THE PHENOMENON OF ABREACTION.

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EVER since the publication of *Studien über Hysterie*¹ by Breuer and Freud, the phenomenon of abreaction has been familiar to psychotherapists; indeed the observation of this phenomenon was the foundation of all analytical theory and practice. These observers, while treating certain patients by hypnosis, discovered certain forgotten memories whose revival was accompanied by considerable emotional reaction. This in itself was of great therapeutic benefit, and for a time constituted the method of cure adopted by Freud himself. Later, he found that this alone was not enough, and proceeded to develop from it the elaborate technique of psycho-analysis. Later workers have held that this revival of the memory of psychic traumata with the accompanying emotional reaction must not be taken too seriously; for example, Jung² refers to it, and says: "I too soon discovered that certainly some traumata with an obvious etiological tinge are opportunely present. But the greater number appeared highly improbable. So many of them seemed so insignificant, even so normal, that at most one could regard them as just providing the opportunity for the neurosis to appear. But what especially spurred my criticism was the fact that so many traumata were simply inventions of phantasy which had never really existed. This perception was enough to make me sceptical about the whole trauma-theory. I could no longer suppose that the hundred and one cathartic experiences of a phantastically puffed-up or entirely invented trauma were anything but the effect of suggestion. It is well enough if it helps. If one only had not a scientific conscience and that impulsion towards the truth! I found in many cases, especially when dealing with more mentally gifted patients, that I must recognize the therapeutic limitations of this method." However this may be, everyone will agree that the phenomenon does occur and is apparently attended by therapeutic benefit, though it may have little to do with the true etiology of the neurosis. Some workers, notably Dr. William Brown,³ attach more importance to this factor in treatment *per se* than do others. Dr. Brown regards psychocatharsis or abreaction as an essential part of the cure of neurotic symptoms. He holds that "the emotional tone of the individual experiences is retained in the mind in the same way in which these experiences

themselves are retained". He also speaks of the bottling-up of energy at the time of the original trauma, and the freeing of this bottled-up energy by means of the abreaction.

The explanation seems very inadequate, for how can 'emotion' be bottled up, or, for that matter, retained as such? Such expressions are all very well if it is remembered that they only represent policies useful for descriptive purposes; but if we are to have any conception of what happens from a physiological point of view, we must find some other means of expressing the phenomenon. From this standpoint we must assume that psychic experience depends on activation of groups of neurones in the nervous system; and if we can get any idea of what happens to these neurones when abreactions occur, we are in a position to bring into line the physiology of the higher levels of the nervous system with the theories pertaining to the lower levels which already find acceptance. Objectively what happens under such circumstances is that, in the course of the establishment of associations during the analytical process, a pattern of ideas having become fully conscious, the patient describes the memory image, and with this he exhibits signs of more or less intense affective experience in the form of various activities of structures innervated by the vegetative nervous system. Subjectively, he recognizes a set of ideas with a sense of 'againness', and further refers them more or less accurately in time and space, which, as will be seen later, are functions associated with consciousness, or, in neurological terms, integrations on the cortical levels. At the same time he undergoes affective experiences, which may be largely undifferentiated, or the feeling may be sufficiently integrated with cognitive and conative elements to constitute a definite emotion.

The set of ideas or complex which is revived has reference to some incident in the past which has itself been associated with affective experience of considerable intensity, but which has been wholly or partially repressed or suppressed, to use Rivers'⁴ terms, and consequently forgotten.

It is important to be clear as to what is meant in physiological terms by this process. It is evident that in the realm of anatomy and physiology at any rate we cannot talk of either the idea or the feeling being retained as such. We may, however, suppose that when a given stimulus activates a certain collection of neurones (an engram), that engram is modified by the activation; that such engrams will include neurones of the vegetative nervous system as well as neurones in the central nervous system; that if the spread of activity through the central nervous system neurones is for any reason interfered with, the activity will tend to spread in the vegetative neurones, thereby inducing more intense feeling; and vice

versa, if vegetative activity is inhibited, either more intense or more widespread neuromuscular activity will take place in the form of action and thought. Such partial inhibitions probably explain various neurotic phenomena. The inhibited neuromuscular action with the 'drain' to the vegetative system explain such symptoms as the crises of panic so common in the deficiently adapted extravert. The 'drain' to the neuromuscular system of the diffuse type explains various obsessive thoughts; and of the more intense type, obsessive actions, and perhaps under different circumstances certain alterations in postural tone, tremors, etc. This 'drain' from certain neurones of an engram is equivalent to the suppression of the results of the activation of these neurones. This phenomenon is common enough under normal conditions, as, for example, in the emotional reaction of fear. Probably we have all experienced a condition in which neuromuscular activity is suppressed and affective activity is allowed full play. The suppression of the affective activity is referred to by Rivers⁴ in his description of what he calls manipulative activity in the presence of danger. "Highly complex acts designed to allow escape from, or to overcome, the danger, are carried out as coolly as, or even more coolly than, is customary in the ordinary behaviour of daily life. There seems to be in action a process of suppression of the fear or other affective state. That there is such suppression is supported by the fact that fear may be present, perhaps in an intense form, if the experience is reproduced later in a dream." Such interference, which may prevent the natural outcome of central neurone activation in the form of muscular work, may be due to the activation of other engrams which exert an inhibitive influence on the spread of activity, as Head, Sherrington, Pawlow, and others have shown to take place on the lower levels. We have then, as the result of the stimulus induced by any given contact with environment, a definite engram established in the nervous system. If this is activated by any subsequent stimulus, a pattern of feeling, thought, and action will be observed subjectively and objectively which will resemble more or less closely the psychological and neurological effects of the original incident according as the original engram was definitely delimited; but the patterns induced will probably never be exactly the same, inasmuch as a new stimulus must activate other neurones. Such a pattern of thought, feeling, and action will constitute an image of the previous incident which will be said to be remembered whenever the engram is reactivated.

Another factor may come in. The activity of the vegetative neurones will determine the secretion of various endocrine glands, and although our knowledge of the effect of variations in the concentration of these secretions on the delicate synaptic adjustments may

be said to be non-existent, it is not unreasonable to suppose that it is by some such means in relation to the affective experience of pleasure and pain that the relationship of the various neurones to each other is modified. The exact details of what happens are far too complicated to allow us to describe exactly how any engram becomes dissociated from the general mass of neurone systems; but it may be presumed that its synaptic junctions are so affected that the activation of its neurones in just that combination is inhibited, and it remains more or less incapable of being reactivated as a whole in just such a way as to reproduce subjectively an image of the original happening. As Rivers has remarked, it is the sets of ideas associated with the most intense emotions which tend to be repressed, i.e., those patterns whose activation depends on activity of a large proportion of vegetative neurones which at the same time induce changes in the endocrine glands. As a rule, certain elements of that engram are capable of reactivation, and if they come into relationship with other neurone systems a new pattern of thought, feeling, and action having some symbolic relationship to the original happening may be present in consciousness, as a result of the activation of this engram formed, so to speak, out of parts of the suppressed engram, by the process referred to by Rivers as fusion. This is a common feature amongst neurotic patients. For example, to relate a case in actual historical order, that is, in inverse sequence to its elucidation in the course of analysis. A child brought up in a Calvinistic atmosphere and having been strongly impressed with the danger of hell fire, was possessed of precocious musical talent, and from an early age was destined for a career on the concert platform. When about seven she was taken to see 'Faust', which impressed her very much, both from the point of view of the music and the drama. Soon after this she broke a valuable vase belonging to her mother, of whom she was afraid, and hid it in the dustbin, and, as luck would have it, was present next day with her mother when the dustmen came to remove the rubbish. She immediately fell into a panic lest she should be discovered, and, remembering 'Faust', vowed her soul to the devil if she should escape detection. She was not discovered, and soon after was overwhelmed by what she had done. The memory of this occurrence was soon dissociated and suppressed, but there remained an inordinate fear of death, which later on was modified into a general fear of illness. The image of the original incident was revived in the course of mental exploration with marked abreaction. Here, then, was a pattern that had become dissociated from the rest of conscious content, and this must have depended on an inhibition of activation of the corresponding engram; but, as has been seen, symbolical representations were possible.

The point of inquiry which I wish to deal with in the present

paper is the explanation of the affective reaction which accompanied revival, and the improvement in the general health of the patient which ensued. The theory of memory which Professor Lloyd Morgan put forward in his Gifford Lectures seems to throw some light on this question. He describes six criteria involved in memory, to wit, the register, registration, retention, revival, recognition or renewal with a sense of againness, and reference in time and space. The register, registration, and retention are already observable on the plane of physics and chemistry. Any object can serve as a register; a stimulus coming from outside is capable of registering an impression on it, and that impression can be retained; but revival is not met with on this plane. With the emergence of life, however, revival is possible, and indeed is an essential feature of life. For example, the leaves of the trees are revived each spring, the mental and bodily characters of the offspring are revivals of those of its ancestry. Such revival is not necessarily conscious, and in the examples given is not so. Recognition of the revival with the sense of againness is, however, a conscious process, but it does not necessarily involve reference; we may be quite sure we have heard or seen a thing before without being able to say when or where; this reference involves a still higher integration, and corresponds to the type of function of the frontal lobes as described by Professor Bianchi.⁵ It will be noticed that each of these criteria of memory involves more and more complex integrations, and that the higher ones involve the co-existence of the lower ones—revival is impossible without registration and retention; recognition is impossible without registration, retention, and revival; and reference without recognition and the rest. But it cannot be too strongly insisted on, that by retention it is not meant that the image or feeling is retained as such. As Lloyd Morgan says: "What is retained is not that which is mentally reproduced, but some organic precondition of its so-called revival, such as is afforded by some neural engram. There is, strictly speaking, no revival (in the etymological sense) of the memory image as from sleep or trance; there is a new birth of an image-child like unto, but yet differing from, the parental percept. Secondary retention is of the same order as that which might be called tertiary retention, in the plant, of the capacity of flowering in the spring. Ghostly blossoms are not retained; but new flowers are produced by the plant in due season and under appropriate conditions. So, too, images blossom forth to-day and reproduce with a difference the likeness of percepts of weeks, months, or years ago."

To return to our dissociated engram involving percepts of vase, dustman, mother, Faust selling soul to the devil, etc., in association, and its revival with abreaction; this 'feat of memory' brought about

by analysis involved revival, recognition—i.e., the revival with a sense of againness—and reference in time and space. Can we, along these lines, get any explanation of the abreaction and of the therapeutic benefit? I believe we can.

In the process of analysis all sorts of associations are established on the level of consciousness. Sooner or later, in the various combinations which occur, the synaptic resistances which have inhibited the reactivation of the dissociated engram are evaded or overcome, and it is again associated with the rest of the personality at the level of consciousness. The pattern which depended on this engram involved thought, feeling, and perhaps action; hence, when the engram was again reintegrated on the level of consciousness, its activation involved the production of a cognitive image like the original experience, and feeling corresponding to the original feeling. However, it is not only that reactivation on a conscious level of the vegetative neurones of the original engram induces an affective experience; there is something else. This revival with a sense of againness in addition to its cognitive properties itself involves affective experience. There is definite feeling attached to this recognition, as we all know from personal experience. Translating this into neurological terms, recognition involves the activation of neurones of the vegetative nervous system independently of any reactivation of such neurones involved in the original engram. I would suggest that it is the summation of these vegetative activities with their accompanying affective experience which accounts for the phenomenon we describe as abreaction.

The therapeutic benefit induced by this revival with abreaction depends, in my opinion, not on the abreaction itself, which is an incidental accompaniment of the essential reintegration of the pattern on the level of consciousness, but on the still further involvement of reference in this process. In the example quoted, the patient not only remembered the incident with a feeling of againness, but she was also able to say that this incident occurred at such and such a place and at such and such a time.

As has been said above, the reference of an incident to time and space is the function of the higher cortical levels. This is clearly seen in Head's⁶ observations on sensation in relation to the sensory cortex. Epicritic sensation essentially involves accurate discrimination in space, as opposed to the diffuse and radiating reference of protopathic sensation. Hence we may see that when a complex is thus referred it is organized on the cortical level. But another function of the cortex is the control which it exercises over the lower levels. This is particularly well seen in relation to both the motor and sensory cortex. Head, Rivers, and Holmes⁶ have shown how

cortical function involves a partial fusion and partial suppression of thalamic function. It is clear also that on the cortical level the various functions depend on each other to a remarkable extent. For example, if the sensory cortex corresponding to one hand is injured, not only will the sensation of the hand be impaired, but its motor function will be deficient as well, as a result of the hypotonia induced. Similarly on conceptual levels the dropping out of any sentiment, or even of a less well organized set of ideas, will upset the nice adjustment required for perfect health. It is on this that the unity of the personality depends, and it is in this respect that the neurotic experiences his failures and difficulties. His personality is not integrated and unified, and consequently he is the subject of continual conflict. From this it follows that the reintegration of any complex must be of therapeutic value. If and when the complex which was reintegrated in the course of treatment was the only one seriously dissociated from a personality—that is to say, the only pathological complex, if this expression is not a tautology—the patient will be cured. Such simple examples occurred not infrequently during the war, and have been quoted in large numbers by writers on war neurosis, and though less frequent are by no means unknown in civil practice. In the majority of cases, however, while the reintegration of any one complex will confer benefit, this is by no means the whole story, and consequently further treatment is necessary. Such was the case in the patient, part of whose history I have quoted in the story of the broken vase, but the rest has no bearing on the present argument.

In conclusion, what I particularly wish to emphasize is that in psychotherapy the phenomenon of abreaction is only incidental in the therapeutic process, and that it is not the so-called freeing of bottled-up emotion which does the good, but the reintegration of the dissociated complex into the personality by its recognition with a sense of againness and its reference to time and space.

It should be mentioned that both Myers and McDougall have laid stress on this from a somewhat different standpoint.⁷

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