small child. Emotionally she is still a child, and her rigid attitude of mind is shown in the fact that, though she is quite capable of learning as far as memory and comprehension are concerned, she insists upon doing her household tasks in the manner to which she has been accustomed. Her Stanford age is 10 years and 5 months; the only tests she can do above the 10th year are the picture interpretations and the clock problems, and she misses the absurdities in the 10th year. Her work is childish, not nearly what one would expect from her appearance and manner; during the examination she was self possessed and co-operated well, but was nervous, her voice and hands shaking. The association tests, given at varying intervals over a period of 9 months, show curious fluctuations: the number of zero reactions rises and falls with a fair degree of regularity, completing a cycle in from 4 to 6 weeks. It is highest during the time of the menstrual seizures, and lowest about 2 weeks before that time; ad interim seizures seem to have no effect upon it. This is quite in accord with Mary's institution history; during her menstrual periods the seizures leave her more or less confused and stupid, but in the intervals there are no apparent after effects.

Case No. 6, Harold, aged 13, has been in the institution 6 months. He has had petit mal seizures since the age of 18 months, but they have been very infrequent until within the last year. He has always been an exceedingly difficult child; has been subject to temper attacks — psychic equivalents — in which he was wholly unmanageable at home; he is an egregious egotist, is extremely sensitive to remarks or actions directed toward himself, but has small regard for others' feelings; though he has a bright and active mind, his field of attention is so narrow and his interest in his environment so slight that his general information is quite poor; he reached the 6th grade in school at the age of 12 after repeating the 5th grade. He was sent to the institution only after he became impossible at home. In the institution he has had a series of ups and downs; the seizures have been quite frequent, usually a matutinal petit mal for several days, then a series of 5 and 6 in a day, culminating in grand mal; after which he is free from seizures for a varying number of days, from 3 or 4 to 2 or 3 weeks. During these free periods he is very apt to have the epi-gastric aura. He was tried under luminal, which controlled the seizures but he developed an acute mania, in which he shouted, sang, and swore nearly all the time, and became violent if crossed in anything. When not under medication he is often very unstable, hyper-irritable, and unreasonable, but is amenable to discipline and responds to training. On the whole his conduct has shown considerable improvement since his admission.

By the Stanford Binet scale his mental age is 11 years and 10 months, the responses ranging from the 9th to the 16th years inclusive. His vocabulary is below the 10-year level, and though he reads readily he makes errors and cannot recall enough items for credit. He can repeat 7 digits backward but only 6 forward. He shows no lack in comprehension or in ability to reason when he has the necessary data, but his mental grasp is shallow and his attention is so unstable that he fails on tests that are easily within his ability. His drawings show good motor co-ordination, but the test was given on one of his "good" days; there are other days when he cannot control his movements without exhausting effort. The association test, given on the same date as the Stanford, shows a number of phrases and perseveration of one type of response, and delayed reaction times. During March and April a series of tests was given; he was having petit mal nearly every day, and had one series of 9 seizures in 24 hours, some of them severe grand mal. However, the tests approximate

the norm quite closely, even on the days when his convulsions were most severe. His reaction time is lowered, until it is but little more than an average of 2 seconds, which is as well as the average normal subject can do; and pathological material is practically nil. This is quite in accord with the clinical evidence of his improvement.

Case No. 7, George, aged 24, developed grand mal attacks about 3 years ago. He had had no previous convulsions. The seizures are relatively frequent, but much less so under medication. He was a bright boy, learned readily in school, was not quarrelsome, nor did he have tantrum episodes. He is, however, very egotistic, with grandiose ideas concerning himself, his home, and everything with which he is connected. Emotionally he is quite childish; he has never had a love affair, and is childishly attached to his home and his parents. His Stanford Binet age is 14 years and 7 months, the responses ranging from the 9th through the 18th year. He has a poor vocabulary, receiving only 10-year credit for definitions. He is able to repeat 7 digits both forward and backward; he is evidently a good visualizer, accomplishing the code and the cut design, but he can reproduce only part of the design in the 10th year. Comprehension and reasoning ability are unimpaired, and memory is good; but his attention is poor; he must be stimulated and his interest aroused, and even then he fails tests well within his ability because he overlooks essential factors. He is very slow reacting. Nine association tests, given over a period of 8 weeks, show a progressive decrease in the phrase type of reaction, though the number of zero reactions remains high. There is perseveration of words and phrases relating to himself. His reaction time decreases also, to a remarkable degree; in the first test his average time on the 100 words was 19.52 seconds, and was slightly above or below this for the first 6 tests; on the 7th it suddenly dropped to 3.6 seconds; on the 8th it was 3 seconds, and on the last 3.17 seconds. These last 3 tests were accompanied by a great improvement in his general condition; he soon after left the institution.

DISCUSSION

The foregoing tests have many features in common. Perhaps the outstanding feature on the Stanford is the disorder of attention. In every one of the 7 cases it shows plainly. Not one of them but has to have directions repeated, gets confused and needs extra explanation, fails tests well within his ability because he forgets part of the

aufgabe or fails to notice all the factors involved. Thus case No. 7 reproduces only the first figure of the design, explaining that he forgot to look at the second; case No. 6 reproduces the lines of the code correctly but omits the dots, and cannot recall what he has read because, as he says, he wasn't paying attention, only trying to read well; No. 4 doesn't know the date, "just don't pay no attention to it." Every one who works with epileptics knows this characteristic; its origin is probably not so much intellectual as emotional, i. e., the epileptic's interest in his environment, except in so far as it relates to himself and the satisfaction of his own needs and desires, is slight.

Poor motor co-ordination shows in the drawings, and is greater or less according to the degree of deterioration; only case No. 6 succeeds in all of them. The vocabulary is consistently poor; even cases 6 and 7, from good homes and excellent schools, possess a small vocabulary. Not one of them is specially interested in the test itself, as the normal child or the straight defective is; they are all interested to know how they are doing or what the examiner thinks of their performances, and all are childishly eager for praise.

But the association test is perhaps a better gauge of the epileptic's mental condition; all show delayed reaction times in comparison with the normal subject, and an abnormal number of zero and phrase reactions. The phenomenon of perseveration, either the repetition of one or another word or association to a preceding stimulus or response, appears in all of them. These abnormal types of reaction tend to decrease and the reaction time to lessen as the subject's general condition improves. Several investigators have noted these tendencies as characteristic of epileptic reactions to association tests. Kent and Rosanoff (4) in their monograph report tests upon 24 subjects, in which they found "the dominant characteristic, so far as shown in the test records, to be a narrowing of the mental horizon manifested firstly by a tendency to repeat many times one or another word, and secondly by an abnormally pronounced tendency to make use of non-specific reactions or particles of speech. Occasionally other abnormalities are noted, such as perseveration or distraction." P. 47. The non-specific reactions and parts of speech are relatively infrequent in our material, but only one of our cases shows advanced dementia, and the above mentioned investigators state that many of their cases were of this type. Hahn (3) found lengthened reaction times and a tendency to perseveration characteristic of epileptic subjects, while Clark and Mileau (2) conclude their study of psychometric

tests in epilepsy with the statement that "the degree of perseveration and the length of reaction time are the main criteria for determining the presence and amount of mental deterioration." P. 6.

SUMMARY

1. Essential or idiopathic epilepsy is a "life reaction disorder," with characteristic mental stigmata; psychometric tests, in addition to a mental level and the indication of the presence or absence of deterioration, ought also to give us some indication of the characteristic mental attitude, thus enabling us to suspect the presence of the "great disorder" when the history of seizures is vague or entirely absent.

2. The present article reports the results of the study of a group of 7 essential epileptics, so selected as to range from the greatly deteriorated to those deteriorated but slightly if at all. The Stanford Binet was used, and repeated association tests were made with the Kent-Rosanoff series of 100 words.

3. Disorders of attention show in every case on the Stanford. All have to have directions repeated, get confused and need extra explanation, fail tests well within their ability because they forget part of the *aufgabe* or fail to notice all of the factors involved. Poor motor co-ordination shows in nearly every case, and is greater or less according to the degree of deterioration. The vocabulary is consistently poor, even in the cases from good homes.

4. Interest in the test itself is subordinated to desire for approval and interest in the examiner's attitude toward the subject — an egoistic attitude.

5. The association test shows in every case delayed reaction times and an abnormal type of response, perseveration of one idea or association to a preceding one. These tendencies lessen as the general condition improves.

6. The mental condition, as shown by the tests, bears no essential relation to the frequency or severity of the seizures.

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REVIEWS

PSYCHOPATHOLOGY. By Edward J. Kempf, St. Louis, C. V. Mosby Co., 1920. Pp. 762.

I considered the horns, and, behold, there came up among them another little horn, before whom there were three of the first horns plucked up by the roots: and, behold, in this horn were eyes like the eyes of man, and a mouth speaking great things. Daniel vii: 8.

For its suggestion and stimulation, this book is no unwelcome reinforcement to the firing line of psychopathological progress. It does not systematically cover the range, the author's special interests being in functional, "biogenetic" types of conduct disorder. He now applies, in thoroughgoing fashion, his views of the autonomic functions in their relation to mental maladjustment. The fundamental conception of adaptive behavior is that stimuli cause the autonomic apparatus to react by giving rise to affective processes which in turn stimulate to appropriate overt behavior. The striped musculature is the servant of the autonomic, which has reared it to minister to the autonomic's needs; the god is most literally "in the belly"; the instincts figure as *segmental cravings* the conflict of which is *always* the psychopathologist's problem with the individual case. His definitions of various terms descriptive of instincts and emotions (as fear, shame, love, disgust, grief), are particularly stimulating. One will not be surprised that the mechanism of conditioning plays a large, deservedly large, part in his formulations. His view of hypnotism is based upon it, and very similar to that put forward by Ferenczi. The psychoses are symptomatic of suppression, repression and dissociation of segmental cravings, caused by fear of the cravings; the maladjustment of which makes the "vicious, secret intriguer, the pathological liar, the drug habitu , the shyster," etc.

The reasonableness of a hypothesis that these conditions arise through instinctive conflict is not in dispute, but the question may fairly be raised of how fitted the autonomic system is to bear the interpretative load that Kempf puts upon it. Do the postural tensions present any specially coercive percepts to consciousness? Rare indeed is an emotion carrying the organic discomfort of a healthy, active boil. Psychology has somewhat overlooked the point that the "mysterious universe of moral suffering" is relatively independent of sensory concomitants. The stress which Kempf lays on this, though under a different formulation, is not the least fortunate of his contributions. One must agree with Kr epelin, that mental pains are, regrettably, more intense and lasting than mental pleasures. The sensibility thereto is variable, but seems more evolved among the more complex civilizations. Their intensity is certainly of no inferior order to that of physical pains, and the physical hell has not unreasonably been largely abandoned for one of mental suffering. In such cases the organic involvement is not imperceptible, but it is trivial.

There are other points which seem to make autonomic reactions unsatisfactory vehicles of affective responses: It is not clear that differential responses occur with widely differing emotions. Affective reactions seem to occur (Nakashima) within a shorter time than the latency of autonomic responses. These difficulties may not be insuperable, but they are not surmounted, and no scientific formulation of affectivity reaches its goal that neglects them.

A distinctive feature of the book, and one which it is to be hoped Kempf will find time to develop in more systematic detail, is the interpretation of behavior of the primates in the light of psychoanalytic conceptions. Attention is drawn to the point that the course of many physical diseases may be influenced by conflicts of the autonomic level through their influence on the blood supply.

It had been observed that catatonic syndromes might run a course more favorable than other schizophrenic conditions. Intermittent forms of dementia præcox are seen which, between attacks, resume self-support at progressively lower levels. Kempf speaks of cases that "even attain a more matured and efficient level than they had reached before." Though this runs counter to the classical conception of catatonic conditions, constructive psychoses are by no means inconsistent with the psychiatric influences from which Kempf derives his remarkable background. Such cases are most important and should be reported whenever practicable. Many circumstances may simulate the effect of a constructive psychosis. Only critical scrutiny makes such interpretation acceptable, and the well observed clinical material recorded by Kempf does not clearly exemplify what he means.

The autonomic complex apparently means more to Kempf personally than to the rest of his ideas. A thoroughly functional view of behavior disorders can be maintained without it. The immediate effect on the book is to encumber the style and seriously lessen intelligibility even to the technical reader.¹

Physiological considerations used by the author to strengthen the conceptual structure are really a source of weakness. In his introduction he first postulates that "emotions are cravings that have their origin in the tensions and movements of different autonomic (visceral) segments," and then states that this conception "is amply supported by physiological data" (p. 6). These supports seem to be (1) Sherrington's theory of postural activity of muscle and nerve; (2) The theory that skeletal muscle is innervated by the sympathetic nervous system to cause tonic or postural contrac-

¹" . . . He had waded with conscious effort into the terminology of the subject. He lost himself amongst advancing semicircles, left- and right-hand quadrants, the curves of the tracks, the probable bearing of the centre, the shifts of winds, and the readings of barometer. He tried to bring all these things into a definite relation to himself, and ended by becoming contemptuously angry with such a lot of words and with so much advice that seemed to him all sheer headwork and supposition without a glimmer of certitude." *Joseph Conrad: Typhoon.*

tion, as put forward by Langelaan and De Boer; (3) The work of Cannon on the physiology of emotional states.

The propriety of using the first of these theories is indisputable; it is probable that our muscle tensions do have an affective influence; but when the author makes two direct misquotations of Sherrington in the same paragraph our confidence is shaken. Of necessity we doubt his psychological interpretations when he obviously does not understand the physiological data on which they are based. For example (on page 21) he says that "practically all" of the skeletal muscles are in a state of constant postural contraction to overcome the influence of gravity. Any one who has worked with decerebrate preparations knows that the muscles functioning in the anti-gravity reflex are a definite group comprising distinctly less than one third the striped muscles of the body. Moreover, we are unable to find where Sherrington has stated the facts as quoted.

In the same paragraph we find a statement that "the rate of the impulses maintaining postural tension varies from 40 to 90 per second (Sherrington)." A careful reading of Sherrington's paper by any one familiar with electrophysiology shows that Kempf here makes a gross misinterpretation, for Sherrington merely states that a number of observations have shown that "in postural contraction the *muscle* exhibits action-currents" at this rate per second. Kempf draws the wholly unfounded inference that the rate of action-current in muscle is the same as the rate of the nerve impulse. If we turn to his earlier work "The Autonomic Functions of the Personality" we even find him saying that these action-currents *produce* a stream of proprioceptive impulses. There is, of course, absolutely no physiological evidence that action-currents produce or in any way represent nerve impulses; they are merely electrical concomitants of muscular contraction, or of any other form of biological activity. To say that they produce a stream of proprioceptive impulses, is not only fanciful, but is an example of how the author, reading in a field with which he is not familiar, misinterprets physiological data and then makes use of them to give weight to his psychological theories. It might be said that these two points selected for specific criticism are details, and do not affect Kempf's general theory. They at least point out his physiological inaccuracy.

The second support on which this analysis of psychopathology is founded is that autonomic neurones "maintain the postural tonus of the striped muscle cells (Langelaan, De Boer, Sherrington)." The facts are these: Anatomists have seen free nerve endings in the sarcoplasm, which they have suggested might be sympathetic. De Boer, working on frogs and cats, found evidence that cutting off the sympathetic innervation of a limb decreased its muscle tone. Langelaan, in a long series of experiments, demonstrated that there were two elements in tonus — a contractile and a plastic. This he thinks substantiates the work of De Boer; but Langelaan did no experiments

directly bearing on sympathetic innervation of skeletal muscles, all his evidence is indirect, and though important and interesting, cannot be considered as corroboration of De Boer's observation. In fact four observers have since repeated different parts of De Boer's work and none of them have been able to reproduce his results. Finally, to make Sherrington a backer of this theory of De Boer's is unfair; nowhere in his writings are we able to find a statement that he believes in the autonomic innervation of striated muscle. He makes suggestive comparison between the tonus of smooth muscle and of striated muscle, but invariably considers that as yet these are mere analogies.

Finally, Kempf uses freely the work of Cannon on the physiological phenomena associated with emotional states. Also Mosso's experiments on the tonicity of the bladder. These experiments are, in general, well quoted, but here again we see a distinct tendency to take an experimental result, draw an analogy to it in a clinical case, and consider this process of analogy as *proof*.

The conduct disorders dealt with are largely regarded as panicky or otherwise psychotic reactions to sexually perverse tendencies, notably homosexuality. Kempf is a prophet of their dynamic import, but we are still in much darkness as to how far these trends are dynamic in the psychoses, or how far their appearance may be due to an upsetting of the ordinary levels of consciousness and unconsciousness by some organic factor (which may be endocrine for all we know). Kempf's standpoint derives little support from the observations of Havelock Ellis, whose histories one can hardly read without wonder at the amount of psychosexual racking the human mind will stand. Is it not probable that for every one who weaves homosexuality into a psychosis, there are a dozen who get along with it in comparative comfort? "It's all right if you do it with a good conscience." How far the special sensitiveness to the topic that is seen in psychotic cases so colored is a matter of original nature, special experience or incidental physiology, is something about which no one knows very much.

Under psychoanalytic influence, the concept of homosexuality has broadened and become more vague. Conventionally it involves organic relationship between the parties. Under psychoanalysis there has been a tendency to merge into it all attachments between persons of similar sex, whether or not organically conditioned. This is bad, because their social significance is entirely disparate, and the two processes have psychologically little in common. The world is well and fortunately supplied with attachments, confidence, loyalty and service among persons of the same sex, men probably more often than women, where there is no evidence of organic conditioning or reason to suppose it. The great co-operative efforts of civilization are accomplished by means of them, and among them the affective reactions associated with the conventional "homosexuality" have no place.

Such attachments do have a sexual element, that is, they are conditioned by a sexual factor, in that they are different from those *likely* to be formed between persons of opposite sex.² Socially they are a necessity, and the casuist could make a plea for their ethical value, as compared to those requiring organic reinforcement, that takes no small dialectic skill to refute.

The concept of symbolism is one that figures largely in any work of this kind. While few can doubt the importance of the process, the actual determination of unconscious symbolisms is in the prescientific stage. There is no accepted definition of what is meant when one thing is said to symbolize another, and the entire fabric of thought on the subject is correspondingly loose. On p. 107 of this book is pictured a not extraordinary looking boulder, with the information that it is a prehistoric ceremonial statue of a phallus as a god, erected *pour encourager les autres*. If the stone be really prehistoric, how much of this account of the sculptor's mental processes is knowledge and how much speculation? It should be clearer whether the complicated ideas ascribed to various paintings and sculptures, some prehistoric, many otherwise, are considered to be actually in the consciousness of their authors or representing unconscious repressions. How far may one say that *alpha* symbolizes *beta* when one knows next to nothing of the mental processes of *beta's* author, and knows only that it suggests *beta* to observers who see *beta* in everything from *alpha* to *omega*? It is not as though the case for symbolism were always in such logical straits. The parallel to Bœcklin's *Toteninsel* is instructive enough as regards the patient, though it is speculation as to how much of this was in Bœcklin's mind. And when dream-speech alludes to a goatee as a "penoid beard," or the drawing of an ecstatic female is attended by a serpent, some birds, and phalloid bunches of grapes simultaneously, the reasoning is more persuasive. One is now clearer as to how the emissaries of Moses hit upon their apt symbol for the fertility of the promised land.

But to derive from Rodin's *Eternal Spring* the expression of "constructive power of uncensored heterosexual love" is a left handed compliment to the sculptor's insight. Practically speaking, a rachitic and ophthalmic generation is born of uncensored heterosexual love. Indian legend pictures the matter in accord with the more current and satisfactory conceptions; In Paradisian days "Life was one perpetual honeymoon. . . . The villages were deserted, while the woods and bushes were populous with wedded and unwedded lovers. Kitch' Manitou looked on the proceedings with disapproval. . . . The corn and the rice grew rank and uncultivated, while the lynx, the wolverine and the wolf committed unchecked depredations among the weaker forest creatures." To put a stop to this neglect of the business of life, "Kitch' Manitou took counsel with himself and created Saw-gi-may, the mosquito, to whom he gave as dwelling the woods and bushes.

² The *Taras Bulba* of Gogol pictures a crude form of such association with special clearness.

. . . 'Him come back, go to work.'"³ The mosquito symbolizes the censor, who prevents the libido from being dissipated through primitive organic channels, and allows it to be sublimated for the work of civilization.

There is no inherent harm in seeing in an artistic creation something the author did not necessarily put there. The difficulty comes when the psychoanalyst ascribes it to him because he and a few colleagues oversensitized to that special topic can make themselves see it, and there is no Costa Rican Bill Stumps to rise from prehistoric sepulture and deny them.

When a man of science addresses himself to his colleagues, it may be his obligation no less than his privilege to paint the thing precisely as he sees it. His colleagues are responsible for discarding what is useless, and building what is valuable into the general structure of science. When on the other hand a man of science addresses himself to those from whom criticism is not to be expected, he is much less free to "say what you think without thinking what you say." His fitness for his task is affected not a little by his self-criticism and his readiness to balance the views of others against his own. To address oneself to a wide circle of critically incompetent readers, in *obiter dicta* upon highly unsettled propositions, is not the procedure of science seeking to instruct, but of prophecy seeking to convince. Consciously or otherwise, this is the tendency of the present book. It is accordingly subject to criticism not only concerning its accord with other data, but also with regard to the probable reaction of the various groups to whom it is offered.

With the history of "Science and Health" in mind, one is cautious about asking more of a prophet than of a man of science, in the way of literary form. But if words are children of the pen, this book is a Massacre of the Innocents.

It is commonplace that the persuasiveness of doctrine does not depend in the first instance upon relation to reality. It depends more especially on the conviction of the prophet, and its appeal to affective needs of the hearers. Buddha is followed by hundred millions, Mahomet shook a world, with doctrines certainly no closer to reality than those of this book. So far as assurance is concerned, neither of these gentlemen appear to have infinitely much upon our present author. But the content of the latter's appeal is hardly so effective, partly because it is complicated, and partly because it figures the *summum bonum* as a "comfortable" tonus, the avoidance of evil rather than the pursuit of the best, a less dynamic formulation than one would expect from Kempf, and one less conformable to the occidental, twentieth century idea. Most persons would even prefer that other Prophet's Paradise, whose essential feature is the continued upsetting of autonomic balance, with immediate and continually repeated readjustment in reactions to segmental cravings at various levels.

Kempf promptly warns away the sensitive prudish, therewith inevitably summoning the "curious" to the feast. Panurge might build the walls of

³ White, S. E.: The Forest.

Paris from the illustrations. It is among Kempf's credits that he affects no sentimentality of the "painful to write such things" order, but he carries his naturalism so far as to obscure its legitimate purpose. There is, conceivably, an unholy satisfaction to be derived from spreading a mess of "sexual filth" in front of a squeamish reader, and rubbing his nose in it. But psychosexual freedom does not lie that way. One recalls the fable of the sun, the north wind, and the cloak. Psychosexual freedom is not a function of language.⁴ Hypersexualized art, talk and ruminations represent a *Partialtrieb* not less than organic masturbation, and it is perfectly possible for a share of the libido to become fixated upon them to the detriment of biological function. All the smoke of "sex-resistance" is not without any fire. Popular reactions against ideational eroticism are not more intense, proportionally, than against organic homosexuality, and the two prejudices have a similar rationale. Suppose a historian of the Inquisition to pad his text with minute and circumstantial details about the tortures and sufferings of its victims. The appeal of such a book would be essentially morbid, no matter how painstakingly accurate its collocation of data. The central fact is that ideational appeals to emotion, as such, are unhealthy (Cf. Wm. James, *Principles*, I, p. 125), psychosexuality being specially sensitive to such appeals. Some time since Bleuler⁵ advanced an idea that "sex resistance" was an autistic derivative of resistances to masturbation. It is quite reasonable to extend this idea to psychic masturbation. Bleuler's theory then becomes that sexual reactions are considered as such unhealthy through sexual ideation as such being actually so. It seems a view suitable for at least partial application. The question is, of course, what psychosexual freedom means to different authorities, and whether, as we may be too prone to assume, it can be formulated as a really desirable goal. It is possible that it cannot be had without a de-emotionalizing of the topic so thorough as to carry its own social dangers.

Kempf is no minor prophet, but when the ends of life are figured in autonomic terms, the prophecy is of regression to Eden. A people that tried to live by such principles would be destroyed or enslaved by another with greater sublimating capacity. As soon as social organization begins, the requirement for leadership is an excess of libido over and above what is satis-

⁴ A special gain to one of the reviewers, is perhaps an additional element of insight into psychoanalytic dream-symbolism. The episode in question was a drowsiness symbolism, similar to some described by H. L. Hollingworth, and arising very early one morning during the period while occupied with this review. The reader is perhaps acquainted with a variety of scarabæoid beetle, which encases its eggs in pellets of refuse, essentially dung, in which they are protected from the vicissitudes of the environment. A smoking room myth makes these pellets a remedy for constipation. Occasionally their makers may be seen using their heads against them as levers, butting with the full force of the vigorous little bodies, to transport their precious cargoes to a place of safety. With its central core of verities, the character and thickness of their incrustation, and its value for psychoanalytic *catharsis*, the present volume found a not un-Freudian archetype in the burden of the lowly "tumblebug."

⁵ *Jahrb. f. Psa. u. psp. Forschungen*, 1913, 5, 442-452.

fied or satisfiable at organic levels. "A certain amount of fleas," remarks the rustic philosopher, "is good for a dog"; or as a South American statesman has more broadly phrased it, "The first step in progress is to need something." Baucis and Philemon are not the stuff of which leaders are made. Again the biological value of the "resistance" censor.

Humanity is said to dislike a "teacher" and crave a "brother." It is a mark of the psychopath that instead he craves a "father"; an *Uebertragungsobjekt* that will relieve him of his crutches by carrying him rather than enabling him to walk alone. The ability to be a *Vaterersatz*⁶ is no small factor in successful practice of "psychopathology," though many writers, Kempf among them, stress the point of not allowing the transference to become fixated at this level, to the frustration of the best work of psychoanalysis, the construction of an autonomous personality.

Consistent with the rôle of prophet rather than scientist, is the fact that Kempf's views of things as they ought to be are more persuasive than his views of things as they are. There are some well founded remarks on education. He is also more readable at such times, being taken away from his jargon. If there were maintained throughout the book the level of the last two chapters, the published advertising would not keep one on the lookout for marginal weather forecasts, and a list of eclipses. One takes away the impression of valuable ideas grasped well enough for personal use perhaps, but not well enough to put them acceptably before others with all the effort that has been made.

Somehow the author seems to have been conditioned with a vigorous reaction against *vieilles têtes*, a "negative Nestor-complex." The period from 45 onward is one of "decadence"; anent wars, "the arteriosclerotic, decadent male, feeling his loss of potency, compensates with . . . keeping the maturing males subdued. Their policies force the youths to oppose one another and kill each other off in the name of the fatherland." He likes the idea of sending men over fifty into battle first, or pensioning and retiring like the *struldbrugs* of Swift, the "senile arteriosclerotic males," when a certain state of physiological deterioration is reached. For the author's sake, if not for psychopathology, it is well that this view of things as they ought to be is somewhat distorted. There is excellent promise in Kempf's energy, breadth and sincerity at this stage, joined to the maturing judgment of his own period of "decadence."

In sum, the autonomic theory of behavior is not unsuitable for technical discussion, but quite so for an offering general and conclusive. Writing

⁶ "Die neurotische Angst der jüdischen Religion . . . gebiert aus sich . . . das Zwangszereemonial des Neurotischen. Von ihm befreien sich nur die Propheten, denen die Identification mit Jehova, die vollkommene Sublimation, geglückt ist. Sie werden zu Vätern des Volkes." Jung, Bedeutung des Vaters, Jahrb. f. Psa. u. psp. Forsch., 1909, 1, 170.

no more than personality should have to be coarse in order to seem "virile."⁷ Neither does the intellectual aloofness appearing in the volume give its ideas the easiest way of assimilation. It is difficult to see that constructive criticism can encourage the author to persist in such tendencies of the present volume. "You can do anything once."

F. L. WELLS.

STANLEY COBB.

Harvard Medical School

BENIGN STUPORS, A STUDY OF A NEW MANIC DEPRESSIVE REACTION TYPE. By August Hoch, M. D., late Director of New York Psychiatric Institute. New York, The Macmillan Co. Pp. 270. Price, \$2.50.

This posthumous book of Dr. Hoch represents clinical studies made during his directorate of the New York Psychiatric Institute, and formulated and interpreted after his retirement on account of ill health in 1917. Death occurred before the work was completed, but his notes and manuscript were in such form that Dr. McCurdy, his intimate friend and associate, has been able to finish the book, modestly disclaiming other than a literary contribution.

Dr. Hoch's first aim has been to throw light on the shadow land of functional psychoses lying between Dementia Precox and the Manic Depressive group. He selected stupor for his theme, representing as he saw it, a definite clinical entity found in this field. He has attempted by following a large group of cases over a period of years, to bring out practical features which distinguish the benign type from the malignant. In addition, with the aid of modern analytical psychology, he has formulated hypotheses for the mechanisms concerned in this condition which should be of much value in understanding psychotic reactions in general.

A large number of cases of benign stupor were exhaustively studied by Dr. Hoch and followed through to ultimate recovery; and much of the book is taken up with comprehensive case histories of these patients. He refers to Kirby as first pointing out in a paper published in 1913, that the catatonic syndrome of stuporous type does not necessarily imply a deteriorating process, and many such cases show sufficient relationship to the affect group to be classed with them rather than with schizophrenia. Taking up the work at this point Hoch sought to go deeper than the descriptive level and probed into the stupor reaction with the purpose of demonstrating just what sort of failure of adjustment is by it represented. Perhaps the outstanding feature of his work is the concept that the symptom complex centering around apathy may be as distinct and pure an affect disorder as those characterized by elation, depression or anxiety, and that reduction or absence of affect is often a primary condition, and not the result of schizophrenic dissociation.

⁷ Nor always successfully. In the *Psychological Bulletin*, vol. 17, p. 401, the author is stigmatized as "Miss Kempf."

He defines benign stupor as a recoverable psychosis characterized by the four symptoms, 1. apathy, 2. inactivity, 3. negativism, and 4. interference with intellectual functions. Catalepsy may or may not be an additional feature. The syndrome may be present in all degrees, varying from a picture of simple dullness to one of complete vegetative immobility. Each of the symptoms is described during period of incubation, through the attack, and at all stages of recovery. Patients' own statements concerning their feelings and thoughts are stressed. These subjective accounts were obtained from cases of partial stupor, at times of remission from deep stupor, and retrospectively after recovery.

The mood reduction varies from simple quietness in mild cases, through growing indifference in others, to profound apathy with complete motor inactivity in the deep stupors. Confusion easily arises between apathy and depression, and discrimination of these two affect states is discussed at some length. On this subject Hoch states: "Running through all stages of stupor there is an emptiness, an indifference, that is in striking contrast to the positive pain that is felt or expressed by the depressed patient." He also emphasizes the greater interference with intellectual processes in the former condition, and points out characteristic differences in the manner of development and recovery in the two disorders.

The inactivity which is the second most important of the cardinal symptoms of stupor, includes both reduction of bodily movement and diminution or absence of speech. This condition like the other symptoms may be present in all degrees from reticence and slowness in mild cases, to the complete mutism, flaccidity of all voluntary muscles, and loss of sphincter control in deep stupor.

Negativism, Hoch characterizes as perversity of behavior expressing antagonism to the environment and to the wishes of those in attendance on the patient. He sees in the active opposition and cantankerousness often present in minor stupors, evidence of the "spoiled child" behavior which fits in with his conception that the whole syndrome is a manifestation of primitive infantile reactions. The muscular resistiveness of the deeper stupors, he thinks represents mainly a desire to be let alone, while the tendency for this trait to disappear as accessibility returns, "suggests that muscular resistiveness represents a lower level of expression of opposition which patients put into words or purposeful action when there is other evidence of contact with the environment." In this same connection he says: "In other words, the resistiveness looks like a larval attempt to express an idea which is probably not fully conscious and therefore gives the appearance of being aimless."

The interference with intellectual functions in deep stupor is profound. Indeed Hoch concludes that in such cases thinking processes are practically at a standstill, and notes as one fact to bear this out, that as a rule there is nearly complete amnesia for such periods. In milder cases there is a variable

degree of disorientation and incapacity to think out problems. There is lack of attention, shallowness of thinking and inability to grasp complicated questions. All of these thinking disorders, according to the author's observations, occur to an extent not usually found in depression.

In discussing the ideational content of stupor and the psychological explanation of its reaction Hoch leads into speculative paths difficult to follow by those not in sympathy with Freudian Psychology. He observes that in practically all cases of benign stupor ideas of death form the substance of the mental content. These are usually sharply circumscribed with little elaboration or distortion. In addition to literal death thoughts, there are often phantasies of being in the water, on a boat, or under ground. In the similarity of these latter ideas to those expressed in the mythology of all races, Hoch finds important significance. In both cases he feels that a primitive or "regressive" form of thought is in evidence. To consciously or unconsciously long for death in the face of sorrows or difficulties is a universal human tendency. A desire for the peace, security and absence of pain which such state implies, sweeps irresistibly over the human soul in distress. It is not, however, complete annihilation for which there is longing. Mixed with the thought of death is the hope for some sort of new and more satisfactory life, expressed in delusion, mythology and dream by the characteristic symbolization of rebirth. In strictly Freudian sense all this represents the striving to return to the mother, and in such light, the clinical picture may be interpreted as an attainment once again, in delusion and fantasy, of the protected state of the young infant, or even of foetus yet unborn. In numerous instances death ideas concern joining dead relatives, usually father or mother, thus quite clearly carrying out the desire for infantile relationships. The "impulsive" suicidal attempts of patients which sometimes occur during stupor Hoch thinks may be motivated by these death ideas, in such cases the delusions varying in some way from the characteristic placid, affectless acceptance of non-existence. Anesthesia to pin pricks, immobility and a refusal to recognize existence, all fit appropriately into the picture of feigned death or delusions of death.

There is frequent reference throughout to differentiation of benign stupor from the malignant stupor state of Dementia Precox. In brief the latter cases show change of personality preceding the breakdown, inappropriateness of affect particularly giggling over unpleasant ideas, scattering speech when muteness is broken, and fantastic delusions; these latter in contrast to the circumscribed ideational content of benign stupor. The apathy of the Dementia Precox is not real lack of emotion but absorption in the subjective stream of fantasy, a "perversion," rather than absence, of interest and attention. The author notes that in stupor somatic symptoms are more in evidence than in other affect groups. It is his view, however, that physical signs are of secondary importance, and many rather speculative

hypotheses are advanced concerning their possible psychogenic origin. He sums up by the opinion that stupor, in common with all other morbid affect reactions, is probably based on some fundamental defect, partly physical in kind; but that the mental symptoms are determined wholly by psychological mechanisms.

This work of Hoch is something more than a consideration of one special type of mental disorder. In presenting his theme he touches on all phases of the functional psychoses and plunges courageously deep into the psychological obscurity which envelops them. The book should be an important milestone in psychiatric progress. One cannot read it without realizing anew how great a loss has come to the medical profession and the world at large, in Dr. Hoch's untimely death.

M. W. PECK.

FOUNDATIONS OF PSYCHIATRY. By William A. White, M. D., with an Introduction by Dr. Stewart Paton. New York and Washington: Nervous and Mental Disease Publishing Company, 1921. Pp. IX, 136. Price, \$3.00.

So far as the majority of neuropsychiatrists are concerned, this monograph (number thirty-two of the Nervous and Mental Disease Series) is almost the first available discussion of the philosophy of psychiatry — and this would have been a very well suited name for it, although inconsistent with the well-known modesty of its author; but even he suggests this title. Stewart Paton of Princeton and Columbia, author of the recent "Human Behavior," says in his introducing note that the author "has pointed out what information is available for preparing the foundations of a science of human character. He has emphasized the driving power of the instinctive life, traced the genesis of the impulses, and has pointed out some of the prejudices and fixed ideas that are responsible for so much of the chaos in the World."

A serious review is bound to add that Professor White has pointed out not all of the "available information," because he is a Freudian of full blood; and that, for the most part, he has ignored those inhibitory aspects of personality without which man is still a brute and civilization more of a chaos than at the social protoplast. He has exploited well the "archepallium" but the "neopallium" that makes man human and sanctions his curious hind-leg gait and station (in all but a dozen or twenty important physiological respects), he has nearly forgotten or else ignored. And can a philosophy of psychiatry be published into general acceptance that neglects this one factor characteristic of mankind? The author, to be sure, has paid interested attention to certain extrinsic and environmental aspects of what amounts to this essential humanizing restraint, but to the intrinsic factors and processes of this indispensable integration apparently too little thought and space have been devoted, after the manner of the Master Freud. The present reviewer humbly believes that this is the weak-spot in this particular philosophic

thesis. To set forth, even adequately, the drive and the subconscious conflict unending and insistent, is not enough — we must take into larger consideration, much larger and deeper and more detailed consideration, the conscious struggles which even in dementia, from habituation, if from no other principle, tend so much to dominate the behavior and the whole mental life as it dwindles into effective nullity. We hear too little, in short, of inhibition in psychogenic theory, particularly of conscious inhibition becoming and become habitual. And what of caprice? And “chance”?

The book consists of two introductions (one by its author), a preface, seven textual chapters, a conclusion (in effect much of a summary), and an index, the bibliographic references being at the page-bottoms. These are the seven chapter-titles proper: “the unity of the organism,” “the dynamics of the organism,” “the stratification of the organism,” “the region of psychopathology,” “the nature of the neuroses and the psychoses,” “therapeutics,” and “the social problem.” The total continuous integration of the personality on a metaphysically necessary basis of monism is the important guide-star of the exposition. Nothing could be more desired — save its logical completion as already has been suggested above. Freud’s surpassing contribution to psychology is his clarification of the impulses to activity, but this seems no really excellent reason why all his followers should ignore the no less constructive considerations that explain the restraining humanity-element of man. These the author realizes but makes no effort to set forth, and we may well ask him why not. Human mind is *duplex*.

“The neurosis or psychosis is an expression of the blocking of the instinctive tendencies of the individual because they cannot become assimilated to his conscious purposes and the energy they contain be utilized in forward-living activities. The drive of these tendencies remains an emotional one which, striving to gain expression, meets with stabilized ways of traditional thinking to which it is unacceptable. In their effort to gain conscious expression they are forced to a seeming conformity with conventional ways of thinking and so in their real nature remain obscure and unintelligible to their host.” In one paragraph this is the gist of this deep but narrow Freudian viewing of the philosophy of psychiatry. To the constructive, genetic psychologist who has dug for himself a somewhat wider well toward the heart of the mental world, this seems incomplete, because the human mind surely is more complex, contains more interests and processes, than Freudism allows. Even the most advanced brute minds may have more in them than so narrow a theory makes place for. Insanity may be as often due to a *lack* of conflict as to a conflict. Why not suppose that a catatonia, for example, may be a lack of impulse? etc., etc. No obsession can comprise reality.

The chapter on the unity of the organism, numbered two, is a concise and valuable exposition of the three biologic principles: integration, functional structuralization, and individuation.

These are further traced in the discussion of organic dynamism that makes up chapter three under the head of "ambivalency" — impulse intricately adapted, that is, restrained, a monistic duality obvious in the normal infant from birth and always after, however deeply camouflaged. As the present reviewer pointed out (in his "*Moto-Sensory Development*") a dozen years ago, the reflex inhibitions of the infant are pressingly in need of study. When this is adequately done we shall possess real material for really understanding "ambivalency" and scarcely before then. Herbert Spencer vaguely saw it all two score of years ago—the road to be trod—and Professor C. M. Child has trod it as rapidly as another and as straight, but he has not been alone.

Chapter four, on the organism's stratification, is a well-done exposition of a newer concept in the science of man and sets forth the kernel of Bergson's enlightening psychology, the inevitable continuation of the foundations laid simultaneously by Wm. James and himself, but made plainly coherent by the latter only in his very recent "*Mental Energy*." In this chapter, too, Professor White makes a few introductory applications to psychiatry, which get an inevitably tremendous interest from the phylogenetic data borrowed from H. F. Osborn, and others. (We may well await with great interest Osborn's sequel-volume to his recent "*Origin and Development of Life*," for, it is rumored, it will concern itself in the main with man.)

The fifth chapter discusses certain more or less obvious criteria of mental abnormality as social in a social community, and contains beside much timely psychology. For example, it tersely stresses the supreme importance and yet the relative neglect by psychologists of the feelings in life both normal and insane.

One may denote the content of chapter six almost adequately by the word teleology as applied to such Freudian processes as repression, regression, censorship, conflict, symbolization, sublimation, etc. Janet, Jung, Adler, and Kempf are set forth in short form in relation to his present theme. He seems to give more credit to the last-named than may belong to him, just as he ascribes to the psychoanalysts credit that is properly due to the James-Lange theory of the emotions especially as tried out by some of the broader physiologists — sometimes against the latter's will!

Chapters seven and eight seem to be in reality little more than restatements and applications with relatively little of the constructive reintegration that characterizes the remainder of the monograph; but together they occupy but fourteen pages of text.

Altogether Doctor White's essay in the "philosophy of psychiatry" has the importance of a pioneer integrating treatise in a particular direction. Its chief defect indeed is the particularity of its direction, its lack of range over the circular compass-card of the well-rounded human mind, liable everywhere, like everything else that is "mortal," to defect or at least to derangement in its orientation and adjustment. GEORGE VAN NESS DEARBORN.

MYSTICISM, FREUDIANISM AND SCIENTIFIC PSYCHOLOGY. By Knight Dunlap, Professor of Experimental Psychology in the Johns Hopkins University, Baltimore. C. V. Mosby Co., St. Louis, Mo. Pp. 173.

Professor Dunlap has tried to put a great deal into this little volume which bears the inscription "To Morton Prince *Principi in Psychopathologia Americana.*" The first part of the book is historical; the second, critical and destructive, and the third, constructive. The author explains the unity of the book, which was at first to include an examination of spiritualism, by saying that all three movements which he has singled out for criticism "involve an assault on the very life of the biological sciences; an assault which scientific psychology alone is capable of warding off."

The author has set himself the task of combating both mysticism and Freudianism but the passages which he is citing from Plotinus and Mæterlinck do not involve any strictly psychological issues and should best be dealt with from the philosophical angle. "The psychologist holds that all knowledge may be included under the two headings above indicated. No knowledge which is neither perceptual nor inferential is taken account of by psychology. The mystic, on the other hand, holds that these two kinds of knowledge . . . do not exhaust the field. There is, the mystic insists, a *third kind of knowledge*" (p. 15). But why should this problem, a purely epistemological one, be argued out within the territory of a particular science? Does the physicist, who surely also believes in the sole authority of knowledge derived through the senses and inference, bother to compare his science with the pretensions of mysticism? And moreover, there is a possibility of the mystic retorting that his kind of knowledge *is* perceptual, whether *we* can perceive it or not.

The diagnosis of the mystic as one who is tender-minded and one who, in his realization that the road of science is hard, seeks an easy path, is true enough but to point out the logical fallacies of mysticism is, to my mind, a waste of energy; for no mystic cares one whit about the canons of the syllogism.

The chapter on mysticism seems to have been an introduction to the exposition of Freud and the critique of Psychoanalysis. Freud has had so many warm advocates of his views in this country and so few systematic critics among the psychologists that Dunlap's discussion is both timely and important. In this part, Dunlap gives a clear statement of the psychoanalyst position and attacks it on several grounds: (1) The fundamental notion of an unconscious consciousness is self-contradictory, (2) the explanation of phenomena is far-fetched, and (3) many interpretations that are satisfactory do not necessarily invoke any Freudian principles.

The author has selected a number of passages from the Freudian literature for the readers to pass judgment on. The absurdity in these citations is quite patent to all but Freudians. It does not seem to me, however, that

Dunlap has always brought forth the most appropriate analogies to confute the doctrine of Freud and his disciples, and the Freudians will probably consider his criticism as appearing in the following paragraph unfair.

"The Freudian hypothesis of infantile sex life is founded on the specific fallacy known to the logicians as the fallacy of *secundum quid*. Reactions which later become a part of the general sex activity are found in the child, and therefore pointed out as evidence of sex activity. It is as if one should claim that the labored breathing produced by running to catch a street car is sexual because the same labored breathing may occur during certain stages of sex activity. As a matter of fact, there is no form of activity, and no form of instinct of the individual which is not at some time or other connected with the sex life, and the final consequence of the Freudian method is to define sex as *the whole universe*, which would leave us to hunt for a new term to use for what is meant by sex in science and common sense."

As to the practical results of psychoanalysis, Dunlap makes the important observation that the fact that cures may be performed through the technique associated with the theories of psychoanalysis is of course no proof of the truth of these theories, and the long passage from Janet's appraisal of psychoanalysis is introduced to corroborate this view. The practical results of psychoanalysis are too often harped upon by practitioners as evidence of its theoretical validity.

Dunlap's criticism of Freudianism seems to be in the main sound, but it is surprising that he has confined himself to one or two phases of the Movement. He has not touched upon Freud's explanation of wit, his interpretation of myths and especially the doctrine of lapses which, as I tried to show elsewhere, is the most assailable of all of Freud's teachings.

The Third Chapter entitled *The Foundations of Scientific Psychology* contains an outline of Dunlap's psychological position. His attack on behaviorism will surprise a number of people who have read his indictment of introspectionism several years ago. I must confess that I had placed him among the radicals. His present utterances, however, would make him appear a conservative, albeit with a biological bias. The passage which, it seems to me, is most representative of the book is the following: "The Freudian doctrine of an unconscious-consciousness, is possible on no other basis than that of epistemological dualism. On this basis also develops 'behaviorism' which is the attempt to find the physiological factors which parallel the mind (conceived as a purely spiritual entity), in order to ignore the mind from that point on and deal only with its correlate in the other realm. Behaviorism depends on the theory of parallelism between "mind" and "body," whereas Freudianism apparently proceeds on the basis of interactionism, although it might possibly work as well on a parallelistic assumption. On a strictly psychobiological basis, empirically laid, neither of these arbitrary systems can be developed. Consciousness as actual awareness: objects of conscious-

ness treated as objects and not as awareness; leave nothing for further consideration except the biological processes with which the consciousness is actually organized, and the stimuli as physical concepts. Consciousness which is not consciousness is not empirically found: and since consciousness is not a *thing*, when it ceases to be consciousness it ceases to exist" (p. 122).

This little book is replete with information, but it does not present a unitary plan. The very title is not in accord with the principles of classification. The third part is at once too elementary and too technical. Perhaps this might be offered as the main criticism of the book, viz., that the author appears to address himself now to the psychologically uninitiated, the layman who has picked up his information in popular periodicals, and now to the specialist, or at any rate the trained man who has more than a smattering of psychology. The author has also taken the privilege to discuss his particular brand of psychology under the head of scientific psychology, to the exclusion of all other points of view. If Dunlap's purpose was to combat mysticism and Freudianism, he would have achieved it sooner by pitting the ordinary textbook psychology against the invaders instead of carrying on at the same time a polemic against both behaviorism and the older psychology. Much as I deplore the inroads of behaviorism into our academic strongholds, I hardly consider it apposite to mention behaviorism or even Freudianism together with Christian Science, as if they were all on one plane.

A. A. ROBACK.

HEREDITY AND ENVIRONMENT IN THE DEVELOPMENT OF MEN. By E. G. Conklin. Princeton University Press, revised third edition. XV + 361 pages, 101 illustrations.

It would be difficult to find a person better qualified to expound to the lay reader the chromosomal theory of inheritance than Professor Conklin, whose volume on "Heredity and Environment" has reached its third edition. This edition differs from the earlier ones in that certain materials have been rearranged, new illustrations have been added, and, to quote from the author, a much stronger position has been taken for the chromosomal theory. In the first chapter the reader is introduced to the chief conclusions of embryology preparatory to a consideration of heredity. The second chapter is taken up with the facts of heredity and the third with the relations of the cell to heredity and development. These two chapters are followed by sections that deal in sequence with the influence of the environment, eugenics, and genetics in relation to ethics.

The exposition of the subject centers on the third chapter in which the chromosomal theory is presented lucidly and succinctly. The exact parallel between the facts of Mendelian inheritance and the behavior of the chromosomes is dwelt upon with ample fulness and is illustrated by such matters as sex determination. For a long time it has been known that in the majority

of animals the two sexes are produced in approximately equal numbers. This condition is easily interpreted as a type of Mendelian inheritance and it is also reflected in the chromosomal composition of the germ cells. In most species, so far as the resulting sexes are concerned, all eggs are similar, but the sperm cells are of two types equal in numbers but different in chromosomal constitution. One of these types determines for male and the other for female. Hence sex is not only Mendelian in its mode of inheritance but the type of inheritance here involved has a chromosomal explanation. Furthermore the remarkable discovery that Mendelian characters are not isolated entities but travel in companies, so to speak, has led to very significant results, for, as Morgan and his associates have shown, the Mendelian characters in the fruitfly *Drosophila* are linked together in four specific groups, no more and no less, and the chromosomes in this fly are precisely four in number. Such facts and many other of a like kind are brought forward as striking evidence in favor of the chromosomal theory of inheritance.

The applications of these conclusions to human conduct are clearly and forcibly presented in the concluding part of the book. The author is to be commended for the sane position he has taken on the vexed questions of eugenics and the whole problem of the relation of genetics to human affairs is discussed in an interesting and illuminating way toward the end of the volume.

The shortcomings of the book are the shortcomings of the whole chromosomal proposition. Mendelian inheritance with its chromosomal counterpart is known in nature over only a limited range yet it is often implied that it is the only kind of inheritance among animals. The symmetry and general form of an organism is in many instances foreshadowed in its egg long before fertilization. This is a heritable trait, but it is difficult to regard it as Mendelian and there is no more certainty that it is chromosomal than that it is cytoplasmic. Yet this problem is lightly passed over with only the briefest consideration. The reader is further informed that inheritance as exemplified in the transmission of human property is a misleading idea when applied to organic heredity and yet this form of inheritance is precisely that which is shown in many instances of non-sexual reproduction. Were the scope of the book narrowed to Mendelian inheritance, its treatment would be admirable, but this is nowhere clearly suggested and the impression left on the mind of the lay reader must certainly be very one-sided.

A second general criticism that may be offered is that throughout the volume inheritance is treated as a static rather than a dynamic phenomenon. Emphasis is continually laid, for instance, upon chromosomes as bodies rather than upon their activities. Inheritance is an operation, not a substance, and while this operation goes on in substances the emphasizing of the material or statical side is to say the least misleading. It makes for what may be called a morphological conception of the chromosome rather than for the idea of the egg as an interacting system concerned primarily with the process of

inheritance. This static view pervades the whole volume and yet it is not peculiar to this book, for few workers on chromosomes have gained a dynamic conception of their subject.

As a piece of book-making the volume is in every way excellent. The press-work is admirably done and the illustrations are extremely clean and clear. Typographical mishaps and errors are unusually few. On page 136 the bottom line should be exchanged for the thirteenth line above and on page 210, twelfth line from below, the misspelling of alcohol is suggestive of a growing lack of familiarity with this interesting substance.

G. H. PARKER.

A NOTE ON DR. COOPER'S "EXTENSION OF THE PSYCHOANALYTIC METHOD."⁸

The problem of sex resistance is so obscure, and the apparent factors in it are so inadequate, as to give special interest to reinterpretations of the process. The kernel of Dr. Cooper's view is that it arises from the parent's endeavor to prohibit sexual reactions on the infant's part; the infant then inhibits through a fundamental desire to please the parent, and is gratified in so doing.

To regard any single factor of this order as the *fons et origo* of the repression seems inappropriate, but a real basis of discussion exists in weighing the comparative value of such a concept with other factors claiming consideration in this respect.

A grave difficulty before all interpretations of sex resistance is to find some factor sufficiently selective in its application to sexuality. The surface rationalizations of "naughty," "disgusting" and the like, are met by the fact that no such affect is carried by other topics equally naughty and far more disgusting. So in the present instance we must ask ourselves why the child's desire to please the parent should be concentrated on this topic rather than on the many other ways in which the parent may be pleased. To give the weaning process so great a rôle in the genesis of sex resistance offers a comfortable rationalization to the mother desiring to escape the restrictions of nursing; but the excretory reactions, which are homologues of sexual reaction in child life, are the cause of parental displeasure only when promiscuous and a conspicuous source of praise when exercised in due course.

The *Inzestverbot* of Jung, and the masturbation theory of Bleuler, both afford reasons why parental pleasure or displeasure in this topic might be invested with special affect. The two concepts are not mutually exclusive, but the *Inzestverbot* and the masturbation trends seem to rest in turn on a fundamental mechanism of regression. Regression — here conceived as a

⁸ JOURNAL OF ABNORMAL PSYCHOLOGY, 1921, pp. 144-149.

primary resistance to overt action, not necessarily involving infantile elements — here takes a dominant rôle, the problem resolving itself largely into one of determining why it fastens especially on sexual mechanism.

The source of repression postulated by Dr. Cooper must be generally present, for none could grow up without “foregoing some sexual act for which the beloved parent showed displeasure” except orphans and eunuchs. Like all psychic traumata, they are more common than the mental difficulties they color. The underlying factor is always the circumstance or train of circumstances that so maladjusted the individual to this experience as to occasion pathological reaction thereto. Such an underlying factor in psychoneurosis is disorder of instinctive life, e. g. a special regressive tendency. Under these conditions a repressing wish to “please the parent” is reinforced by the individual’s underlying antisexual trends, and only when similarly reinforced may it become effective in sex-resistance. Should we not be greatly on our guard that the patient does not invoke parental influence as a kind of “projection,” a shouldering on the environment of something which is fundamentally the individual’s?

It is often tempting to regard memories given under psychoanalysis as of inspired verity. But there are such things as illusions of memory (who knows it better than the psychoanalyst?) and one’s ideas of the mental processes of such early times are tremendously subject to coloration by attitudes of later development. This may be of little moment in the management of the individual case but makes it hazardous in the extreme to base generalizations upon infantile complexes in adult retrospect. The introspective account included by Dr. Cooper indeed accords precisely with his view of the situation; but it is couched in the jargon of psychoanalysis and open to too many possibilities of suggestion to carry much weight as it stands.

There are said to be three ways of becoming rich: (a) doing something better than anybody else, (b) doing something before anybody else, (c) doing something nobody else wants to do. The first two apply to intellectual no less than economic achievement, nor has the third been a wholly impassable way to Minerva’s favor. Dr. Cooper needs not the last ground for his claim on attention, for the topic is of interest to every one. The contribution is actually offered in the second way of distinction, an initial approach to its subject, and seems to illustrate a danger inherent in aspirations to priority. Some one else may be equally jealous of a similar claim. It can never mean more than that the author has seen no previous work, and leaves one open to embarrassment on finding other work that one should not have omitted to recognize. “*On n’est jamais le premier.*” In fact, Jung’s *Wandlungen und Symbole* contains a searching discussion of the problem of sex-resistance. From another angle, Bleuler has made a briefer contribution to the question. These, both alluded to above, are quite direct references, but hardly exhaust the literature of the topic. Psychoanalysis means as such the pursuit of

successive sources of resistance, each underlying the last. Why stop with the desire to please (or fear to displease) an infantile love-object? Whence such a desire to please the love-object? Do we not predicate mental processes rather complicated for the infantile level? The dominant complex of this period is autoerotic; what reason is there to give to "heterosexual" or "objectified" trends the prominence at this period which Dr. Cooper's views demand?

A defense mechanism somewhat favored in psychoanalysis has been that whoever disagrees demonstrates his own resistance to disagreeable truth. In conclusion Dr. Cooper turns their own guns upon the psychoanalysts with the suggestion that their own resistance may interfere with the acceptance of his present observations. This position is an autistic Torres Vedras that no criticism can penetrate. It is similarly without value for getting into co-operative touch with the intellectual environment. F. L. WELLS.

A STUDY OF THE MENTAL LIFE OF THE CHILD. By Dr. H. von Hug-Hellmuth; Translated from the German by James J. Putnam, M. D., Harvard Medical School, and Mabel Stevens, B. S., Wellesley. Washington: Nervous and Mental Disease Publishing Company, 1919. Pp. XIII, 154. Price, \$2.00 or more.

This Freudian monograph is number twenty-nine in the Nervous and Mental Disease Series. It is one of the very few discussions in English of the early life of the child from the original Freudian viewpoint. This time the author is a woman and she unintentionally reveals a bit of the fallacious reasoning, defective logic-mechanism, not infrequent in the crude doctrines of Freud; witness the following from the introduction: "As a matter of fact, the infant who finds a source of pleasure in strong muscular activity always exhibits outward signs of emotion, such as increased brilliancy of the eyes, flushed cheeks, and so forth, that are well known to the adult as indications of sexual excitement." That is to say, exercise flushes the cheeks; sexual excitement flushes the cheeks: Therefore exercise is sexual excitement, "muscle-erotic." Exercise hastens the heart; sexual excitement hastens the heart: Therefore tachycardia is due to sexual excitement — would be just as scientific, precisely as true. On page 88 one rejoices in the following grotesque Freudism: "*Pleasure in such occupation [comparing penile lengths] explains, too, why boys, — as a rule, — acquire a real familiarity with numbers and figures earlier than do girls.*" The present reviewer respectfully presents this as a bit of wisdom characteristic of Freudism not yet regenerate. "The act of casting something at an object, aiming at something, could be considered as a symbol of erection, which may occur even at an early age," etc. Who would not a Freudian be! (The line forms on the right, gentlemen.)

But of course Jung has helped us to forget these things, and Kempf is

still helping; and often before a great man has been made ridiculous by his disciples, — if Frau Hug-Hellmuth may be so designated.

As a contribution to genetic psychology there is relatively little that is worth while in this monograph, and partly because what few original paidologic observations there are are sullied by an interpretation without sanction — sex, and always sex, runs universally through the book almost ad nauseam. One can read between the lines the obsession of the author; and empathy does the rest. She applies this unilateral sort of interpretation even to the observations of others. For example: "We have no such detailed records before us about any other child, concerning pleasure in climbing, as we have about Shinn's niece, Ruth. The writer does not suggest the sexual significance of this kind of muscular activity, but its presence can be recognized from the abandon with which the child carries on these exercises, from her persistence in performing them, and from the strong pleasurable reaction which they excite." In other words, all pleasure is sexual, to this author.

G. V. N. D.

HUMAN EFFICIENCY AND LEVELS OF INTELLIGENCE. By Henry Herbert Goddard. Princeton University Press, Princeton, New Jersey, 1920. 128 pages. Price \$1.50 net.

This excellent and interesting book is an attempt to generalize in the application of findings of the psychological examination of the Army during the late war. Society is seen classified according to levels of intelligence. The first chapter deals with the method and data of the Army tests. The application of this material in producing greater efficiency throughout mankind is discussed in the next chapter. Then the relation between mental level and delinquency follows: Lastly, mental levels and democracy, culminating in a climax with an ideal expressed in this paragraph (page 97):

"The disturbing fear is that the masses — the seventy million or even eighty-six million — will take matters into their own hands. The fact is, matters are already in their hands and have been since the adoption of the Constitution. But it is equally true that the eighty-six million are in the hands of the fourteen million or of the four million. Provided always that the four million apply their very superior intelligence to the practical problem of social welfare and efficiency."

The book is stimulating and plausible, but overdone. The analogy between the printing press and the brain, which forms the basis of a good deal of the argument, is weak when so much data is at hand. The importance of the level of intelligence is stressed at the expense of environmental factors, for instance. The statement that the average person is probably between thirteen and fourteen years of age intellectually needs qualification before entering popular literature. Such statements as (page 72) —

. . . "It is sufficient to state that every investigation of the mentality of criminals, misdemeanants, delinquents and other anti-social groups has proven beyond the possibility of contradiction that nearly all persons in these classes and in some cases all are of low mentality"

and (page 73) —

"In view of these facts it is no longer to be denied that the greatest single cause of delinquency and crime is low-grade mentality, much of it within the limits of feeble-mindedness"

show the book to be intemperate.

The book is a noteworthy contribution, and should be widely read; but it ought to be regarded as an extreme presentation of the place of mental testing.

A. WARREN STEARNS.

THE PSYCHOLOGY OF LEARNING. By William H. Pyle, professor of Educational Psychology, University of Missouri. Baltimore: Warwick and York, 1921. Pp. 293. Figs. 36.

The ambition of the author, according to his preface, is to summarize in one volume "everything that is known about learning." We have long needed a compilation of the results of experiments upon learning into a ready reference text. Prior to the appearance of Professor Pyle's book the sources of information were so widely scattered that a comparative study of material was exceedingly difficult to make. For our convenience the author has reviewed in his little book over two hundred published experiments, and at the conclusion of each topic has summarized the findings and has drawn well warranted conclusions. Thus we find convenient digests of studies pertaining to the learning curve, economical learning, retention, individual differences in learning, transference and interference, and fatigue. Each chapter is rich in material succinctly presented. It is to be regretted, however, that the author has seen fit to break into the experimental trend of his treatise with an unnecessary chapter devoted to speculation upon the inborn nature of man.

There is no discussion in the book of the influences of various types of imagery upon learning. The differences in the speed of acquisition and in the capacity for retention which are found among various imagery types are important for educational psychology. Reliable work relating to the presentation of material to the visual, auditory, motor, and mixed types has been done by O'Brien, Meumann, Pohlmann, and Thorndike. An account of their experiments should not be omitted from a text which purposes to include everything that is known about learning.

There can be no doubt that the work is remarkably comprehensive (almost as comprehensive as the author's claim for it); it is in addition

clear and compact. The book should serve well the purpose for which it was intended, an advanced text in educational psychology.

GORDON W. ALLPORT.

THE VALUE OF SCHOOL SUPERVISION. By Marvin S. Pittman, professor of Rural Education, Michigan State Normal School. Baltimore: Warwick and York, 1921. Pp. 126.

This little book describes the effect of supervision upon the work of rural schools when the supervision is made according to the Zone Plan. The author himself is the inventor of the Zone Plan which provides for systematic supervision of class room instruction, for convenient and effective teachers' meetings, and for the arousal of community consciousness in behalf of school problems and school progress. The experiment with the Zone Plan produced notable results when comparison was made between the territory supervised and the control territory which was not supervised. The beneficial results of the plan are to be seen in the improvement in scholarship, in a financial saving by a reducing of the number of children repeating grades, in an increased school attendance, and in a promotion of neighborhood organization and community spirit.

G. A.

STATE MAINTENANCE FOR TEACHERS IN TRAINING. By Walter S. Hertzog. Baltimore: Warwick and York, 1921. Pp. 144.

This study analyzes the problem of the shortage of well trained teachers in our public schools. State subsidy of teachers in training is considered from the point of view of precedent, with a careful weighing of the advantages and disadvantages of this practice. The study concludes on the basis of statistical evidence that laws should be adopted in all states to provide for tuition and scholarships of at least three hundred dollars annually for two years of training for qualified candidates. Several samples of current legislation in behalf of financial aid to teachers in training are appended.

G. A.

PERIODIC VARIATIONS IN EFFICIENCY. By Archibald G. Peaks. Baltimore: Warwick and York, 1921. Pp. 93. Educational Psychology Monograph, No. 23.

The rhythms of efficiency are studied in relation to the influences of bodily condition, the time of day, week or year, and of weather conditions. The author's faithful experimentation during long periods of time makes an interesting chapter in the technique of experimental psychology. The monograph contains likewise a review and criticism of previous studies relating to the periodic changes in mental and physical efficiency.

G. A.

A CORRECTION

TO THE EDITOR OF THE JOURNAL OF ABNORMAL PSYCHOLOGY AND SOCIAL PSYCHOLOGY:

Sir:

In my account of Dr. William McDougall's position on the theory of instinct, in a recent article in the Journal entitled "The Dilemma in the conception of instinct," I quoted only from his discussions of the subject in *Body and Mind*; and my colleague reminds me that this hardly does proportionate justice to other aspects of his theory. The following propositions will give a more adequate account of Dr. McDougall's position:

(1) Instinctive activity, like all other mental activity, is essentially purposive.

(2) It is probable that all purposive activity will remain refractory to mechanical explanation (*Body and Mind*).

(3) But if such explanation should be achieved (and Dr. McDougall has himself advanced hypotheses which would go far, not indeed toward meeting the objections urged in *Body and Mind*, but toward filling the gap left by current hypotheses, as in *American Journal of Insanity*, 1913, pp. 861-872), the essential thesis, that instinctive activity is purposive, remains standing.

WILLIAM ERNEST HOCKING.

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