Critical Review.

THE WISH AND THE AUTONOMIC SYSTEM.

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"The structure of psycho-analysis that we have erected is really only a superstructure, which at some future time must be placed upon its organic foundation."—S. Freud.

Time was when academic or arm-chair psychology held undisputed sway. It was purely intellectualistic, but like everything else duly served its purpose; now, like Marley, it is "dead as a door-nail". Perhaps, like Marley's ghost, it will come back in modified form at some future appropriate time.

Its place was taken by experimental or laboratory psychology, which under the auspices of Wundt had a brilliant reign. This reaction-time psychology, however, savoured too much of a refined physiology of the special senses, and by its very methods deliberately strove to eliminate the element of afferctivity from the field of investigation. Its most noteworthy achievement was the establishment of sensation as the unit of psychological process. More recently the gap which rendered this phase of psychology devoid of pragmatic interest has, in many instances, been bridged; notably for example by Jung in his word-association studies.

A reaction against intellectualistic and laboratory psychology came with the behaviourist school, which seeks by objective inquiry to arrive at an explanation of human as well as of animal behaviour. The behaviourist is content to pose the question, What is the organism doing? on the assumption that the observable facts will furnish a complete explanation of conduct. Ultimately this is doubtless true, but many pitfalls exist in the application of the method, and it is difficult to be sure that we are not mistaking accident for essence, or confusing part-action with the whole. In order that the answer to the question be complete, it should explain not only what the organism is doing but why the organism is doing it. The outstanding fault of behaviourists is that they have failed to take consciousness into account. The apotheosis of consciousness has certainly been harmful; yet such extreme reaction from it only involves us in other difficulties.
Then came Freud, who, while neglecting nothing that had preceded him, drew attention to the incomplete nature of all questions which previously had been posed. His attitude was, and is, one of eternal interrogation. Far from being satisfied with intellectualistic or laboratory methods, or even with asking, What is the organism doing? he demanded further, Why is the organism doing it, and why doing this instead of an infinity of other apparent possibles? Before this fearless onslaught the older psychologists and psychiatrists drew back amazed, for Freud refused to be deterred when the answers to his never-ceasing questions were of a nature disagreeable to established conventions or prejudiced hypotheses. Being a man of genius, he paid attention to the infinitely little, to the next-to-nothing, and maintained in the face of all opposition that every slightest lapsus must have its meaning. Such a practical psychopathology of every-day life proved most unacceptable to self-satisfied authorities; yet it has triumphed, for Freud persisted until he established the 'wish' as the unit of psychological process in place of the old unit of sensation, which is merely a content of consciousness. Of this doctrine of the wish E. B. Holt says, "It is the first key which psychology has ever had which fitted, and moreover I believe it is the only one that psychology will ever need". Certainly the doctrine of the wish has given to psychology a causal category which previously was lacking.

As with so many of Freud's terms, exception has been taken to the word, and psychologists have attempted to improve upon it by substituting such expressions as 'conative tendency' or 'dynamic trend', etc. To all of which Freud would, I think, reply, "A rose by any other name would smell as sweet, provided only that you have no repressions with regard to it".

The 'wish' may be simply defined as a course of action which the organism is prepared to take with regard to some situation or object in its environment. Ever since the days of Darwin, biologists and physiologists have recognized that even reflex action is purposeful, i.e., reveals a wish. Sherrington in particular has laid stress on this fact, and has made use of it in his experiments; thus he says, "To glimpse at the aim of a reflex is to gain hints for further experiments on it". But to study isolated reflexes is to pick the organism to pieces, and this, though desirable in physiology, is inadmissible in psychology, for by so doing we destroy precisely that which we set out to study. We may well ask why, if the wish or purpose in action is so obvious, was it not more readily recognized, and why did Freud's doctrine meet with ridicule and determined opposition? The answer would seem to be that for its complete understanding another factor, the unconscious, must be
reckoned with. The omission of this factor obscured the struggle which takes place between asynergic purposes. Now wishes conflict when they would lead the organism to opposed lines of conduct, and in such cases one of the wishes is liable to be repressed. Yet, though now unconscious, it nevertheless continues to exercise an influence upon conduct. The intellectualists had overlooked the unconscious, while behaviourists had ignored consciousness; hence neither were in a position to understand the capital rôle of the wish in determining conduct. Of course, where conscious and unconscious wishes reinforce one another no difficulty arises; but when, as is so frequently the case, the two are opposed, behaviour becomes complicated and difficult of interpretation. For its explanation we require to know all the wishes of which it is the resultant overt expression.

In order to discover the unconscious wishes influencing behaviour, Freud developed his psycho-analytic technique. With the many theoretical conclusions at which various workers with this technique have arrived it is not my purpose to deal. Freud himself has always been more interested in mental mechanisms than in the mere interpretation of behaviour or symptoms; yet he has nowhere attempted to explain the physiology of the wish. He has used rather vaguely a concept of psychic energy without in any way seeking to define it.

Alfred Adler, one of Freud's earliest followers, who subsequently seceded from the group, does make an attempt to correlate psychological and physiological data by assuming that abnormalities in conduct arise as compensatory reactions against organ inferiority. But this, although it contains a nucleus of truth, proves a one-sided and incomplete hypothesis.

More recently Edward Kempf has sought to demonstrate the physiological basis of the wish, and the purpose of this article is concerned mainly with his very stimulating conclusions. Kempf maintains that the wish may be completely accounted for if it is recognized as none other than a localized autonomic-affective craving, which compels the organism to such behaviour as shall satisfy the craving. Thus the source of the wish is peripheral; it is to be discovered in the autonomic system. Before entering into the detailed application of Kempf's hypothesis, it will be well to outline his conception of the autonomic system and its servant the projicient, or cerebrospinal system. The autonomic or vegetative apparatus is the more primitive of the two. It consists of all the viscera, with the nerves which innervate them, whether the latter belong to the sympathetic or parasympathetic division; also the autonomic neurones of the cord and cerebellum (proprioceptive...
system), which maintain posture in striped muscles (sarcoplasmic element\(^{18}\)). The cerebrospinal nervous system proper and the striped muscles (sarcostylic element\(^{14}\)) constitute what Kempf terms the projicient apparatus. According to Kempf, this more recently developed apparatus must be regarded as having been evolved as a mechanism for securing the gratification of the primitive autonomic cravings.

Without the latter apparatus the satisfaction or neutralizing of a craving, e.g., hunger, would be very largely a matter of chance. The function of the projicient apparatus is to acquire for the receptors the craved-for stimulus, and conversely, where the craving is of a negative or avertive nature, to remove the receptors from the noxious stimulus. It thus brings the organism into intimate relationship with its environment.

Since there is a continual though varying stream of affective impulses from all parts of the autonomic apparatus, the organism must be constantly adjusting itself. Most of the time this affective stream is subliminally active, and adjustment is brought about reflexly; but if the tension of any segment is greatly increased, the organism becomes aware of the craving and seeks to adjust to it overtly as a unity, by acquiring such stimuli as have the capacity to relieve or neutralize it. To illustrate Kempf's views by a simple example such as hunger: Cannon and Carlson\(^{15}\) have shown that definite gastric contractions are concomitant with the gnawing craving arising in connection with the organic need. This may be described as a hypertonic posture in an autonomic segment. It cannot be reflexly adjusted, and therefore causes awareness of the need in the organism, which now seeks to neutralize it by the acquisition of a suitable stimulus, namely food. In this simple instance we see the peripheral origin of the wish in an autonomic segment and its neutralization by means of the projicient apparatus. But Cannon and Carlson have further shown that when a painful stimulus excites either a contact or distance receptor, the stomach assumes a hypertonic posture, and that its secretions are held in abeyance. This state of affairs is concomitant with a feeling of fear or anxiety, and persists until the avertive craving has been neutralized by the projicient apparatus, which may either destroy the stimulus by fight or place the organism beyond the range of action of the stimulus by flight. From this it will be obvious that Kempf is a firm adherent of the James-Lange theory of emotions; he indeed goes much further, and declares boldly that "in a certain sense we think with our muscles". Hence both thought and emotion are peripheral in origin, and the cerebrospinal or central nervous system has no other function than the integration of the
various peripherally-arising wishes, so that a maximum of affective gratification may accrue to the organism as a unity.

This brings us to a consideration of the nature of consciousness. No branch of neurology has been able to demonstrate that any nerve centre within or without the brain has anything like the functional capacity that could entitle it to be looked upon as a centre of consciousness. On the other hand, every living cell has the capacity to react to certain stimuli with such qualities in the reaction as may be regarded as a manifestation of awareness. "Hence it is necessary to recognize that the nervous system has only the capacity of integrating the activities of the peripheral organs".

Consciousness in the ordinary sense of the word occurs when the body as a unity must adjust itself to the special or dominating activity of one of its parts. The content of consciousness depends then upon the activity of our receptors, and the justification for the dictum "We think with our muscles" is that the kinesthetic impulses arising from the proprioceptive field are much more numerous than those from all other receptors.

The essential basis of an efficient personality, as of a business, or society, is the organization of its constituent parts into an integrated unity, so that each part-need or craving is satisfied without jeopardizing the interests of the whole. In proportion as integration is incomplete there is inco-ordination, and part-cravings conflict for control of the final common motor path irrespective of the interests of the organism as a unity. When any one segment thus succeeds in making the organism as a whole subservient to it, the organism becomes mal-adjusted, or ill. We have now to consider the more important factors which may determine this outcome of the striving among various autonomic segments. It is well recognized that in lowly organisms instinctive response to stimuli is relatively fixed, but that, as we ascend the evolutionary scale, response becomes increasingly plastic, so that one and the same stimulus may evoke differing types of behaviour. Also a stimulus, which primarily was indifferent in so far as a particular reflex or instinctive action is concerned, may later come to call forth the response. The researches of Pavlov, Bechterew, and others have shown conclusively that this is due to "conditioning".

There is no need to enter into the experimental proof of conditioning, but it is of capital importance for the understanding of behaviour. It is in the conditioning of the segmental cravings to react to associated stimuli that the individual comes to develop characteristic traits. These constitute the very foundation of character formation, and determine vitally important preferences.
and aversions throughout life. Conditioning proceeds unconsciously from earliest infancy, and thus is responsible for 'fixations' in Freud's sense of the word. Fixations once established are a most important factor in giving rise to conflict and repression.

This leads us to the subject of repression, and in his treatment of this lies the crux of Kempf's hypothesis. The conflict of the various autonomic cravings seeking to obtain neutralizing stimuli causes heightened visceral tensions and postural tonicities. The egoistic unity cannot attack segmental cravings directly, but attempts to keep any perversely conditioned craving from consciousness by controlling the final common motor path of the projicient apparatus. If this attempt is only partially successful, the segment, though not able to dominate the projicient apparatus completely, yet does so sufficiently to cause the organism to be conscious of its need—this constitutes suppression. When, however, the attempt meets with complete success, the ego represes the segment to such an extent that it cannot even cause consciousness of its need—this constitutes repression proper. The craving being now unable to acquire neutralizing stimuli, the visceral tonicity persists, and "the repressed affect seems to be stored like the energy of a compressed spring in the heightened postural tension of some division of the autonomic apparatus".21 Hence repression "merely walls in the wishes, but does not disintegrate them", and the repressed affects which are bound up in the postural tensions incessantly trying to force the organism to become conscious of their needs and seizing upon the slightest opportunity for gratification, cause uneasiness. The repression, however, is maintained by a vigorous co-ordination of the rest of the autonomic apparatus (which acting as a unity constitutes the ego) upon a substituted or compromised line of behaviour, thereby continually preventing the intolerable perverse craving from causing awareness of its need and jeopardizing the status of the whole organism.

According to Kempf, then, affective reactions are to be regarded as resulting from these autonomic postural tensions, and emotion is the result of cravings which, being suppressed or repressed, are unable to release the tensions by acquiring neutralizing stimuli. Kempf discusses, from this point of view, some of the major emotions.22 For example, he considers that the various manifestations of fear are all due to some kind of noxious stimulus, and exist as heightened postural tensions as long as the organism fails to protect itself by removing the receptor from the stimulus. "If a means could be devised wherein a local anaesthetic could prevent the spasmodic adjustment of the diaphragm and viscera from producing feelings of fear, the animal would not flee or feel any fear."23
Anger in all its varieties tends to remove the noxious stimulus from the receptor, and to continue to do so until the stimulus is sufficiently altered as to be harmless. When this is brought about, the uncomfortable tensions cease and the organism is appeased. "Self-protective anger may be aroused by the discomfort resulting from affective cravings failing to acquire necessary stimuli. This additional aggressive component may then make the acquisition possible by overcoming the resistance." This corresponds to the thesis I put forward that the goal of emotion is to enhance interest.24 Disgust seems to include elements of fear and anger reactions, and is caused by the gastro-intestinal defensive-emissive movements. Disgust, though primarily gastro-intestinal, comes, by conditioning, to be applied to other stimuli.

Thus the affective stream arises peripherally from the receptors in the autonomic apparatus. The thought content of consciousness is largely determined by the nature of this stream as it affects the postural tonus of the striped muscles, and the projicient apparatus may be regarded, in a sense, as the thinking apparatus of the body trying to acquire means to please the affect. This corresponds to Holt's dictum that the wish is a course of action which some mechanism of the body is set to carry out, and that thought is latent course of action (motor setting) with regard to environment.25 But Kempf goes further in assuming that the motor sets are compelled by the affective autonomic stream seeking so to dispose of the receptors as to avoid noxious stimuli, or acquire stimuli which will re-establish a comfortable postural tonus.

Kempf is such a whole-hearted supporter of the James-Lange theory of emotions, and credits the cerebrospinal nervous system with such entirely subservient functions, that even granting the phylogenetic priority of the autonomic system, he overlooks the fact that later-developed structures and functions supersede and dominate the more primitive. In a conflict of instincts, for example, it is usually the more primitive which succumbs. It is well recognized, as I have pointed out elsewhere, that the more highly developed the central nervous system in any species, the greater and more numerous are its emotional responses. Yet as a more highly developed projicient apparatus should enable the organism more effectively to acquire neutralizing stimuli, one would expect higher animals, especially man, to be relatively free from emotions. As the converse is true, it would seem that we cannot ignore the rôle of the higher nervous centres in the genesis of emotional reactions. Since the organism is a unity, we might expect emotions, no matter what their origin, to suffuse it, and not be confined to manifestations in one part. The function of the so-called physical concomitants
of emotion clearly seems to be to help the organism in the motor activity to which the emotion would lead it.\textsuperscript{26, 27} According to Kempf, however, the cerebrospinal system is compelled by the so-called physical concomitants both to feel and to act.

Other questions which arise are as to whether the distinction which is generally drawn between affect or interest and emotion is valid or artificial, and whether the simple sensations which arise in connection with organic needs such as micturition and hunger can legitimately be classified with emotions. Hunger, which Kempf cites as a critical instance because its mechanism has been fairly fully worked out by Cannon and others, is generally regarded as a specific appetite tendency. That is to say, it is recognized as depending upon a state of the body, is accompanied by uneasiness, and is periodic in its operation. Notoriously the pangs of hunger pass off if gratification is long deferred, whereas an essential point in Kempf's hypothesis is that the affect or emotion is stored up in an indefatigable postural tension. Are we to consider the emotions, which arise in connection with the instinctive processes, as in essence nothing other than conditioned appetitive tendencies? Should further research justify such a view, we shall have to consider Kempf's hypothesis as, in the main, proved.

It is interesting to note that although Kempf is in general a firm believer, not only in the value of psycho-analytic technique, but also in most of the conclusions which Freud has deduced from its use, his belief in the peripheral origin of emotions renders Freud's conception of the conversion of the energy of the repressed wish into physical symptoms unintelligible to him;\textsuperscript{28} while to Freud "what psychology has to say about emotions—the James-Lange theory for instance—is absolutely incomprehensible ",\textsuperscript{29} In such an impasse a \textit{via media} must be sought. Not only has Freud not overlooked the constitutional basis of behaviour and psychic deviation, but on the contrary he has frequently drawn attention to it. If Kempf did not claim so all-dominating a rôle for the autonomic segments, but were to allow to their slave the projicient apparatus some influence upon the feelings and conduct of the organism other than the mere securing of gratification to its masters, such a way might be found.

Kempf agrees with Freud that the basal conflict in the psycho-neuroses takes place between the egoistic and libidinous impulses. He states explicitly that "only those individuals are biologically well adjusted whose sexual affections are so conditioned that, in their striving for gratification, they reinforce the ego's struggle for social esteem."\textsuperscript{30} He has paid more detailed attention to the development of the egoistic tendencies than Freud hitherto has
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done, and considers that the individual's craving for social esteem is the most persistently active of all the compensatory autonomic functions. This is due to the fact that from infancy to old age he is conditioned to obtain his needs by methods which are approved or sanctioned by the herd. If, however, the herd imposes too severe restrictions, adaptation becomes correspondingly difficult. The same forces that, when harmoniously integrated, build up a personality, cause, when unadjustable conflict occurs, its deterioration; and Kempf, as a result of his observations, gives us a mechanistic classification of neuroses and psychoses based upon the psychopaths' affective difficulties and their attitude towards these. This classification is a great advance upon any previous systems, which have all been founded on a static conception of neurology. It may be adopted without necessarily accepting Kempf's fundamental hypothesis, for it holds good no matter what the origin of the intolerable wish.

Kempf's work is of so all-embracing a nature that space only permits of the outlining of his more important conclusions, and it is impossible here to take up the far-reaching applications which it has to the problems of education, social laws, and religion, or to what he terms "the struggle for virility, goodness, and happiness". In essence the whole problem is one of conditioning of the various autonomic-affective cravings. Yet we must see to it that social conditions are not too restrictive, and remember that moral laws are only moral in so far as they promote the progress (virility, goodness, and happiness) of society, for as Bacon said; "We cannot rule Nature except by obeying her".

The essence of Kempf's thesis is the translation of the wish—established by Freud as the unit of psychological process—into terms of indefatigable visceral tonus and postural tensions compelled by autonomic-affective cravings. True, the importance to psychology of the autonomic and endocrine system has until recently been but little appreciated; but whether we are so to reverse matters as to ascribe to this system the absolutely dominating rôle which Kempf would have us do, must depend upon further researches.

In any case the painstaking work of Kempf, which is based upon a personal study of over two thousand psychopathic and criminal personalities of many nationalities and intellectual levels, constitutes a distinct contribution to psychopathology, and merits very careful consideration. It is a commendable attempt to explain the organic physiological foundation of the wish, and certainly provides a practical and monistic conception of personality.
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Critical Review: THE WISH AND THE AUTONOMIC SYSTEM.
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*J Neurol Psychopathol* 1921 s1-2: 39-48
doi: 10.1136/jnnp.s1-2.5.39

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