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STUDIES IN FEELING AND DESIRE

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STUDIES IN FEELING AND DESIRE

by
J. C. FLUGEL

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INTRODUCTION

THERE is a fashion nowadays, which seems to be on the increase, of publishing books of essays which have already appeared in the same or slightly different form elsewhere. I am not altogether sure whether the fashion is one to be approved of. Since the essays or papers collected together in the book have usually been written over a considerable period of years and with the requirements of different periodicals in view, there is almost always, on the one hand, a lack of unity and continuity, while on the other there is, hardly less inevitably, a certain amount of overlapping and repetition, since a writer, even when he is treating different themes and addressing a different circle of readers, nearly always contrives, time and again, to restate his general viewpoint, to drag in his pet ideas, to quote his favourite authors and even to indulge in certain cherished turns of phrase. Many readers will surely sympathise with a publisher of my acquaintance whose first reaction to a proposal concerning such a collection was to ask 'Why don't you write a proper book?'

And yet there is obviously something to be said on the other side. In science at the present day the vast majority of new contributions, as regards both the reporting of new facts and the exposition of new theories, is to be found in periodicals, and a single contributor, in the course of the development of his ideas, often writes for a number of different journals, so that anyone desirous of examining his successive contributions must be prepared to hunt in a variety of places, not all of which may be readily accessible to him or fall within the purview of his ordinary reading. There often comes a time, moreover, when a writer has made a number of more or less interconnected contributions which will reinforce each other and gain in value by being brought together so that they can be considered as a related series, even though he does not yet feel in a position to weld them into such a systematic whole as would constitute 'a proper book'.

Be this as it may, this is the best *apologia* that I can offer for the present short series of what are, I fear, for the most part rather lengthy essays. If they are long, this is partly because the problems discussed are complex and controversial and partly because I have

done my best to treat them in a reasonably thorough manner, not shirking to expose the gaps in our knowledge, together with the loose ends and apparent contradictions to which our explorations and our theories up to date so often seem to lead us. Indeed, any value which these particular studies may possess lies perhaps largely in the attempt to unmask the pretensions of over-facile generalisations and to show how difficult it is to construct theoretical formulations which are fully adequate to the variety and richness of the facts. The result is, I fear, that only too often more new problems have been raised than old ones solved. This however, if embarrassing, may have its salutary and stimulating aspects, while on the more positive side I can perhaps claim to have done something to show the relations between certain largely independent lines of thinking and research, even occasionally to have revealed a certain happy convergence of approaches which had been undertaken by different methods and from different points of view.

Of the five papers appearing in this volume, four are mainly theoretical, though they endeavour to take account of the chief relevant material from the factual and experimental fields.

The treatment of sublimation represents an effort to examine the real difficulties and complexities which underlie this useful and, one might almost say, popular, concept. I have regarded it as only a particular aspect (though no doubt socially and morally a very important one) of the wider concept of displacement, and it is hoped that the considerations here advanced will do something to clarify this latter notion also, which, though long recognised and treated under various heads (including of course such familiar ones as 'association', 'learning' and 'conditioning') has all too seldom been dealt with in a way which adequately relates the psycho-analytic findings to the facts and theories stressed by other schools.

The three other theoretical articles are all to some extent interconnected, in that the considerations raised in the two earlier papers are very relevant to certain important aspects of the theme of the death instinct and homeostasis, with which the last paper is concerned. It is in this last paper especially that I hope to have succeeded in bringing a greater degree of order and perspective into a concept which many have found at once fascinating and confusing.

The theory of the death instinct, as formulated by Freud, is a many-sided one, and few if any authors—inside or outside the psycho-analytic school—have attempted a full-scale examination of the relations between the different aspects of the doctrine. Quite a number of investigators have very profitably followed up (though

often under different names) the concept of equilibrium or homeostasis, frequently, it seems, hardly realising that they were dealing with the same notion that Freud had expounded in the short but immensely pregnant work *Beyond the Pleasure Principle*. Psychoanalysts on their part seem sometimes to have failed to appreciate that others outside their own school were busy on certain aspects of the same vast theme.

In recent years it has been especially the relation of the death instinct to aggression that has engaged the attention of psychoanalytic writers. Freud's view that aggression has its origin in the death instinct, i.e. that it is originally directed against the self as a death-seeking urge and only secondarily deflected, as a means of self-preservation, against the outer world, though at first sight astonishing and paradoxical, is yet, when we become more familiar with it, a convenient way of accounting for the vast and tragic manifestations of aggression from which the human world has suffered, and which in turn seem paradoxical as long as we regard man as a creature swayed by the desire to seek pleasure, avoid pain and ensure his own preservation.

It is a theory which stands in sharp contrast to the other theory, espoused by quite a number of eminent psychologists from McDougall onwards, that aggression is an impulse which arises as a result of, and is biologically attuned to deal with, the frustration of any of our other impulses. The latter view is the more commonsense one and is usually held to be at least slightly more optimistic in its implications, inasmuch as there is hope that, by diminishing frustration, we can diminish aggressiveness also, and thus perhaps save humanity from the appalling suffering and devastation which aggression, especially when reinforced by scientific knowledge, is liable to bring about. On the other hand the death instinct theory, which implies that aggression springs from a perennial source of energy deeply rooted in our very nature and ultimately independent of any external thwarting or frustration, may seem to provide a more adequate explanation of many apparently unprovoked acts of violence and destruction and of the joyous participation in, or contemplation of, destruction generally. Why, for instance, do we enjoy a scene, so typical of many 'western' films, in which, during a brawl in a 'saloon', men who a moment before were talking and drinking peacefully together, suddenly begin lashing out at one another and smashing up the furniture, while others start shooting at the bottles stacked behind the bar—bottles the contents of which were destined for their own and their fellows' delectation? Why, in an amateur 'circus' organised

as part of the entertainment at a factory workers' party, was the most envied role (which I, as it happened, was privileged to play) that of the 'world's worst juggler', whose business it was to smash a quantity of crockery which he was supposedly trying to keep in the air after the manner of more skilled performers? Why again, when a new view-plate was recently installed on a London height, indicating the chief points of interest which could be seen from there on a clear day, was the harmless tablet defaced and damaged night after night, until the authorities in desperation had to close the park as evening approached (thus incidentally frustrating the lovers who had found it a convenient rendezvous—certainly a victory of Thanatos over Eros)? These may be comparatively 'innocent' instances, and it would be easy to find far more sinister and dreadful ones, committed both by individuals and by groups, culminating in the thrills which most of us experience when we witness, or read of, the widespread slaughter and havoc caused in modern war. Do we not even feel a certain thrill at the possibility, now being seriously put before us by eminent scientists, that mankind, with the help of its new weapons, may soon commit what amounts to nothing short of mass suicide, and perhaps indeed abolish every sort of life on earth—a vision of Thanatos triumphant over all our planet? All this seems to fit in well with the death instinct theory of aggression, as does also another line of evidence forthcoming from clinical and experimental sources, which tends to show that there is in many fields an inverse relation between externally and internally directed aggression, between extrapunitiveness and intropunitiveness, to use two useful modern terms. There is even some evidence that, as long as the more serious dangers connected with outward-turned aggression are avoided, a certain amount of well directed extrapunitiveness may help to keep us alive when otherwise the forces of decay might make for death. At any rate a distinguished British physician, himself very active in his advanced years, when asked what was the best recipe for a lively old age, is reported to have replied 'Losing your temper with things you don't like', thereby providing an admirable vindication of this aspect of Freud's theory. Comparable instances from politics, business, the law and other fields would not be difficult to find.

And yet, in spite of all this evidence, I for one am not yet convinced of the correctness of this theory of aggression. We carry within ourselves so many smouldering sentiments of hate, so much suppressed resentment at the failure of the universe, and especially of our fellow men, to grant us our desires, that it seems still possible

that the alternative frustration theory may be true, particularly if we bear in mind that hate (like sex, that other impulse as regards which our social environment demands so much suppression) is trigger-ready to react whenever a comparatively safe opportunity presents itself, particularly if the use of the opportunity can be justified by the permission or approval of our own gang or by any other convenient rationalisation. And when, through fear or guilt, the frustration-caused aggression cannot find a vent to the external world, turned inwards it can, I think, in the light of psycho-analytic findings as regards the workings of the super-ego, still by itself sufficiently explain our strange indulgence in self-inflicted suffering, without needing to be reinforced by the hypothetical death instinct. Nevertheless, in this paper I have done my best to be impartial, though without seeking to hide my own scepticism as to the correctness of Freud's theory in its application to aggression.

In treating some other, and at the moment less controversial, aspects of the theory, I have tried to make what I hope is a useful and significant generalisation by formulating two laws or principles which, because of their at first sight somewhat startling nature, I have described as 'paradoxes'. The first of these, which I have called 'the fundamental paradox of life', attempts to state as a general rule what is implicit in all theories which apply to vital phenomena the principles of 'stability', 'equilibrium', 'homeostasis' or 'least effort'. It states that, in all the activities, strivings and efforts which in their totality constitute life, we are at bottom seeking to diminish—and ultimately to abolish—the necessity for these activities themselves and thus to attain the condition of Nirvana (or, as Freud would put it, 'death') which abolishes or reduces to a minimum all those manifestations which we associate with life; in this sense indeed 'the goal of life is death'. At the same time I have endeavoured to bridge the gap between those who, like Freud, consider that this tendency aims ultimately at absolute stability or the complete cessation of all vital activities, and those others who hold that homeostasis aims rather at the maintenance of an optimum *dynamic* equilibrium. If, I suggest, we consider the homeostatic or cybernetic principle as it works at various levels, we can see that at each higher or more superficial level there is an attempt to reduce the irrelevant disturbances at the next lower or more fundamental level. But, surveying the whole hierarchy of levels, we must ask finally, What of the most fundamental level of all? If all disturbances at this level were successfully removed, vital activity itself would stop; for it is reaction to these deepest-level disturbances which constitutes the basic phenomena of life. If I am

right, therefore, the view of homeostasis as a principle of 'life' or 'dynamic equilibrium' (rather than of static equilibrium) is only justified in so far as we refrain from pursuing the principle of homeostasis to its logical conclusion; it is a view which (justifiable enough for many purposes) is content to rest at the contemplation of some relatively superficial level, and Freud is ultimately correct in suggesting that absolute stability, or 'death' as he more picturesquely and dramatically calls it, is the final goal of the whole process.

But why is this final goal apparently so difficult to achieve through the working of the ordinary homeostatic mechanisms? When we approach this question we are at once confronted by the obstinate continuance and development of life, upon which the vitalists so rightly insist, and which suggests that after all there must be some flaw or insufficiency in all theories which attempt to give a full description or explanation of life in terms of equilibrium or homeostasis. Thinkers like Freud, who are equally impressed by the upstart insistence of life upon the one hand and the homeostatic tendency upon the other, can as a rule only attempt to solve the apparent contradiction in terms of some dualistic hypothesis, such as Freud himself has stated so arrestingly in his theory of the opposing life and death instincts. In my second principle, which I have called 'the fundamental paradox of homeostasis', I have sought a way in which it might be possible to resolve the contradiction without resorting to such a dualism. This principle of course, like the other, is not really new; but it has been dimly implied rather than clearly formulated by most of those who have approached the problem from this angle. As I have tried to state it here, it means that, in the very process of endeavouring to attain a permanent condition of homeostasis, organisms develop fresh capacities and tendencies which, although on the one hand they permit (as in the case of man) of adaptation to an ever increasing variety of external circumstances, on the other make it actually more difficult for them to achieve the desired state, since these new capacities and tendencies generate fresh needs and desires which complicate the conditions to be met before stability is attained; whereas for simpler and less adaptable organisms the task, if it can be accomplished at all, is proportionately easier. According to this view, the homeostatic process *itself* provides the means for a prolongation and development of vital activity—this being manifested on the ontogenetic plane in such occurrences as are involved in cases of 'l'appétit vient en mangeant', in the 'functional autonomy of motives', in the formation of 'interests' and 'sentiments'; and on the phylogenetic plane in the general development of greater

abilities to deal with varying environmental stresses and in the resulting greater complexity of intra-psychical adjustment. Here then is another 'paradox', no less surprising than the 'paradox of life' already mentioned. Moreover, the two paradoxical principles, though they both spring from the operation of the homeostatic process and not from two antithetical instincts or other independent forces, tend to counteract one another and, through their opposition, to keep the organism at its 'vital' activities—much perhaps as the opposing principles of inertia and gravitation keep the planets on their courses; though the nature of these courses can only be understood if we bear both principles in mind and study in detail the compromise that results from their interaction.

In my essay on the death instinct I have introduced these two competing principles, as it might seem, almost incidentally, as they appeared to emerge from the consideration of the various and complex aspects of the death instinct doctrine. I have certainly not attempted to enunciate them in the grand manner. Nevertheless, in so far as they are true, they are surely of importance and deserve serious consideration. They may even provide, on the orectic side, two of those fundamental laws or principles, the absence of which some psychologists, from William James onwards, have not ceased to deplore.

But all this, I confess, involves somewhat intricate and laborious theorising; and the reader who has had the patience to wade through the first four essays may be tempted to protest, much as Mephistopheles did after another protracted bout of academic thinking (though the comparison, I am sure, is inappropriate in all other respects!):

> 'Grau, teurer Freund, ist alle Theorie,
> Und grün des Lebens goldner Baum'.

So, to end these Studies I have included a paper of quite a different kind: one which deals with observations made by real living people upon the feelings and emotions which they experienced in ordinary life. The question has often been asked, 'Is life worth living?' and by this has usually been meant, 'Is there more pleasure than pain in ordinary human existence as we know it?' Philosophers may protest that pleasure is not the only, or even the essential, good in life; but most of them, at any rate if pressed, would probably agree that, if pleasure is not the essential good itself, it is at least rather highly correlated with it, whatever it may be. The question remains, therefore, one of intense interest and importance. whatever ethical philosophy we may adopt.

Usually, however, if answered at all, this question as to the relative predominance of pleasure or of pain is dealt with either on the basis of a 'snap' judgment, or else, if there is serious reflection on our own past experience, on the lives of those we know, or on what we can recall of human history, the factor of our attitude and feelings at the moment of delivering our verdict can still hardly be eliminated. In either case there are moments when we might reply with an emphatic 'Yes', others in which our answer might be very different. What we need for a more reliable answer (in the absence of any adequate objective 'hedonometer') are empirical data relating to feelings and emotions at the time they are experienced, and recorded by the people who are living through them. In this paper I give an account of an investigation which, for the first time I believe, endeavoured to supply such data. The paper was published some thirty years ago, and, so far as I am aware, there has been no comparable research in the intervening period—perhaps owing to the quite exceptional demands which such a study makes upon the observers who take part in it, a fact which also accounts for what is, from the statistical point of view, the regrettably small number of subjects in the present experiment. When first presented (at the Toronto meeting of the British Association in 1924) it aroused very considerable popular interest, but has since fallen somewhat into oblivion, and, curiously enough, when quoted in the text-books is usually mentioned in connection with what might seem to be a side issue (albeit an important one), viz. its relevance to the study of the influence of feeling upon memory. Admittedly the technique employed, preferable as it must be to reliance on any form of *a priori* judgment, is still a crude one; but since a better method does not seem to have been devised, the report on our findings is, I feel, worth including in the present collection, both because of the intrinsic interest of the theme with which it deals, and as affording a further opportunity for me to express my gratitude to those subjects who were kind and devoted enough to make the study possible. Even if the results, as presented in this paper, deal with figures rather than with the description of individual feelings and emotions in all their concrete detail, such as we may find in clinical reports, here nevertheless are records of joys and sufferings which living people experienced in all their vividness and poignancy, not in the study, the consulting room or the laboratory, but in the varied circumstances in which during their everyday lives they worked, played, felt and strove. As such it provides, I hope, a fitting finale to these Studies of Feeling and Desire.

THE papers which constitute these Studies originally appeared in the following Journals:

'Sublimation: Its Nature and Conditions', *British Journal of Educational Psychology*, 1942, vol. xii (Methuen and Co. Ltd.).

'Feeling and the Hormic Theory', *Character and Personality*, 1939, vol. vii (Duke University Press).

'L'Appétit Vient en Mangeant: Some Reflections on the Self-Sustaining Tendencies', *British Journal of Psychology* (General Section), 1948, vol. xxxviii (Cambridge University Press).

'The Death Instinct, Homeostasis and Allied Concepts', *International Journal of Psycho-Analysis*, 1953 supplement (Institute of Psycho-Analysis).

'A Quantitative Study of Feeling and Emotion in Everyday Life', *British Journal of Psychology* (General Section), 1925, vol. xv (Cambridge University Press).

In the paper on the Death Instinct there have been considerable additions and modifications. Elsewhere there have been only such minor changes as appeared necessary to avoid needless repetition and to knit the various contributions into a more consistent whole.

I am very grateful to the Editors and Publishers of the above mentioned periodicals for kindly granting permission for the papers to be reprinted in the present collection.

Chapter I

SUBLIMATION: ITS NATURE AND CONDITIONS

I.—The concept of sublimation and its difficulties

Of the numerous terms which have been introduced into modern psychology by psycho-analysis, 'sublimation' is undoubtedly one of the most popular—largely perhaps because it appears to introduce a rare and refreshing element of 'uplift' into a body of doctrine that was otherwise so largely concerned with what was customarily regarded as sordid and unpleasant. It was Freud who brought the term into current use, but, as Havelock Ellis has reminded us,[1] both the term itself and the concept for which it stands can boast of a very considerable antiquity.[2]

Since its popularisation through psycho-analysis, the concept has quite naturally been of especial interest to moralists and educationists, who have seen in it a psychological principle of particular significance in their own fields. In spite of its attractiveness, however, the concept is one that begins to present very considerable problems and difficulties as soon as we attempt to use it in any but the vaguest sense. Before we can discuss the nature of the psychological processes involved (or indeed be sure of the reality of such processes), we must study more closely the meaning we are to attach to the term.

If we look up Warren's *Dictionary of Psychology* we see that it is defined as 'the unconscious process of deflecting the energy of the

[1] *The Psychology of Sex* (London, Heinemann, 1933), 307

[2] According to Ellis (following Evelyn Underhill), the idea can be traced back to one of the several Christian fathers (their biographical details are confused) of the name of Macarius, who conceived of a 'gradual transformation of the substance of the soul into an ever less dense and more pure spirituality under the influence of the Divine Fire'—a view which subsequently underwent great development in the doctrine of Purgatory. Certain English writers, under the influence of the same chemical analogy, have for some 300 years at least used the actual word 'sublimation' in much the same sense as that which it bears in psychology today, as when Jeremy Taylor (1613–67) speaks of 'sublimating marriage into a sacrament', or when Peacock (1785–1866) refers to 'that enthusiastic sublimation which is the source of greatness and energy'.

sexual impulse (i.e., the libido) to new objects or aims of a non-sexual and socially useful goal'. This corresponds to the more or less accepted sense of the term in strictly psycho-analytic writings. Such a definition is, however, calculated to stir up a host of difficult problems—problems that concern not only psycho-analysis, but psychology in general.

We can for the moment pass by the implications of the word unconscious'. If we are willing to take over any concepts at all from psycho-analysis, we must be prepared to accept the existence of unconscious processes, and we may here merely note in passing that psycho-analysts have always insisted that sublimation is a process that is not directly under voluntary control, and that, though we can provide opportunities for sublimation, we cannot be sure when, how, or how much, they will be used.

Apart from this, however, there are at least three other sets of problems, each of which bristles with delicate and controversial points. The first and easiest of these concerns the element of valuation implied in 'a socially useful goal'. In virtue of this element it is clear that 'sublimation' is not a purely psychological term, but one that implies the introduction of an ethical standpoint. Indeed, it is pretty widely recognised that sublimation is an ethically approved form of a more general kind of psychological process—called by the name of 'displacement', 'substitution', 'deflection', 'transference of impulse', or another of the some twenty-five terms which Glover reports to have found used in this connection.[1] This more general process itself is recognised by many psychologists, though not always with the explicitness and emphasis that its fundamental importance (assuming its reality) would seem to warrant. As an example of such recognition we may cite Drever's 'fifth law' of mental development (in formulating which he acknowledges the influence of McDougall): 'Under certain more or less definite conditions, and as a result of experience and circumstances, an instinctive impulse may come to be evoked in connection with objects or situations different from, somesometimes entirely unconnected with, those which originally evoked it[2]'.

[1] E. Glover, 'Sublimation, Substitution and Social Anxiety', *Int. J. Psycho-Anal.*, 1931, xii, 261.

[2] J. Drever, *An Introduction to the Psychology of Education* (London, Arnold, 1922), 70. It may be useful to append the definition of, and comments on, the corresponding psycho-analytical term 'displacement', as given in Warren: 'The transference of affect from one idea to another, usually a logically inappropriate idea, but quite logical and appropriate for unconscious thinking (first observed in dreams, but later discovered to operate generally, particularly in obsessions and

Apart from the debatable question as to whether it is desirable to introduce ethical criteria into the treatment of problems which are often those of pure, and not merely of applied psychology, the concept of sublimation is of course liable to be affected by the particular ethical values adopted; what would be regarded as a desirable form of displacement and therefore as a sublimation at one time or place would not necessarily be so regarded at another. Psychologists have thus naturally sought for purely psychological criteria of those forms of displacement commonly regarded as sublimatory, and with these attempts we shall be further concerned in this paper.

A second set of problems relates to the notion of energy. Few psychologists have been able altogether to avoid this notion; some indeed have made eager and unashamed use of it, and have even endeavoured to ascertain the equivalence of mental or nervous energy in terms of heat, metabolism, or muscular work. Without for the most part resorting to physical measurements, psycho-analysts have been particularly impressed with the way in which impulses display an apparent persistence and convertibility which are difficult to explain except in terms of energy. Indeed their findings have to some extent compelled them to assume as a rough working hypothesis that the principle of the conservation of energy is applicable to the mind.[1] Some other writers, however, have meanwhile drawn attention to the very real difficulties involved in the application of the (essentially physical) notion of energy to the mental sphere—not to speak of such problems as may be connected with the concept within the realms of physics itself.[2]

The third set of problems is to some extent connected with the second. It concerns the meaning of 'impulse' or 'instinct' and in particular the meaning of the 'sexual impulse' or 'libido'. There is no general agreement among psychologists as to how exactly the terms 'impulse' and 'instinct' are to be understood, as to how the

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perversions. In psycho-analytical use extended to include omission, modification and regrouping of latent dream material through activity of the censorship.).' This definition tends to make of 'displacement' a concept co-ordinate with that of 'sublimation', and since no superordinate concept (corresponding to that of Drever in the text) is proposed, it would seem desirable to retain the term 'displacement' to indicate such a concept (as in Ernest Jones's earlier definition: 'transference of affect from one idea to another'—without Warren's additions), or to use some other term in the wider sense. The former course is adopted in the present paper.

[1] *Vide*, e.g., Ernest Jones, *Papers on Psycho-Analysis* (London, Baillière, Tindall and Cox, 2nd ed.), 606.

[2] E.g., E. D. Adrian, 'The Concept of Nervous and Mental Energy', *Brit. J. Psychol.*, 1923, xiv, 121.

instincts are to be classified, how many there are, or indeed whether in man they exist at all.[1] Since Freud extended the meaning of 'sexual' there has been some special dispute concerning the definition of this particular instinct. This being the case, it is clear that we are likely to meet with difficulties when we endeavour to state what kind and degree of change is necessary before the energy of the sexual instinct can be said to have been deflected to a 'non-sexual' goal.

Among most non-psycho-analytic writers this latter difficulty is to some extent rendered less acute by a refusal to confine the term to the deflection of the sexual instinct, and it is often explicitly stated, or at least implied, that any impulse or instinct can be sublimated. This usage is partly no doubt determined by a rejection of the wide meaning attached by Freud to 'sex', but is also in part, it would seem, due to an unwillingness to link up what appeared to be a valuable concept to any one theory of instinct in general or of the sex instinct in particular. This view is so widespread that it appears justifiable to adopt it at any rate as a preliminary and provisional assumption in a general discussion of sublimation such as is here attempted.

II.—Problems of energy and instinct

In a closer approach to some of these problems we may perhaps most conveniently start with the question as to what is meant by the 'deflection' of the 'energy' of an 'impulse'.

In the very first place we may note that such a statement implies a connection between the second and third sets of problems we noted above, inasmuch as impulse is conceived in terms of energy, thus relating the problems concerning mental energy to those concerning the nature and classification of instincts. In the second place the statement seems to imply that at least certain major impulses or instincts, such as the 'sexual impulse', have a fund of energy of their own and that it is this energy that is 'deflected'. This brings us at once to the whole question of 'factors', in so far as these concern the orectic aspects of the mind. The simplest notion, and the one that is most naturally suggested by the doctrine of sublimation, is that each sublimable instinct has its own source or reservoir of energy. At the other extreme is the view that the mind or brain has one fund of energy, which is used in turn, first for one purpose, then for another.

[1] On this question see the Symposium on 'Is the Doctrine of Instincts Dead?' in *Brit. J. Educat. Psychol.*, opened by Cyril Burt's paper 'The Case for Human Instincts', in vol. xi, November 1941.

Intermediate views are also possible, and Burt, who has devoted more attention to this matter than any other recent writer, is indeed of the opinion that, with orexis as with cognition, there is a general factor ('e' or general emotionality), but in addition at least two group factors, and probably specific factors also—these last roughly corresponding to our notion of particular instincts or impulses.[1] According to this view we must be prepared to think of the 'deflected' energy as being to a large extent not *specifically* concerned with sex, aggression or any other impulse.

This immediately takes away much of the attractive simplicity from the notion of sublimation. We can no longer think exclusively in terms of deflecting the energy of one particular unique and specific reservoir corresponding, say, to 'sex'. Indeed, if and in so far as the deflected energy is quite general, we may even be inclined to think that the whole notion of sublimation, and with it the wider notion of displacement, is false, or at any rate misleading: the same general energy may of course be devoted at one time to an unsublimated or instinctual action, at another to a 'higher' or sublimated one, but there can be no question of sublimating any energy particularly associated with sex, aggression, or any other impulse; therefore, to say the least, Warren's definition is wrongly formulated. We should rather look upon sublimated activities as resulting from a particular type of outcome of the universal process of competition for the general energy available, a competition similar to—perhaps indeed ultimately the same as—that involved in the phenomena of 'span' or 'the narrowness of consciousness'. Only one kind of behaviour, or (in the sphere of cognition) one kind of thought or perception, can be indulged in at any given moment, and this one momentarily predominant process tends to utilise the full available energy for its own purposes.

Sublimation is thus little more than a diversion of attention—as when a child stops crying on being shown a new toy, when a soldier in the thick of a fight fails to notice he is wounded, or (inversely) when 'Satan finds some mischief still for idle hands to do'. Spearman, indeed, treats sublimation in this way, under the heading of his 'Law of Constant Output'.[2]

Among others who operate with the notion of a general energy are,

[1] C. Burt, 'The Factorial Analysis of Emotional Traits', *Character and Personality*, 1939, vol. vii, Parts 3 and 4; *The Factors of the Mind* (London, Univ. of London Press, 1940); also *Brit. J. Educat. Psychol.*, November 1941.

[2] C. Spearman, *Psychology Down the Ages* (London, Macmillan, 1938), vol. ii, Chap. 32. He is careful to say no more, however, than that 'much of what is modernly called sublimation can be accounted for in this way', and elsewhere

as Spearman reminds us, Lashley, McDougall and Lehmann. Lashley[1] was driven to the notion of 'mass action' by his experiments on brain extirpation in rats, in which he found that the deterioration in the power of learning and retaining maze-running was (over large areas of the brain) equivalent to the *amount* of extirpation, and not dependent on the *locality* of the extirpated area. McDougall, though for descriptive purposes he often speaks of the instincts in a way which seems to imply that each has a specific energy of its own, also sugests their 'differentiation from a primal purposive energy or-élan vital',[2] and in the detailed experiments and theoretical inter pretations in his early papers on 'The Physiological Factors of the Attention Process'[3] postulates a general energy, which may flow now along one channel, now along another, according to variations in synaptic resistance. Lehmann's brave attempt to write a psychology in terms of energy[4] also for the most part presupposes a general undifferentiated energy rather than sources of energy intimately connected with specific functions. Jung, who definitely assumes only one source of orectic energy, the *libido*, falls of course into the same category—as does Head with his doctrine of 'vigilance', Janet with his *tension*, and to some extent even Freud, who sometimes[5] suggests that there is a neutral displaceable energy (derived originally from the narcissistic libido) which can augment either an erotic or a destructive impulse. Such a weight of authority in favour of a general orectic energy might well make us doubt whether the term 'sublimation' can have any useful meaning.

III.—Energy, structure and the interaction of tendencies

Instincts as Channels of Sublimation.—Nevertheless, the doctrine of sublimation (like that of displacement) need not, I think, stand or fall with the doctrine of specific orectic energies, though it may require more careful interpretation if this doctrine has to be abandoned. Even if there are no reservoirs of energy specially allotted to

(*Ibid.*, p. 150) calls sublimation 'a process wherein a motive of primitive order is replaced by a higher one'. He seems to regard this as distinct from mere competition, but he does not indicate clearly the relation between the two types of process.

[1] K. S. Lashley, *Brain Mechanisms and Intelligence* (Chicago, Univ. of Chicago Press, 1929).

[2] W. McDougall, *Outline of Psychology* (London, Methuen, 1927), 145.

[3] *Mind*, 1902–6.

[4] Alfred Lehmann, *Grundzüge der Psychophysiologie* (Leipzig, Reisland, 1912).

[5] E.g., *The Ego and the Id* (London, Hogarth Press, 1923) 63 ff.

particular instincts, it may yet be that all 'higher' forms of behaviour are only possible by directing the general energy through *some one* of the instinctual channels. Indeed this is what appears to take place in all learning, in animals at least. In the conditioned reflex experiment, for instance, an animal learns to react to an originally neutral or indifferent stimulus through the associations of this stimulus with a biologically interesting one, such as food. Furthermore, it is extremely likely that a particular kind of 'higher' behaviour is only possible (or at least most easily achieved) *via a particular* instinctual channel. In all training and experimentation on animals the trainer appears to make use (deliberately, or following his own intuition) predominantly or exclusively of one particular instinct—food, fear, sex, or whatever instinct appears most appropriate for his purpose; and his choice will usually fall on that instinct which is associated naturally with behaviour as little as possible removed from that which he wishes the animal to acquire, so that the new behaviour may involve the smallest possible modification of innately determined patterns.

In human beings with their less specific innate endowment the corresponding process is less easy to demonstrate, but McDougall (to mention only one writer out of many, though in this matter he is undoubtedly the most thorough and consistent) has endeavoured to show in his doctrine of sentiments how the immense complexities of human interest and behaviour are gradually built up on the basis of a comparatively few instinctual dispositions, each of which tends to make us notice, and react to, certain relatively specific objects or situations. It is true that when we begin to think in this way, we tend to conceive of sublimation as much in terms of structure as of energy.[1] But even this structure may be to some extent hereditarily determined, particular basic structures corresponding to the fundamental instincts; in which case certain sublimations might be most easily achieved through, and with the help of, certain (instinctual) structures—and the crude view of sublimation would not be so very misleading after all.

Evidence from Interaction of Tendencies.—But there are other important facts which may lead us to retain the idea of sublimation, even though we no longer consider it correct to talk of 'sexual' or 'aggressive' energy. These are facts concerning the interaction of

[1] Though we are not necessarily committed to any views concerning the localisation of neural paths or centres; the structure may consist, as some writers are inclined to believe, in a neural pattern, which is largely or wholly independent of cerebral localisation.

tendencies. Whether we study such relatively simple cases of interaction as can be observed and recorded by physiological methods, or such more complicated forms as can at present only be described in psychological terms, we find a delicate interplay of forces involving the facilitation and inhibition of what appear to be specific tendencies. Indeed (though this is not brought out in Warren's definition) sublimation, like displacement, is usually considered to result from the interplay of tendencies, and more especially from conflict, rather than to occur, so to speak, spontaneously. Psycho-analysts in particular have, here as in other parts of their doctrine, laid immense stress on conflict—and conflict is hardly thinkable except in terms of specific competing motives or forces. We are in fact almost compelled to assume either (more naturally, though perhaps more naively) that there are competing sources or quantities of energy, or else that there is competition between antagonistic charges or currents of energy, even though the total energy involved may be derived—partly or wholly—from the same source.

Moreover, so far as our present knowledge goes, the kind of conflict described by the psycho-analyst shows a striking resemblance to the phenomena observed in the interaction of reflexes as studied in the physiological laboratory. Repression, it is generally agreed, corresponds to inhibition, is indeed only a particular form of the more general phenomenon of inhibition, which is found at all levels of the nervous system; over-determination corresponds to facilitation or reinforcement; while the impulses involved in repression or over-determination stand in much the same relation to one another as Sherrington's 'antagonistic' and 'allied' reflexes respectively.

Unfortunately, it is not so easy to find a lower-level equivalent of displacement. The well-known phenomenon of 'irradiation' or 'diffusion of response' (over a large group of muscles) with increasing intensity of stimulus is not adequate, since displacement is a specific and not merely a diffuse response. Head,[1] however, has emphasised that simple diffusion is less prevalent in the intact nervous system than when higher level control is impaired (as is the case in so many laboratory or clinical studies of the reflexes). And Sherrington has directly observed certain instances of relatively specialised irradiation which are analogous in some ways to the apparent transfer of energy involved in sublimation; as when, for example, the flexion reflex elicited by stimulation of the sole of the right-hind foot of the dog (a reflex normally confined to the corresponding hind leg) tends

[1] H. Head, 'The Conception of Nervous and Mental Energy', *Brit. J. Psychol.*, 1923, xiv, 126.

by irradiation to produce a specific discharge down the motor nerve of the right fore-leg, of a kind more easily and naturally elicited by other stimuli.[1]

We may perhaps compare this to the overflow of sexual energy to a relatively specific non-sexual field. In Sherrington's example the path of irradiation from one reflex system to another is in all likelihood innately determined, but of course at higher levels the path will be, to a large extent at any rate, conditioned by experience.

Irradiation of this sort would appear to be due to the fact that the paths more immediately affected are incapable of dealing with all the excitation aroused, so that the energy is drained off along certain other paths. That it is not drained off equally in all directions is no doubt determined by some difference in the resistance of the available paths, while the further fact that the overflow often takes the direction of a higher level (instead of additional low level paths) is probably due to nervous organisation into systems (each system including paths of different levels), innate or acquired, perhaps formed more or less along the lines so persuasively advocated by McDougall.[2] These are systems of exactly the kind that we should imagine to be operative in sublimation. If such systems are lacking, or if there is insufficient energy to activate them, sublimation cannot take place. Hence no doubt the fact, often stated or implied, that high degrees of intelligence, knowledge and culture, are essential for the occurrence of the more elaborate sublimations. In their absence great emotional energy will merely run amok along lower levels of behaviour, as emphasised by Burt in the case of young delinquents,[3] or illustrated by Janet's amusing and all too typical instance of the patient who could think of nothing better to do than to get drunk when her employer gave her seventy francs at once instead of the usual instalment of twenty-five francs.[4]

Even specialised irradiation, however, differs from displacement (and therefore also sublimation) in at least two important respects, viz., (1) that the irradiated activity tends to be *in addition to* and not *instead of* the original activity, and (2) that it does not seem to involve the interaction of tendencies. In both these ways a nearer reflex level equivalent of sublimation is perhaps to be found in the so-

[1] C. S. Sherrington, *The Integrative Action of the Nervous System* (London, Constable, 1910), 167.

[2] Op. cit., *Mind*, 1903, xii, 295.

[3] 'Delinquency and Mental Defect', *Brit. J. Med. Psychol.*, 1923, iii, 158.

[4] Pierre Janet, 'La Tension Psychologique, ses Degrés, ses Oscillations', *Brit. J. Med. Psych.*, 1920, i, 14.

called 'deviation of response' observed by Leyton and Sherrington[1] in the faradic stimulation of the cortex of anthropoid apes. In this, stimulation of a point *a* gives a response A (e.g., elbow movement); this is followed by stimulation of point *b*, which gives response B (e.g., face movement); thereafter renewed stimulation of point *a* may give rise to a new response C (e.g., finger movement)—not in addition to, but instead of, response A. Here we appear to get a 'deflection' of the energy aroused by stimulation of point *a*. The deflection moreover is apparently caused by the intervening stimulation of point *b*[2] and this illustrates that other feature of sublimation usually implied by psycho-analysts, viz., that it is due to the interaction of tendencies rather than to simple overflow or irradiation.

If we merely seek for lower-level instances of the partial withdrawal of energy from one response to another (and not of the substitution of a new response, as in the case just quoted), examples are of course easy to find, for all the numerous cases of 'facilitation' of reflexes appear to fall into this category. Graham Brown has moreover shown conclusively on purely neurological grounds that facilitation takes place in the cortex and not merely at lower levels, for in certain cases that he studied by means of cortical stimulation the facilitation could be abolished by suitable incisions in the cortex.[3] This evidence is also in harmony with the numerous experiments by physiologists on 'summation' and with those experiments by psychologists (starting with the pioneer work of Féré[4] and continued by McDougall,[5] Lehmann,[6] and in more recent times by Bills[7] and others[8]) showing that muscular contraction or sensory stimulation may under certain circumstances improve the output of mental

[1] A. S. F. Leyton and C. S. Sherrington, 'Observations on the Excitable Cortex of the Chimpanzee, Orang-Utan and Gorilla', *Quart. J. Exp. Physiol.*, 1917, xi, 141.

[2] It does not occur as a result of continued or repeated stimulation of point *a*, though in other cases repeated stimulation of a point, either on the cortex or the skin, may give rise to a change of response, very often to an antagonistic response, e.g., extension instead of flexion. Such changes can most naturally be interpreted on the principle of 'fatigue', and McDougall has, here again, emphasised the higher level parallels, especially in the field of perception.

[3] T. Graham Brown, 'On the Phenomenon of Facilitation', *Quart. J. Exp. Physiol.*, 1915, xvi, 115.

[4] C. Féré, *Sensation et Mouvement* (Paris, Alcan, 1900).

[5] *Mind*, loc. cit.

[6] Op. cit., especially pp. 429 ff.

[7] A. G. Bills, 'Blocking: A New Principle of Mental Fatigue', *Am. J. Psychol.*, 1931, xliii, 230.

[8] E.g., E. N. Zartman and H. Cason, 'The Influence of an Increase in Muscular Tension on Mental Efficiency', *J. Exp. Psychol.*, 1934, xvii, 671.

H. Block, 'The Influence of Muscular Exertion upon Mental Performance', *Arch. Psychol.*, No. 202, 1936.

work, or that immediately preceding mental activity may facilitate muscular exertion. It would certainly appear from these researches that energy originally liberated through the muscles or the special sense organs can somehow be put in the service of higher mental operations.

In slightly different circumstances, however, these same muscular or sensory processes may impede mental work through 'distraction'. McDougall[1] considers that the differentiating factor lies in whether or not these processes reach the higher-level centres, so drawing 'attention' to themselves—a question which seems eminently amenable to experimental investigation. The problem of reinforcement versus inhibition suggests, moreover, an analogy with the execution of delicately adjusted movements (e.g., in industry or sport) by skilled and unskilled performers respectively. The novice attempting a difficult task carries out a multitude of muscular contractions many of which may actually impede him in this task, whereas with the expert every muscle that is contracted makes its contribution to the desired result and other muscles that can find no useful part to play are left unused. The expert succeeds in utilising all his energy in an orderly and appropriate way; with the novice, there is waste and actual conflict.

The determination of the point at which and the circumstances under which muscular contraction becomes useful or useless for a given purpose would seem to open up an interesting line of research not without bearing on our present theme.[2]

Provisional Justification of Sublimation.—In view of all this evidence of conflict and other forms of interaction which can hardly be understood except in terms of specific motives or tendencies, we shall certainly feel inclined to reconcile, in so far as may be necessary, the doctrine of general energy with the existence of *apparently* specific emotional or instinctual energies along the lines suggested at the beginning of this section, and to interpret correspondingly the apparent 'deflection' of energy that takes place in sublimation. That is, we shall consider that the energy required for particular sublimations can most usually and easily be drawn from the general fund of energy along certain more or less definite channels which correspond to the primitive or instinctual tendencies that are 'sublimated'. In this way we may retain the belief in a general energy with the belief in sublimation; we can also speak of 'sexual' energy or even (stretch-

[1] *Mind*, 1903, xii, 298.

[2] *Vide*, e.g., T. H. Pear, *Skill in Work and Play* (London, Methuen, 1924), especially Chap. 2.

ing a point) of the 'energy of the sexual impulse', provided we remember that this energy is not itself specifically sexual but is drawn from a more general reservoir and merely conveyed along a sexual channel.

Moreover, even if we accept the view that there is a general energy which can be used in this way for purposes of sublimation, there is, as we have seen, no necessity to suppose that the energy used in sublimation is exclusively of this kind. The evidence available from factor analysis in the orectic sphere is at present too scanty to allow of dogmatism. Burt's results too, as we have noted point to the existence not only of a general emotional factor, but of group factors and specific factors also. Indeed, it may well be, as he himself seems inclined to think, that further work will bring out more clearly the influence of these specific factors; and both his results and those of others[1] suggest that some of these factors may correspond to instincts of the kind conceived by McDougall. It is quite possible even that, as Tansley[2] has suggested, 'part of the total stock of psychic energy is inseparably attached to the complexes corresponding to the great instincts, that another part is normally attached to them, but can be transformed, and that a third part is normally quite free and can be directed into any channel according to need'.

Finally, we must, as Burt has warned us, remember that we are not necessarily justified in regarding the 'factors' discovered by statistical treatment as 'factors in the mind', 'mental powers' or 'energies' at all. Factor analysts have (following Spearman) often preferred to use letters to designate the factors they have brought to light, in order to leave open the question of their ultimate nature. This nature, it is pretty well agreed, has to be discovered by psychological observation and interpretation—in which the facts underlying what is called 'sublimation' may have their place.

It may perhaps even be helpful at the present stage to abandon, for a time at any rate, the attempt to associate energy with biologically determined 'instincts', and to think, as Lewin would have us do,[3] in terms of Gestalten, 'regions' or 'tension systems', which are not necessarily permanent features of the mind, but which seek reduction of tension in the same way, as instincts. From this point

[1] E.g., E. A. Allen, 'Temperamental Tests', *Brit. J. Med. Psychol.*, 1927, vii, 391. Note particularly (Table VI, p. 436) the high reliability coefficients obtained by correlating the two halves of a series of questions designed to elicit the subjects' liability to particular emotions.

[2] A. G. Tansley, *The New Psychology* (London, Allen & Unwin, 1920), 77.

[3] K. Lewin, *Principles of Topological Psychology* (New York and London, McGraw-Hill, 1936), especially pp. 175 ff.

of view, sublimation will be a case of 'substitute satisfaction', in which the reduction of tension in one system also reduces tension in another connected system. The problem of the connection of the two systems is then parallel to that of the relation between a sublimated and the correlative unsublimated tendency. The advantage of this method of approach is that it more readily perhaps allows of the formulation of problems which can be treated experimentally, and several promising experiments on the relations of tension systems as revealed by 'substitution satisfaction' have already been carried out.[1] In their relative artificiality such experiments may seem far removed form the apparently deep-seated spontaneous occurrences studied by the psycho-analyst; but there can be little doubt that the Gestaltists' 'substitute satisfaction' and the psycho-analysts' 'displacement' and 'sublimation' are processes that are fundamentally of the same kind. The experimental findings of the Gestalt school showing that tensions can be eased, so to speak, vicariously, would seem to provide additional justification for (provisionally at any rate) retaining the concept of sublimation, in so far as it appears likely to help us to throw light upon the nature and development of 'higher' forms of behaviour and desire.

IV.—Means and Subsidiary Ends as Sources of Sublimation

Means.—At the present stage of our knowledge we can perhaps scarcely hope to gain much further understanding of sublimation through merely physical or neurological conceptions. We must enter the field of psychology itself. Within this field, what phenomena do we observe that lead us to assume deflection of impulsive, or instinctual, energy?

We may start by noting a tendency shown by several notable psychologists to consider the relevant phenomena (or at any rate many of them) under two heads. Freud[2] distinguishes between a change of the object to which an instinct is directed and a change in

[1] E.g., K. Lewin, 'Ersatzhandlung und Ersatzbefriedigung', *Bericht über den XII Kong. d. dtsch. Ges. f. Psychol.*, 1931, 382.

K. Lissner, 'Die Entspannung von Bedürfnissen durch Ersatzhandlungen', *Psychol. Forsch*, 1933, xviii, 218.

W. Mahler, 'Ersatzhandlungen verschiedenen Realitätsgrades', *Psychol. Forsch.*, 1933, xviii, 27.

S. Sliosberg, 'Zur Dynamik des Ersatzes in Spiel und Ernstsituationen', *Psychol. Forsch*, 1934, xix, 122.

[2] 'Instincts and their Vicissitudes' (1915), *Collected Papers* (London, Hogarth Press, 1925), iv, 60.

the aim of the instinct, i.e., in the nature of the activity in which the instinct expresses itself. McDougall,[1] in dealing explicitly with sublimation, tells us that there are two kinds: intellectual sublimation, involving only a change of means or procedure, the goal remaining the same; and moral sublimation, in which there is a change of goal (though this usually involves intellectual sublimation also). The former process occurs frequently in the higher animals (as when a dog learns to beg for food), the latter is, with few exceptions, to be observed in the human race alone. Stout,[2] writing before the notion of sublimation had been introduced into psychology by Freud, distinguishes between formal and material conditions in the differentiation of conation. The former are concerned with the breaking up of a complex tendency into constituent parts or steps, which (temporarily or more permanently) become subsidiary goals or centres of interest in themselves. The latter come into operation when a process which is primarily directed to one end is found to be conducive to some new end. It is clear, I think, that there is much in common between the principles of division adopted by these three writers. Above all, there is with each of them a distinction between the means to an end (for Freud's 'objects' are admittedly only the means by which the instinct seeks to achieve satisfaction) and some modification or extension of the end itself.

Authoritative and useful as this distinction might appear to be, in actual application it is not always easy to preserve when we apply it to the more complex aspects of human conduct and development, inasmuch as the pursuit of the means to an end may involve all degrees of interest and adaptive behaviour; and we have to decide what amount of interest and what complexity of adaptation will justify us in saying that a new end has arisen. Perhaps the best criterion we can adopt is whether the new end is pursued independently of any recognisable desire for the original end. In Köhler's celebrated ape experiments[3] the sticks and boxes that were used for reaching an otherwise unattainable banana were clearly of no interest on their own account; they were simply means, and without a desire for the banana would have been neglected. Margaret Phillips[4] has

[1] W. McDougall, *Outline of Abnormal Psychology* (London, Methuen, 1926), 473 ff.

[2] G. F. Stout, *Analytic Psychology* (London, Allen and Unwin, 1896), ii, Chap. 7.

[3] W. Köhler, *The Mentality of Apes* (London, Kegan Paul, 1927).

[4] Margaret Phillips, *The Education of the Emotions* (London, Allen and Unwin, 1937); also 'The Development of Social and Political Sentiments in Women', *Brit. J. Educat. Psychol.*, vol. v, 1935.

shown that this is true of many more complex and permanent interests and activities in human life, as when an apparent devotion to some artistic or intellectual pursuit is shown on analysis to be based on what she terms a 'pseudo-sentiment'. The activity is not carried out for its own sake, but only because it is connected with success, prestige or some other extraneous aim. If it ceased to minister to this aim it would be dropped. Stout gives us the example of a jammed door whose unexpected refusal to open impedes us in some purpose. Here we have a transition case in which mere success in opening the door may remain entirely subsidiary, or may develop into an independent interest 'which may be out of all proportion to our interest in the ensuing consequences'.

In teaching, we often seek to endow an unattractive subject (e.g., mathematics) with value as a means to some already interesting task or project, hoping that the pupil will in this way develop an interest in the subject for itself; and many teachers could give examples of the success of the method. Sometimes, too, we can see the spontaneous development in an older student of an academic interest which, starting as a means, has become sublimation—perhaps of a kind that fits in perfectly with the psycho-analytic definition, as being unmistakably sexual in origin. Thus one young man whom I was able to study developed a great interest in economics, the starting point of which was the reading of a pamphlet on birth control. Birth control appealed to him as removing moral and practical difficulties in the way of sexual gratification. But in the pamphlet birth control was linked on to the doctrine of Neo-Malthusianism, and through this his interest spread to other biological aspects of economics, and then to economics as a whole. This is perhaps a somewhat unusual case, but there can be little doubt that in recent years many young people have turned to economics in the hope of finding a solution of what seemed to them the economic injustice of modern society.

Often however, the end in the service of which the means is developed may not be so much the achievement of a personal aim as the desire to obtain the affection or approval of some loved or influential person—the nurse or parent in early life, later on the teacher, employer or other superior. What was originally done to please that person is continued because it has acquired a value of its own; and this may hold good of any subject of instruction—from the simplest habits of personal cleanliness to Greek verse or the calculus.

Subsidiary Ends.—Distinguishable from the development of an independent interest in what was originally but the means to an end, but presenting certain similarities to it, is the splitting up of a com-

plex train of instinctual activity into its constituent parts and the exercise of one or more of these parts for their own sake; an activity that is in a sense only a step or means towards a final consummation becomes an end in itself. This is most clearly seen in the elaborate sexual or food-getting procedures of man and some other animals, in which courtship or hunting may normally be essential preliminaries to reproduction or nutrition. Here, as distinct from the cases previously considered, the activity which constitutes the means is determined largely by hereditary constitution and only to a minor extent by individual experience. Nevertheless (in man and the higher animals as contrasted, say, with insects) the separable parts of the total 'chain instinct' are only loosely knit together by heredity, probably becoming more closely connected in the course of development; and their separation so as to function independently is to some extent only a reversal of the previous process of linkage.[1] In any case however, there is no doubt that the independent pursuit of these separable parts or phrases of the total instinct can occur. Many writers have commented on the tendency to indulge in hunting for its own sake, among both men and animals. The rôle of the various 'component instincts' in the sphere of sex needs no stressing in view of the elaborate expositions of the subject by psycho-analysts and sexologists: we need only remind ourselves that, in the view of the former, many of the most important cultural sublimations consist of displacements of relatively independently functioning component instincts. The energy of these instincts is, in their view, only in part put into the service of the reproductive function, the remainder being drafted off for purposes of sublimation, or, if not sublimated, being independently exercised along its original channels and thus becoming the basis of 'perversions'.

In animals too the preliminary or 'component' activities of sex may function independently and apparently become goals in themselves. Thus Julian Huxley tells us that 'anyone who, like myself, has watched such birds (birds in which both sexes care for the young) by the hour day by day, must be struck by the fact of their enjoyment of the courtship ceremonies for their own sake, and by the further fact that the ceremonies are often what we may call biologi-

[1] In so far as the 'component instincts' (if we may tentatively apply Freud's useful term to all the constituent parts of chain instincts) are originally independent, the process whereby they are put into the service of some important biological end, such as nutrition, self-preservation or reproduction, itself involves some degree of 'deflection' or displacement; we could indeed call it a sublimation, were it not usual to confine the latter term to still higher functions definitely above the level of mere instinctual activities.

cally self-exhausting, in that the birds' emotional tension is often liberated through them instead of being stimulated and leading to actual pairing'.[1]

The detachment of component instincts from their biological end often seems to endow them with some of the qualities of play, and indeed in their earlier manifestations they constitute an important element of play—thus revealing the close relation between play and sublimation. If we did not play, we might not be able to sublimate, though the mere immediate uselessness of play does not qualify it to rank as a sublimation. It is clear indeed that in the case both of the pursuit for their own sake of what were originally 'means' and of the independent function of a part or phase of a chain instinct, some alteration and elaboration, some development of new activities and attitudes, is necessary before we can call the process a sublimation. But here again it is far from easy to say where we are to draw the line. Does the almost ritualistic character of British fox-hunting, constitute a qualification? If not, how do we distinguish between this and other sports or games that are often regarded as sublimations? Because in these latter the relation to a biological end is even less obvious? Does the elegance of a banquet remove it sufficiently from the mere nutritive function? And how about the 'art of love', where, though the basis of sexual desire is hardly concealed, it may yet be wrapped round with every refinement that human ingenuity can suggest?

In all such cases the primitive instinctual satisfaction is prolonged, often also intensified, but at the same time rendered more diverse and complex. The conventions and inhibitions that are at work raise the tension of desire, but at the same time provide new and elaborate channels of discharge. If we employ McDougall's simple criterion of regarding as a sublimation every kind of activity that rises above the instinctual level, all the above-mentioned activities are sublimations. Here, however, we see how difficult it is to abandon altogether the element of ethical value which seems such an essential part of the concept. Pure instinct does not prompt us to use knives and forks, table cloths, aphrodisiacs, or contraceptives—and yet few would agree that the mere use of such devices brings an otherwise instinctual activity into the class of sublimation. On the other hand the introduction of ethical value at once exposes the concept to all the vagaries of taste and conscience. By some the refinement of instinct into something that can roughly be regarded as an 'art' of

[1] Julian Huxley, *The Uniqueness of Man* (London, Chatto and Windus, 1941), 202.

hunting, eating, or love-making, is considered to be the essence of civilisation; others take a different view, thinking it at best a waste of time and energy, at the worst an invention of the devil.[1] Here we have a good example of the serious dilemma on the horns of which the concept of sublimation is so apt to land us. We either emasculate the concept by removing its ethical connotation, or else we are forced, explicitly or implicity, to adopt some moral or aesthetic standard, which if challenged (as it very likely will be) may easily involve us in ethical controversies that as psychologists we should certainly prefer to avoid.

V.—Conditioning and Sentiment Formation

Transfer of Feeling.—In the last section we considered the possibilities of sublimation from the development of interests in a means to an end and in the phases or 'components' of an instinct. Not all new ends however are developed in this manner, and we must now pass on to the consideration of some other ways in which new interests of a sublimated kind may be developed.

The first and most general of these would seem to lie in the simple process of association by contiguity, or 'conditioning'. Here the element to which the 'deflection' takes place is neither a means to the end desired nor a part of the total instinctual chain at work, but some other element of the total situation or experience involved.

The process can be observed in its simplest form in experiments carried out according to the 'impression method', in which the subject is asked to describe as fully as possible all the mental effects of a stimulus calculated to arouse feeling. Wohlgemuth, who has carried out what is probably the most thorough and extensive series of experiments ever attempted along these lines, summarises his findings on the process in question under one of his 'rules', according to which 'the predominant feeling element in an emotional process or the feeling element of one cognitive process may induce a like feeling element in another cognitive process occurring about the same time'. He reminds us that this 'transfer of feeling' is an important and constantly recurring factor in our daily life, attributing to it such facts as that even the most ugly fashions can after a time become attractive, the charm of the 'eternal feminine' being soon transferred

[1] For a consideration of some further problems connected with the refinement of instinct, see. J. C. Flugel, *Men and Their Motives* (London, Kegan Paul, 1934), 163 ff; also M. Bálint, 'Ichstärke, Ichpädagogik und "Lernen"'. *Int. Zsch. f. Psa und Imago*, 1939, xxiv, 415.

'to the most hideous devices that can be imagined by women to disfigure themselves or hide their gracefulness'.[1]

This phenomenon would seem to be the affective aspect of the process described on its conative side as the conditioned reflex. An interesting question that has an intimate bearing on the problem of sublimation concerns the degree of permanency of the 'transfer', 'deflection', or 'conditioning'. In the classical experiments on the conditioned reflex there occurs 'extinction' of the reflex if the conditioned stimulus is applied a considerable number of times in succession without the unconditioned stimulus; in such cases the former stimulus seems to have acquired no value of its own. It would be interesting to carry out similar experiments along the lines of Wohlgemuth's work, to see how far a comparable extinction is found in 'transferred' feeling. The evidence of psychopathology strongly suggests that in some cases such extinction does not occur and that indeed a single 'traumatic' experience may establish a transfer that may last for many years or perhaps a lifetime.[2] At any rate we usually expect sublimations to carry on in their own right, without conscious reference to, or reinforcement by, the correlative unsublimated interests. For this to happen, one or more of a number of conditions must probably be fulfilled, e.g. (*a*) the objects or activities with which the sublimation is concerned may have acquired an independent value, ministering to some new desire or need which seeks satisfaction for its own sake (this is the condition chiefly envisaged by Stout and McDougall and regarded as a partial explanation by the psycho-analysts); (*b*) feeling may have been more or less permanently displaced or transferred from the original object or situation to these new objects and activities (the condition that seems to be implied by Wohlgemuth's and Bartlett's formulations and in the statements of a good many psychopathologists); (*c*) there may occur some (usually subliminal) re-stimulation of the original affect and a recurrence of the process of transfer—usually with some inhibition of the cognitive side of the original experience (the condition put forward or implied as a partial explanation in many psycho-analytical expositions). To the implications of this last condition we shall return in Section IX.

[1] A. Wohlgemuth, 'Pleasure-Unpleasure', *Brit. J. Psychol. Mon. Sup.*, vi, 1919, 242.

[2] Cf. the often quoted case of W. H. R. Rivers described in *Instinct and the Unconscious* (Cambridge, Cambridge Univ. Press, 1922), Appendix ii). A striking case from literature (from Thomas Hardy's *Desperate Remedies*) is quoted by F. C. Bartlett, 'Feeling, Imagining and Thinking', *Brit. J. Psychol.*, 1925, xvi, 16.

Inertia of Feeling.—Wohlgemuth[1] and Bartlett[2] have called attention to a possible factor of great importance in the transfer of feeling, viz., the time lag or inertia of feeling. The cognitive contents of consciousness can change more rapidly than can the feeling tone. If, therefore, a powerful feeling has been aroused in connection with one object, it will tend to affect our attitude to other objects that we encounter for some time subsequently. This is particularly the case with those relatively persistent and 'unbound' feelings (i.e., feelings not closely connected with any particular cognitive content) that we call moods. If we translate this into terms of attitude and conation, we have obviously an important means either of creating displacements or of reinforcing such as may be due primarily to some other agency.

Role of Sentiments.—When the object which gives rise to the original feeling is repeatedly experienced in an affective way, it becomes the object of a sentiment. This in turn facilitates the transfer of feeling to all that is associated with the loved or hated object. The lover will cherish a lock of his beloved's hair, her handkerchief, a faded flower that she has worn, with something of the same tender passion that he feels for her very person. This is hardly sublimation, but sublimation can arise if the feeling is transferred, not to natural objects associated with the loved person, but to his or her interests—and the material bearing on the development of sentiments collected by Margaret Phillips indicates that many sentiments may actually arise in this way.[3]

The same general process of transfer holds also of those kinds of sentiment which McDougall has called 'tastes'. A friend of mine who is an ardent fisherman considerably disconcerts his family by a habit of keeping worms (destined for bait) in his bedroom; for him it is difficult to realise that any objects connected with his enthralling sport could be other than delightful. Again, such displacements of affect to concrete objects are not usually considered sublimations; nevertheless the contemplation of these objects may easily lead to sublimations in persons who have the necessary capacities. The lover may become a poet and write an ode to the faded flower or lock of hair. The fisherman may become a helminthologist.

The formation of a sentiment also complicates the situation by

[1] Op. cit. [2] Op. cit.

[3] Op. cit. This source of sublimation through association with, transfer of feeling from, or conditioning by, loved or respected persons, is theoretically (and often practically) distinguishable from the pursuit of intellectual or aesthetic activities in order to please or impress such persons—to which we referred in the preceding section.

facilitating the arousal of new emotional tendencies in connection with the original object and its associated objects in the way that McDougall has described. The interaction of the primary tendency with these secondary ones may in turn alter the direction of the former—perhaps in such a way as to lead to sublimation. But this important matter is also one which can be more conveniently deferred to Section IX.

VI.—Curiosity, sex and the non-specificity of human instincts

Curiosity.—Of all the impulses that can be sublimated there is one that is in certain ways fitted to play a very special part—that of curiosity. As is generally recognised, and as we have already seen (Section III), sublimation is greatly helped by the existence of those higher level cognitive dispositions which in their totality we call knowledge. Now the very aim of curiosity is the acquirement of further knowledge of the object or situation that arouses our curiosity. Curiosity thus indirectly assists sublimation by providing additional higher level channels or dispositions along which the energy of any impulse can be sublimated. But it also helps directly both by co-operating with other impulses and on its own account.

Consider Stout's example of the jammed door or the fisherman who may be a budding helminthologist. In the first case our original desire to open the door may soon be supplemented by a desire to find out why it will not open; in the second case the contemplation of worms as objects used in fishing, and therefore objects of delight, may pass into a desire to know more about worms quite apart from their usefulness to fishermen. And indeed some arousal of the desire for further knowledge is implied in almost every instance of sublimation or of such kind of displacement as may lead to sublimation.

In some cases however this desire to know is itself the predominant (and not merely a secondary or accessory) motive from the start. It develops strongly in most children at an early age, and even making every allowance for the queer and quasi-obsessional character of much of children's questioning, there can be no doubt that the child's desire to learn is a genuine one and that at a somewhat later age the collection of a vast quantity of information on some subject of interest often appears to give the child delight and cause him very little effort. There are children who develop an astonishing knowledge of stamps, butterflies, aeroplanes, cricket scores, or *Bradshaw*, and the fact that a similar capacity cannot apparently be put into the

service of their academic studies often causes despair or exasperation in their teachers. The development of such spontaneous curiosities provides a challenging problem to the educational psychologist.[1] Do they correspond to natural direct manifestations of the instinct of curiosity (possibly, as Professor Valentine has suggested to me, of an innately specific kind); or do they involve deflections of instinctual energy, thereby coming into the category of sublimations?

The more intensive study of such juvenile hobbies and interests—more especially perhaps in the light of psycho-analytic conceptions—might be most illuminating. The genius is often said to preserve something of the child in his make-up; it may be that among other things he has preserved some of the ease of acquiring, retaining and utilising knowledge found in these intellectual virtuosities of the young.

The very few psycho-analytic studies of scientific genius so far published (mostly from historical and literary rather than clinical sources), suggest that the urge to scientific research is associated with a delicate balance of the forces of repression on the one hand, and displaced sexual curiosity (or 'scopophilia')—often with an infantile root—on the other, and have thus, so far as they go, confirmed the general psycho-analytic theory of sublimation. But there is a vast field here that still awaits investigation—a field of the greatest importance for our subject and of the highest interest to the educationist.

Non-Specificity.—In discussing sublimation, we should never allow ourselves to lose sight of one factor which is so general in nature that its influence is liable to be overlooked, viz., the relative lack of specificity of the human instincts. It is this that makes sublimation possible at all. In so far as instinct is rigid and specific, learning by experience, displacement, or any other kind of orectic modification is difficult; such learning as occurs being only of the nature of very simple adaptations or conditionings, far removed from the complex forms of acquired behaviour for which we reserve the term sublimation. In human beings, however, specificity above the reflex level is according to some psychologists almost wholly, according to most

[1] Cf. the delightful presentation of this subject in the first few pages of Kenneth Grahame's *Dream Days*. Grahame there indicates the apparently capricious choice of the field of knowledge when he says, 'there is no laying down rules as to subjects, you just possess them, or rather they possess you—and their genesis and protoplasm is rarely to be tracked down'. He compares this easy and spontaneous acquirement of knowledge with the 'general dogged determination to shirk and evade' school work, an evasion 'which kept us all at much the same dead level—a level of ignorance tempered by insubordination'.

largely, acquired and not inherited; consequently the lack of specificity is especially marked during the period of growth (itself considerably prolonged beyond the usual relative span of immaturity as judged by the standard of other animals).[1] It is just in this long early period of life that, as all psycho-analysts are agreed, the most important contributions to sublimation are made. True, the sublimations may only attain much later the full characteristics of adult cultural activities; but the bases of these activities are, it is maintained, established long before.

The lack of specificity of human instinct is also intimately bound up with several other factors that are conducive to sublimation: the helplessness of the human infant, which makes it entirely dependent on the care of adults for the first few years of life; the development of the corresponding mental attitude, which makes it highly receptive to adult influences; the eventual mental incorporation of the adult authority in the form of conscience (Freud's super-ego); the tendency and ability to indulge in play, in the course of which instinctual activities can undergo displacement and development without being subject to the immediate pressure of biological needs. Important as they may ultimately be both biologically and sociologically, sublimations preserve, as we have seen, a certain play-like character. Some writers indeed, such as Róheim, go as far as to consider that without play sublimation would hardly be possible. As regards the receptivity to adult influences, it is the essential suggestibility of the child to adult (especially parental) attitudes that provides him with the framework and traditions along the lines of which sublimations are built up; a Mowgli or a Tarzan would in reality find it difficult to sublimate even if he were intelligent and his animal foster-parents were to provide him with the necessary leisure and protection. Finally, it is the inhibitory influence of the super-ego which in so many cases blocks the way to the simpler manifestations of instinct, and thus—either by itself or in co-operation with other factors—helps to induce the deflection of energy into sublimatory channels.

Sex.—Especially lacking in specificity are, according to the psycho-analysts, the instincts of sex. Moreover, among these instincts, the non-genital (or 'pre-genital') components ripen first—long before the more consummatory reflexes connected with the reproductive organs themselves are ready to function. It is during this time, when

[1] These points are well brought out in Prof. Burt's opening article in the symposium in *Brit. J. Educat. Psychol.*, already referred to; see especially pp. 156, 161.

they are, so to speak, phases of a total instinct that has not yet developed in its entirety, that, according to Freud, the pre-genital impulses allow much of their energy to be diverted—ultimately into sublimatory channels. In so far as this theory gives a true account of the matter, the order of ripening of the 'component instincts' would seem to be particularly propitious from the point of view of sublimation.

Apart from bringing into prominence the general doctrine of sublimation, the most valuable contributions of the psycho-analysts to our subject are to be found in their observations concerning the development of particular kinds of sublimatory activity from particular component instincts (more especially perhaps from 'anal erotism'). It is not part of our present purpose to discuss in detail these most suggestive findings; any adequate discussion would of necessity be lengthy and take us much too far afield. There is, however, an urgent need that these findings should be tested and extended if possible by other methods.

Whether these detailed interpretations stand or fall however, we shall probably all be willing to agree with Freud that the sexual impulses—concerned as they are with the less immediately urgent biological necessities of the species rather than with the more pressing needs of the individual—are the most suited to undergo some measure of deflection. Moreover, the individual must perforce concern himself with his own preservation throughout his life, whereas he is concerned with reproduction for the middle period only. By abandoning the periodicity of the sexual impulse, by awakening it (in whole or in part) before the advent of reproductive maturity, and by prolonging it after the reproductive powers have departed or grown feeble, nature would seem to have endowed man with a superfluity of instinctual energy which he can well divert from its original goal without serious danger either to the individual or the race. It is not surprising then that just these impulses should play so large a part in sublimation. Man could conceivably have used this energy for the purpose of exceptionally frequent indulgence in a thrilling form of instinctual satisfaction; indeed he does probably get far more pleasure (though also more distress) out of sex than other animals. But for the most part he has preferred (or perhaps we should say, he has been compelled, through natural selection or some other agency) to erect social and psychic barriers against this indulgence and to redirect some at least of the superfluous energy to other aims. In the antithesis sex-sublimation, we find what appears to be the psychological aspect in the human race of what Herbert Spencer long ago

called 'the antagonism between individuation and genesis', in his opinion one of the fundamental principles of biology.[1]

VII.—Repression and symbolism

Repression.—We have touched more than once on inhibition. It is time that we concerned ourselves further with this most important aspect of the subject. According to the usual psycho-analytic conception, sublimation is definitely a consequence of repression. The great role that repression plays in psycho-analytic doctrine has perhaps prevented adequate consideration of the question how far sublimation can take place without inhibition. The processes we have examined—facilitation, specialised irradiation, deviation of response, the development of an independent interest in what was originally a means to an end or a phase of a total activity, transfer of feeling, conditioning, etc.—seem to provide the necessary machinery for sublimation even in the absence of inhibition. But these processes can of course also come into play in conjunction with repression; repression creating the need for deflection of instinct, while they determine the paths along which the deflection occurs. Inhibition is, however, so fundamental a process in all mental development, and indeed in all orderly thought and action (even—as experiment has amply shown—at the reflex level) that we shall be little disposed to question the general importance of repression, even though we remain aware that many problems of detail are as yet unsolved, and perhaps indeed inadequately formulated. At any rate we seem justified in provisionally agreeing that it is an inhibition of the original cruder expressions of an instinct which causes that instinct to seek new forms of expression.

If these new forms are biologically and culturally useless (or worse than useless) we look upon them as pathological and call them 'symptoms'; if on the other hand we approve of them and consider them of value, we call them sublimations. Much depends, the psycho-analysts assert, upon the degree of repression in relation to the strength of the instincts. A completely successful repression would prevent any manifestation of the repressed tendency. Symptoms and sublimations both result from incomplete repression, but—in spite of the immense practical significance of the problem—there has been but little systematic attempt to determine what kinds and

[1] For a more detailed discussion of the biological implications of sublimation from this point of view, see J. C. Flugel, 'On the Biological Basis of Sexual Repression and its Sociological Significance, *Brit. J. Med. Psychol.*, 1921, i, 225.

degrees of repression favour the one of the other outcome. In general it appears to be thought that excessive repression, especially in the early formative years, prevents sublimation, and it is pointed out[1] that the attainment of adult standards can only be a gradual process and that inhibition (perhaps indirectly through adult influence) of earlier, still relatively crude, displacements may nip sublimation in the bud. Throughout life, there would appear to obtain a complicated and delicate relation between inhibition and sublimation. In many cases some expression of unsublimated impulse may remain a biological necessity (e.g., in the functions of nutrition, excretion and reproduction) or if (as with sex) not a biological necessity for a given individual, at least a condition of psychic health and therefore of continued sublimation.[2] Moreover, different individuals are not equally capable of sublimation; and it is easy to point to men of genius who have contributed much to human progress and culture but who have nevertheless indulged considerably in activities of an unsublimated kind.

Very largely, however, the possibility and likelihood of sublimation depends not merely on purely quantitative factors, not merely on the relative strength of instinct and repression, but upon a more qualitative factor, i.e., the discovery of a satisfactory compromise which will allow the instinct a maximum of satisfaction and give the repressing forces, as it were, minimum ground for complaint. A sublimation can indeed be considered as a compromise of just this sort. From the point of view of the repressing forces there is no cause for complaint in so far as the new compromise activities appear to be safely removed from the tabooed 'immoral' manifestations of crude instinct, or, better still in so far as they appear to be definitely in harmony with some socially approved standard.

It is here that the 'moral' factor in sublimation, which we have hitherto recognised as the cause of some embarrassment to the psychologist, definitely ceases to be a foreign 'ethical' body, but itself assumes a psychological form—because the repressing forces are themselves largely moral in nature. Inasmuch as repression is unconscious, however, the morality involved is of the relatively

[1] E.g., by S. Bernfeld, 'Bemerkungen über Sublimierung', *Imago*, 1922, viii, 33.

[2] A remarkable corroboration of this last contention has been forthcoming in recent years from investigators who have proceeded along extensive rather than intensive lines, as when Terman and his associates in their researches on marriage (L. M. Terman and Others, *Psychological Factors in Marital Happiness* (New York and London, McGraw-Hill, 1938) discovered that frigidity in women was associated positively with many undesirable character traits and negatively with every one of the measures of marital success that were adopted.

primitive all-or-none infantile type that is characteristic of the unconscious portions of the super-ego. It may therefore—especially in highly civilised societies and in the more sophisticated members of such societies—fail to be in accordance with the moral standards resulting from conscious reflection on ethical problems, and it is to this disharmony between a more primitive and a more rational morality that the difficulties caused by the ethical criterion in sublimation are often due. Activities that can lay any claim at all to be called sublimations will probably always conform to the dictates of the deeper layers of the agent's super-ego; they will not necessarily conform to his conscious ethical judgment; still less to that of a critical outsider. Inasmuch, however, as the unconscious moral factors reflect (albeit somewhat conservatively) the general ethical feeling and tradition of the society concerned, there will tend to be a definite positive correspondence between the two kinds of moral judgment (conscious and unconscious). This is the more so since a really harsh and intolerant super-ego is often incapable of allowing its unfortunate possessor to develop anything but 'symptoms', so that the repressions that produce sublimations tend to exclude the influence of the more grotesque and archaic elements of unconscious morality. In practice therefore we find that the difficulties caused by the element of ethical valuation in the definition of sublimation, though far from being abolished,[1] are yet not so great as we might at first expect.

At any rate there can be little doubt that the sublimator's own (at least unconscious) moral approval of his actions contributes a very

[1] A point of special difficulty, on the detailed consideration of which it seems undesirable to enter here, concerns what is sometimes called the criminal super-ego, which allows its possessor to employ wholeheartedly all his skill and energy for what most other people think to be unsocial ends. Can the clever criminal be said to be practising sublimation in the execution of his criminal projects? And the problem becomes, of course, even more acute in the case of contending groups, each of which asks for sublimation and sacrifice on the part of its members for ends that the other group considers wrong. Most of us will agree, for instance, that the world would be a better place if Hitler had loved work less and wine and women more; and war generally raises complicated problems of a moral order, which affect sublimation together with most other concepts concerning social values. (Cf. the present writer's *Moral Paradox of Peace and War: Conway Memorial Lecture*, 1941). Even apart from the direct issues of war and criminality, however, the question of aggressively directed sublimation is one which the recent history of mankind is forcing painfully on our attention, and some writers have urged that a greater freedom of expression along unsublimated lines (especially perhaps in early years) is desirable, in order to avoid the accumulation of aggressive tensions, which, even though they provide opportunites for what we would ordinarily regard as sublimation, may be in the long run more harmful than helpful to our civilisation. (Cf. e.g., R. Money-Kyrle, *Aspasia* (London, Kegan Paul, 1932).)

essential element to the whole feeling of sublimation as actually experienced. It is to this element that is due the 'glow' of self-approval, the sense of intense worth-whileness, of graciousness and even of nobility, that is lacking even in the most intense and spontaneous satisfactions at the purely instinctual level. The instincts *are* satisfied in sublimation, but in such a way as to produce a sense of harmonious co-operation of the whole personality. This co-operation in turn gives sublimation its 'protective' value as a means of avoiding mental conflict, and thus recommends it from the point of view of the psychotherapist, while at the same time endowing it with a sense of unity, absorption and completeness, which it has in common with certain states of exaltation and certain types of religious experience.

Symbolism.—Instinct, as we have said, is satisfied in sublimation, but we must take a further glance at the changes that it is liable to undergo in the process. The instinct has to make the best of such channels as are open to it, i.e., any not blocked by the repression. It would no doubt prefer to make the least possible deflection from its original or innately determined course; but when compelled to make a wider detour, it exhibits a curious capriciousness of choice which gives rise to some of the most puzzling problems raised by the discoveries of psycho-analysis. From the intellectual point of view there is always some similarity between the new means of expression and the old. But the similarity is not always of a kind that seems to our conscious judgment to be 'real' or 'rational'; it partakes rather of the nature of autistic thinking, is often far fetched and phantastic, and comparable only to the similarities involved in symbolism. The process of sublimation in fact, as Ernest Jones has so well brought out,[1] displays in some respects the closest relation to symbolism, or, we might even say, is dependent on symbolism, since the cognitive part of the process is largely the same as that in symbolism.

In this connection we may remember that Freud to a large extent developed the principle of displacement in the course of his study of dreams (though of course the first essentials of the principle were already recognised in the earlier *Studies of Hysteria* of 1895). Indeed, the dream process whereby an affect is dissociated from what appears to have been its original cognitive concomitant and transferred to another, is in some respects just a miniature copy (or perhaps we

[1] Ernest Jones, *Papers on Psycho-analysis*, 2nd ed. (London, Baillière, Tindall and Cox, 1918), 154 ff. The chapters on 'symbolism' and 'sublimation' in this book contain some of the most important contributions ever made to the study of sublimation.

should say, prototype) of what happens in every case of displacement or sublimation. Here again the transfer often occurs according to some weird, capricious similarity, remote from 'realistic' thinking, and often the similarity is of what we call a symbolic kind. In dreaming, the symbols are *created* by what in Spearman's terminology is a process of education of *correlates*, but in sublimation they are for the most part provided by the environment and are therefore *found*, the education of the *relation* of similarity being the most important part of the cognitive process. It is just in the provision of possibilities for sublimation, i.e., for the education of suitable relations, that the environmental influence is important.

In the choice of symbolic substitutes, the principle of 'associative distance', as Ernest Jones has called it, seems to be of special importance, as expressive of the element of compromise between instinct and repression. If the symbol chosen is too close to the original inhibited idea, it arouses opposition and a fresh effort at repression; in consciousness it may give rise to repugnance and disgust.[1] If it is too remote, it may fail to be sufficiently attractive to the instinct.[2] Hence the necessity in many instances of achieving the higher sublimations by means of a series of steps, and the danger of too violent a repression in the early stages of development.

VIII.—Reaction formation, compensation, restitution

Reaction formation.—We have deliberately refrained from dealing here to a greater extent than is absolutely necessary with the more

[1] In this connection it is well to remember that the very paths and associations that lead to sublimation may also lead to an extension of repression. Sometimes, indeed, a single individual may exhibit an alternation of sublimation and repression. Thus, to mention two instances known to me, a professional dancer would sometimes suffer from hysterical paralysis of the leg muscles, a pianist from paralysis of the fingers—cases which have an obvious resemblance to certain well-known occupational neuroses, such as telegraphist's cramp. A sublimation is always a potential field of inhibition and vice versa. The same applies to some extent to certain cases of generalised intellectual inhibition, where the whole function of thinking is subject to repression, perhaps because this function has itself become over-sexualised and therefore subject to the sexual taboos. (Cf., e.g., Berta Bornstein, 'Intellektuelle Hemmungen', *Zsch. f. psychoanal Pädagogik*, 1930, iv, Heft 11–12.) Here, again, corresponding to unconscious attraction, there may be conscious fed-up-ness, making intellectual effort impossible; Burt, pursuing this train of thought, has even described neurasthenia as a 'disgust neurosis' (*The Subnormal Mind* (Oxford Univ. Press, 1935), 228 ff.).

[2] This principle of 'associative distance' displays a striking similarity in some respects to the factor of 'distance' in aesthetic appreciation, as described by Bullough (Edward Bullough, 'Psychical Distance as a Factor in Art and an Aesthetic Principle', *Brit. J. Psychol.*, 1912, v, 87).

intimate nature of repression and inhibition in general. It is essential however, that we remind ourselves at this point that the repressing forces do not always content themselves with a purely negative role. They may produce 'reaction formations', in virtue of which the individual exhibits feeling or behaviour of a character the opposite to that to which the uninhibited impulse would impel him. The relation of reaction formation to sublimation raises some interesting problems.

Among the reaction formations themselves we can distinguish some with a more restrictive, others with a more active character. The most purely and distinctively restrictive are those in which conscious effort is simply and directly brought to bear against a desire—the inhibition being no longer unconscious, but calling in the aid of the conscious will to help it. Such is the case of the young priest described in H. G. Wells' *William Clissold*, who displays such obvious effort to keep his eyes off Clissold's girl-friend Clementina that Clissold says of him: 'I have never seen anybody not looking at anything with a more positive intensity'. Such a case is on the borderline between reaction formation and simple inhibition; anyhow, it is certainly not a sublimation.

Rather more active in character are those reaction formations which manifest themselves in fear, disgust or intolerance of all that appertains to the forbidden impulses, as in exaggerated prudery as the antithesis of sex, or exaggerated humility as the antithesis of pride or self-assertion. Fear and disgust are here directed against the person's own forbidden impulses and against everything in the outer world which might be likely to stimulate them. Reaction formations of this kind also are as a rule clearly distinguished from sublimations. No one regards the prude or 'kill-joy' as a sublimator, even though his activities are on a grandiose scale, as was the case for instance with Anthony Comstock; indeed, the growth of psychological insight has made it fashionable in some quarters to accuse such people of having 'filthy minds'—on the principle that they 'protest too much'.

When it comes to certain other more active and creative qualities however, such as cleanliness and tidiness—or above all to kindliness —we may sometimes be in doubt as to whether we have to deal with a reaction formation or a sublimation. Psycho-analysts tell us that the development of these qualities are in some cases due to a reaction formation against coprophilic or aggressive tendencies, and in so far as they have this inhibitory origin the qualities in question are not 'deflections of instinct', and are not therefore sublimations as usually understood, however much they may represent 'socially

useful goals'. Here then we realise that sublimation is not necessarily co-extensive with the socially desirable. The latter is the wider category, inasmuch as it may include some manifestations of pure instinct on the one hand or of reaction formation on the other.

In many cases, however, desirable qualities of this kind include instinctual derivations as well as reaction formations. Kindliness springs from genuine love, sympathy or tenderness, as well as (in some cases) from counter-measures against aggression. Even cleanliness may have a primitive instinctual basis (it is found in some animals) and in any case usually becomes connected with, and conditioned by, love, in the course of education. Such qualities may therefore after all be entitled to rank as sublimations in virtue of their instinctual determinants, even although reaction formations may play a part in their development. Moreover, it is usually held that it is possible to distinguish between the relatively straightforward simplicity, spontaneity and 'naturalness' of qualities that are in the main instinctually determined, and the more artificial, stilted, exaggerated, compulsive, or hypocritical, character of those in which reaction formation plays the major role.

Compensation.—Easily confused with reaction formations, but yet differing from them in important respects, are 'compensations', to which Adler in particular has directed our attention. In both processes there is a violent reaction—if we like, a 'protest'— against a previously existing condition or tendency. But whereas reaction formation represents primarily an effort on the part of the inhibiting forces (ultimately of the super-ego, in Freudian terminology), compensation would seem to have a larger instinctual component; it is a protest of the ego against the limitations and disabilities imposed upon it—by outer circumstances, by constitutionally determined bodily or mental inefficiency, or even by psychic inhibitions—and in so far as this protest is successful, weakness is converted into strength. When the obstacle to be overcome is itself an inhibition, compensation would appear to be in some respects the very opposite of reaction formation; it is a victory of the ego over the super-ego, of an ego that has, so to speak, adopted the instincts concerned, so that they have become 'ego-syntonic'.

At this point a difficult question forces itself on our attention. Can the reaction against a tendency ever serve to gratify this tendency itself, and, if so, can we regard such a reversal of aim as a sublimation? The use of irony and, quite generally of 'representation through the opposite', which Freud noticed quite early in his work, suggests that such a reversal may be possible. The curiously intimate

relation between sexual excitement and anxiety have suggested both to Freud and later to Laforgue[1] that one may be converted into the other, though Freud himself seems subsequently to have abandoned this view, perhaps under the influence of Ernest Jones who was opposed to it from the start, and to have considered that anxiety is a reaction of the ego against the threatening sexual impulse. Sterba[2] considers that direct reversal of instinctual aim is possible, and that this is indeed implied in Freud's view that some at least of the instinctual energies are withdrawn from the component instincts and put in the service of the ego in the form of free displaceable energy. After this transformation there can occur a change of such a kind that the new direction is opposite to the original one, just as energy from a waterfall, if converted into electrical energy, can be led up the hill down which the water flowed. As an example, he considers that normal kindness can even serve as an outlet for what was originally sadistic aggression, and he contrasts this sort of natural kindness with the exaggerated kindness which is intolerant of any hint of suffering or cruelty and which ill conceals the sadistic impulses still active in their original form beneath the façade imposed by the reaction formation. In so far as we can accept this view and generalise it, we must be prepared to admit the possibility of what might perhaps conveniently be termed 'sublimation by reversal'.

Restitution.—Closely allied to reaction formation is a process which has been brought into considerable prominence by recent writings, especially those of British child analysts, and which is most usually termed 'restitution' or 'reparation'. Following up the observations first made by Melanie Klein,[3] these workers have been much impressed by the aggressive impulses of very young children towards their parents (particularly the mother), with the fears aroused by this aggression, and the desire to make good the damage done or intended (a distinction which—all important as it is to adult consciousness—is not clearly drawn by children of this age, and indeed is often confused in the unconscious at any age). This tendency to undo the effect of hostile thoughts is the same as that shown in many obsessional symptoms—in which reaction formation and moral factors play indeed a larger part than in other neurotic manifestations. In the young child aggression is chiefly of the oral type, and destruc-

[1] R. Laforgue, 'Über die Erotisierung der Angst', *Zsch. f. Psychoanal*, 1930, xvi, 420; *Libido, Angst und Civilisation* (Vienna, Int. Psychoanal. Verlag, 1932).

[2] R. Sterba, 'Zur Problematik der Sublimierungslehre', *Zsch. f. Psychoanal*, 1930, xvi, 371.

[3] Melanie Klein, *The Psycho-analysis of Children* (London, Hogarth Press, 1932), and earlier papers.

tion of the hated object takes place by (real or imagined) incorporation (introjection). To undo this damage the individual must once more project the incorporated object—as it were, recreate it, whole, alive, undamaged. This it is which, according more especially to Ella Sharpe,[1] when prolonged into adolescent or adult years gives rise to many sublimations, either in the form of directly creative activities (e.g., of the artist) or of other more indirect procedures.

Here again we find that the sublimations often make use of associative links of a kind remote from conscious logic. Thus in one patient, dancing represented a restoration of the father's penis (though at the same time also an identification with it), in another the painting of female portraits signified a making good of the killing or mutilation of the mother, while a third patient became a student of history, through which the dead figures of the parents became, as it seemed to him, alive again. Van Gogh said that his whole work was 'a race for life', and by this, according to Sharpe, he meant not a race for mere subsistence (he did not adapt his art to immediate financial requirements) but a race to atone for the consequences of the destructiveness of which his own unconscious continued to accuse him.[2]

In this suggestion concerning the significance of 'restitution' we have what is perhaps the most novel and important contribution to the doctrine of sublimation that has been made in recent years. The extent to which such restitutive processes are at work in sublimation generally has yet to be determined; but the observations carried out in this direction make it fairly clear that we can have no complete picture of sublimation if—as tended to be the case in the earlier expositions—sublimation is looked upon as merely a desirable manisfestation of a deflected instinct. We are learning more and more that moral elements associated with the forces of repression often play an active role, not merely the passive one of blocking all but certain paths. Sublimation in fact results as a rule from the active interplay of competing forces—in which two or more tendencies contribute positively to the result. We must return, therefore, to the study of the interaction of tendencies, which we have already briefly dealt with at the reflex level (in Section III), but which we must now consider in some of their higher and more complex manifestations.

[1] Ella Sharpe, 'Über Sublimierung und Wahnbildung', *Zsch. f. Psychoanal*, 1931, xvii, 377.

[2] Ella Sharpe, 'Similar and Divergent Determinants underlying the Sublimation of Pure Art and Pure Science', *Int. Jour. of Psycho-Anal.*, 1935, xvi, 181.

IX.—Overdetermination and the Co-operation of Tendencies

We are now in a position to see that, as regards many cases of sublimation, the notion of a simple deflection of instinctual energy is probably inadequate; there is often involved an active co-operation of two (or more) tendencies—a process of 'killing two birds with one stone'.

This point has indeed already been emphasised by a good many writers. Stout, for instance, as we have already noted, considers one of the important conditions of conative development to lie in the discovery of a new independent value in an activity originally undertaken for some other end (as exemplified in the artistic embellishment of a tool or weapon). Money-Kyrle[1] considers that sublimations differ from symptoms chiefly in the presence in the former of a 'secondary relevance' (i.e., the satisfaction of some additional 'need' or the removal of some other 'threat'), and points out that this secondary relevance may outlast the primary one. Even if the latter should be abolished (through being outgrown, through the discovery of some new form of expression, through removal by psycho-therapeutic treatment or other means) the former may persist. Ernest Jones[2] regards sublimation as an ontogenetic repetition of the cultural process. Such cultural activities as agriculture, fire-making, etc., were, he thinks, only made possible by the deflection of sexual energy (according to some authorities, e.g., Sperber[3] and Jespersen,[4] even speech owes much to the same source). But these activities undoubtedly possessed, or at least soon came to possess, an interest of their own, and this interest, we must presume, was merely reinforced by the diversion of sexual energy, which was drawn off by the already existing cultural (or, as some might prefer to say, ego-) preoccupations. In dealing with the corresponding process in the individual mind of today, Jones says that in sublimation 'the psychical energy alone, not the significance, is derived from the unconscious complexes and is transferred on to another set of ideas that have their own independent significance'; but this independent significance is itself, of course, conative in origin and implies an independent interest and an independent goal, which is somehow pursued simultaneously with,

[1] R. Money-Kyrle, *The Development of the Sexual Impulses* (London, Kegan Paul, 1932).

[2] Op. cit., 178.

[3] H. Sperber, 'Über den Einfluss sexueller Momente auf die Entstehung und Entwicklung der Sprache', *Imago*, 1912, i, 405.

[4] O. Jespersen, *Language, Its Nature, Development and Origin* (London, Allen and Unwin, 1922), 431 ff.

and by the same means as, the (displaced) sexual one. Róheim[1] also adopts this 'ontogenetic theory of culture', and thinks that the individual unconscious still has an appreciation of the double meaning of many cultural activities. Bernfield[2] also stresses the collaboration of ego and sex instincts, and shows how in many cases a sexual tendency may be drawn into the service of some already existing aim or ideal of the ego. Thus he records the case of an adolescent youth who had developed a strong desire to become a writer; when this youth fell in love, his love for the girl was gradually attracted to, and absorbed by, the ego-activity of writing poems and novels, and he could even say 'I am in love with my new novel'.

McDougall from the first emphasised the interplay of instinctual forces in sentiment formation and subsequently linked this up to the doctrine of sublimation. Sexual lust, he held, could be refined into love, in which the purely sensual elements were held in check and modified by tenderness, desire to please the loved person, to protect her, to gain her esteem, and so on. Here a variety of instincts co-operate, and the resultant behaviour sometimes appears to correspond to a fusion of two or more of them.[3] This view of sublimation is elaborated in a later work,[4] where he gives us a list of the more common forms of 'moral' sublimation of the principal emotions. In this list, for instance, self-assertion becomes self-respect; ambition becomes self-development and self-discipline; disgust becomes scrupulosity, dislike of all that is mean and dirty; anger becomes controlled effort to encounter opposition; fear becomes prudence, awe, reverence and a sense of the sublime; while the sublimation of hunger converts our meals into 'decorous social festivities'.

If we accept a wide definition of 'moral' sublimation in McDougall's sense, and apply it to all the instincts, it is difficult to refuse the title of sublimation to changes of the kind described, different as some of them look to many of the cases described under the same heading in psycho-analytical literature. What is, however, of chief importance to us here is that McDougall's list brings out very clearly the interaction of instincts in sublimation and the fact that the resulting behaviour often represents a fusion of, or recognisable compromise between, the instincts concerned. Indeed his description reveals the similarity between these cases of what he calls sublimation and

[1] G. Róheim, 'The Psycho-analytic Interpretation of Culture', *Int. J. Psycho-Anal.*, 1941, xxii, 147.

[2] Op. cit.

[3] W. McDougall, *Outline of Abnormal Psychology* (London, Methuen, 1926), 437 ff.; *Character and the Conduct of Life* (London, Methuen, 1927), 98.

[4] W. McDougall, *The Energies of Men* (London, Methuen, 1932), 307.

what he elsewhere regards as 'compound emotions'. Apart from McDougall's tendency to describe sublimations in terms of emotion, character, or attitude, rather than in terms of the more concrete activities usually mentioned by psycho-analysts (corresponding to McDougall's 'tastes' and sentiments), the chief difference between McDougall's list and the recorded psycho-analytical cases of sublimation lies in the fact that in the former it is easier to recognise the instincts or tendencies that have fused or that co-operate in producing the compromise. We can pretty readily agree that awe can be analysed into wonder, self-abasement and fear, with the latter as the chief 'sublimated' component. It is more difficult perhaps to recognise a sexual element in fire-making or agriculture, or an anal element in the painting of pictures or the accumulation of money. In these latter we have to fall back on the help afforded by symbolism and by free association in analysis.

Considerable theoretical interest attaches to the question how far in both types of case the co-operating impulses retain anything in the nature of a separate existence. As regards McDougall's instances no directly relevant information is known to the present writer; but systematic introspection of the orectic processes, as carried out by Wohlgemuth or in the numerous studies inspired by Aveling, affords at least some *a priori* likelihood of a separate existence of the two or more components of the 'sublimated' or compound emotion—inasmuch as it reveals an astonishing wealth and complexity of conative elements in the fringe of consciousness. Introspection on these lines by a trained observer would appear to bring about the 'apprehension' of many experiences that are usually only 'lived' (to use Spearman's terms), and in the light of these findings it is not unreasonable to suppose that all the components mentioned in McDougall's analyses (and perhaps others, too) carry on a separate existence, that they could be identified and described by sufficiently expert introspection and that they correspond to the innervation of certain distinct paths or patterns in the brain.

As regards the psycho-analytic cases, the problem concerns, not so much the analysis into its components of a fused tendency or emotion, as the continued existence in its original form of the impulse which has contributed some of its energy to the support of a higher cultural activity. Is there, for instance, some part of the mind which usually apperceives such activities as ploughing, drilling, hammering or screwing, in a sexual sense? The theory of unconscious activity as often expounded seems to imply that this is really the case. Ernest Jones goes so far as to say that 'however sharply the

different interests may be distinguished in consciousness, in the unconscious they remain identical or are treated as simple equivalents one for the other'.[1] At any rate, it is certainly true, as Ernest Jones also points out, that the sexual and the sublimated meaning can fluctuate in their relative importance. Certain symbols may in ordinary waking life serve important sublimations and appear to act as a means of attracting additional (sexual) energy to cultural pursuits. In dreams, however, these same symbols may lose nearly all their 'higher' significance and function only as slightly 'displaced' or distorted expressions of sexual thoughts.[2] The same thing, he might have added, happens in waking life in the case of 'smutty' jokes, which would have practically no meaning apart from their symbolism. Such readiness to regress shows at least that the primitive channels are kept open and strongly suggests that they are all the time in a state of tonus or subexcitement. When a patient during psycho-analytic treatment discovers the 'meaning' of a dream symbol or a symptom, he as a rule has the impression that this meaning has somehow existed all the time, although he was not before aware of it, or had at least not 'apprehended' it. In a similar way much of our culture may have a hidden meaning for us. Róheim,[3] as the result of dream analysis in North America and Central Australia, believes that the latent meaning of ancient rites is today the same as it was when these rites were established many generations earlier—this being the case with both civilised and primitive peoples. It certainly looks as though the deeper biological tendencies (especially the sexual ones) were constantly alert and ready to interpret in their own way any cultural activities of the individual and the group which, even by the queerest distortions, lend themselves to such interpretations.[4]

Quite apart from psycho-analysis there is ample evidence that unsatisfied tendencies continue to function and to manifest themselves when suitable occasion or opportunity occurs. 'Determining tendencies', posthypnotic suggestions, the ability to wake at a given time, the 'incubation of thought', 'parapraxes' of the tongue and hand, misinterpretations by the eye or ear, the superior memory for

[1] Op. cit., 640. [2] Op. cit., 178. [3] G. Róheim, Loc. cit., 167.

[4] The continued excitement or unconscious co-operation of lower level (instinctual) paths during sublimatory activity would also be easy to bring into harmony with the apparently much greater frequency of 'irradiation' as compared with 'deviation of response' at the reflex level (cf. Section III). The sublimatory activity would then correspond with the path energised by irradiation, the unsublimated interpretation to the original reflex—with the very important difference, however, that in the case of sublimation the lower level path has no direct influence on movement or conduct.

uncompleted tasks revealed in Zeigarnik's well-known experiments, 'reminiscence' (in Ballard's sense), retro-active inhibition—these are a few pointers in the same direction, all within the field of normal psychology, as distinct from that of psychopathology. It would seem indeed as though at any moment we had at work in our minds a considerable number of distinguishable motives or tendencies, each of which is seeking for an opportunity to satisfy itself. Small wonder then that much of our thought and behaviour is 'overdetermined'. It may be even that Wälder is right in maintaining that our minds work on the 'principle of manifold function', and that every impulse has to adapt itself to a number of needs—ultimately to the needs of the whole organism. 'A human being', he tells us 'can only succeed in loving or working, that is in carrying out the tasks connected with these aims, if certain other strong impulses are also satisfied thereby. . . . What we call sublimations are those successful solutions of the task of adaptation to the outer world or mastery of the outer world, which at the same time, in virtue of another inner meaning, represent similarly successful satisfactions of our powerful instincts'.[1] In Wälder's view then, overdetermination is the rule rather than the exception, and sublimation is only a particularly striking and happy example of that collaboration of tendencies which, according to this 'polyphonic theory of mental life', is continuously at work within our minds.

X.—How shall we use the term?

We have now reviewed the main evidence concerning the nature of sublimation. We have seen that the concept links on to certain major problems—of valuation, of mental energy, of instinct—in such a way as to make it difficult to obtain a clear impression of all that it implies. Our subsequent considerations have, however, it is to be hoped, rendered a little plainer some of the foreground details of the picture, although the background must inevitably remain vague until further knowledge concerning the said major problems is forthcoming.

The difficulties connected with the element of valuation can hardly be avoided; they can however to some extent be shifted to the psychological plane by seeking the values in the mind of the sublimator himself. Indeed, a man's own (at least unconscious) moral approval is an essential element of his sublimations; it is this which

[1] R. Wälder, 'Das Prinzip der Mehrfachen Funktion', *Int. Zsch. f. Psychoanal.*, 1930, xvi, 285.

produces the effect of harmony, that so largely distinguishes a sublimation from a symptom and that contributes so much to the hygienic and therapeutic efficacy of sublimations.

The difficulties connected with energy and instincts can to some extent be short circuited by considering not so much the ultimate nature and origin of the instinctual energy involved as the channel through which it passes on the way to sublimation. If we do this, we can link on the notion of sublimation to a large number of facts concerning the interaction of tendencies at various levels (through facilitation, inhibition, summation, etc.) and the vicarious usage of mental or nervous energy—all of which help us, at least by analogy, to give liveliness and verisimilitude to the concept.

We have studied some of the ways in which sublimations can come about: through the acquiring of an intrinsic value on the part of what had originally but an instrumental value (a means to an end); the independent functioning of a component or preparatory phase of a larger biological process or instinct; conditioning or 'transfer of feeling' to cognitive elements associated with the original affective stimulus, aided perhaps by the relatively great inertia of feeling as compared with that of cognition; the interaction with other instincts or tendencies (especially within a sentiment)—this last including the highly important and complex roles played by inhibition and repression on the one hand and the co-operation of instincts and tendencies (perhaps simultaneously functioning at different levels) on the other.

With all this in mind however, it remains hard to decide just what range of phenomena we are to include under the heading of sublimation. For the most part the term is used with a vague and fluctuating meaning. The two most precise conceptions are those of the psychoanalysts and of McDougall respectively, with both of which we have dealt. McDougall has carried to its extreme limit the process of broadening the original psycho-analytic meaning, a process to which most non-Freudians have in some degree subscribed. But the concept, which in his hands applies to all behaviour above the instinctual level, then becomes so broad that we may well feel that it is not only employed in a way inconsistent with present general practice, but is in imminent danger of losing all of its distinctive usefulness—which can only be retained, if at all, by a rather rigorous insistence on the element of valuation, with all the special difficulties that this involves.

If, on the other hand, we accept the narrower psycho-analytical view, as given official sanction in Warren's definition, we cannot but feel that here also we are running contrary to the *de facto* employment

of the term by many psychologists, not to speak of its use in many more popular discussions; it is probably too late now to insist on the prior claims of psycho-analysis for exclusive use of the term in its relatively restricted sense.

We meet also with two other difficulties: (1) We encounter in an acute form the problem of the definition of instinct in general and of the sexual instinct in particular. How are we to say, in view of present controversies and in the present state of our knowledge, what are the limits of the 'sexual'? How, for instance, do sexual tendencies shade off into anxiety on the one hand and aggression on the other? What of the still controversial issue concerning the sexual nature of many of Freud's 'component instincts'?[1] Moreover, what term are we to use if, as so many psychologists maintain, there occur comparable 'displacements' of instinctual energies that are definitely not sexual? (2) Some psycho-analytic writers, as we have seen, have themselves begun to consider sublimation in terms of aggression rather than of sex—albeit, so far, as a process of 'restitution' rather than of simple deflection of energy. If the psycho-analytic school itself has begun to find the classical definition too narrow, what hope is there of inducing others to adopt it—especially since in recent years the problems concerning the strength and direction of the aggressive tendencies in man are causing as much discussion and embarrassment as those concerning sex?

[1] The present writer, for one, is prepared to accept Burt's view ('The Case for Human Instincts', *Brit. J. Educat. Psychol.*, 1941, xi, Part 3), that we may have to fall back largely on a statistical conception of the instincts and to define them as innate conative group factors. A difficulty in the way of statistical treatment, however, is presented by the existence of considerable individual variations in the manifestations of an instinct in human beings, even where the instinct may be present in the same strength. Some individuals, for instance, may manifest intense fear, anger, or sexual excitement, in a few situations, others more moderate degrees of these emotions in more numerous situations; and there are corresponding variations on the motor side. We may have therefore to some extent to compare 'intensity' with 'extensity' of manifestation, and there are sundry other difficulties of a comparable kind which may have to be encountered (vide, e.g., J. C. Flugel and E. J. D. Radclyffe, 'The Pressey Cross-out Test Compared with A Questionnaire', *Brit. J. Med. Psychol.*, 1929, ix, 97—last pages). These variations may constitute formidable—though not necessarily insurmountable—obstacles in the way of a purely statistical approach, so that (as Burt recognises) such an approach will probably need to be supplemented by developmental studies, and perhaps also by introspective reports (in so far as we can assume, with McDougall, that the fundamental emotional core of an instinct remains the same, however great the variations on the cognitive and motor sides).

Displacement and sublimation are, of course, merely additional (though serious) complications of this human variability, though these 'deflections' of instinct can theoretically be treated by the same methods as the more primitive and hereditarily determined manifestations of instinct.

Thus both of these attempts to give greater precision to the term 'sublimation' reveal their drawbacks, and the present writer for one sees little prospect of formulating any new definition that will be appreciably freer of difficulty.[1] We shall indeed probably have to resign ourselves for the present to keep 'sublimation' as a relatively vague concept (comparable in some ways to the term 'work', which though it seems almost indispensable, is extremely hard to define in a satisfactory way, inasmuch as it seems almost impossible to delimit precisely the sphere of work from that of, say, play or instinct, or indeed from many forms of sublimated activity. Is 'a labour of love' really work or not?) We may regard it as providing a convenient subdivision of the wider field of displacement or vicarious usage of mental energy in general. In dealing with this subdivision, however, we must bear in mind the various ways in which, as we have seen, sublimation can come about, and the various features which seem to be specially characteristic of it, above all the important roles played by inhibition and overdetermination and the sense of harmony resulting from moral approval. When several of these distinctive features are clearly present, we need have no hesitation in applying the term; where none are present, it will obviously be inapplicable. But there will probably always be transition cases where the term should be employed cautiously and with reasonable provision to avoid as far as possible the confusions and misunderstandings to which its use may lead.

XI.—Sources of evidence and methods of research

After this—as the reader may well consider—somewhat unsatisfactory outcome of our long survey, we may perhaps be permitted in a concluding section to consider briefly the chief methods by which we have achieved such knowledge of sublimation as we possess and by which we may expect to increase our knowledge in the future. This may at least help us to end upon a note of hope and will enable us in passing to cast a final backward glance upon our subject from a somewhat different standpoint.

The first and most fundamental method is of course the intensive study of individuals. We may endeavour to find out what we can about the development of sublimations by direct attack at the

[1] We could conceivably attempt to find a criterion in the degree or kind of repression or of over-determination (e.g., in the apparent relative subordination or unrecognisability of the more inhibited component), but it is pretty clear that any such attempt would introduce formidable new difficulties of its own.

conscious level—as in Margaret Phillip's interesting attempt to obtain autobiographical accounts of the history and growth of sentiments,[1] a method by which, with suitable subjects, a quite surprising amount of useful information can be elicited. Our chief standby, however, for dealing with deeper levels is likely to remain the method of psycho-analysis. It is by this method that we have brought to light the main facts at present available, both as regards the general nature and conditions of sublimation (our present theme) and the special transformations of instinct underlying particular kinds of sublimation (as manifested in the arts and sciences, the work of the different professions, etc.).

The scientific value of the evidence from this source is notoriously difficult to assess;[2] it stands or falls to some extent with psycho-analytic conclusions generally. All we can say here is that perhaps the most ultimate fact on which the doctrine of sublimation is based is the conviction of the analysand, obtained at some time (or indeed repeatedly) during treatment, that the sublimated activity in some way stands for, is similar to, or is at bottom the same as, the correlative unsublimated activity; in carrying out the former, the patient has—to some extent and in some way (it may be very dimly)—the same feelings, or is adopting the same basic attitude, that he would have if he were engaged in the latter; though without impairment of the sense of real value attaching to the sublimated activity.

This subjective sense of similarity (or ultimate identity) may be supported by the discovery of the historical links or events by which the sublimation was brought about; as also by observations concerning the behaviour of the patient in the two dissimilar situations. Moreover, dreams and other processes may sometimes reveal the actual conversion of one form of activity into the other, so that we can witness, as it were under the microscope, the change actually taking place before our eyes.[3]

[1] Op. cit.

[2] For a general consideration of the difficulties involved, *vide*, e.g., the present writer's paper on 'Psychoanalysis: Its Status and Promise' in *Psychologies of 1930* (Worcester, Mass., Clark Univ. Press, 1930); E. Pumpian-Mindlin *et al.*, *Psycho-analysis as Science*, 1951, and several other recent critical studies.

[3] One such example from the literature may perhaps be quoted. The patient in question was a singer and had lost her ability to trill. In a dream she was screaming with terror and aggression. The scream, however, altered its character, so that, in the patient's own words, 'I went through with the scream by gradual stages, modifying it, getting it into cadences and harmonising them, so that when I awoke I was singing a tune'. Shortly afterwards, while in her bath, she recovered her trill (Ella Sharpe, loc. cit., p. 186).

Such occurrences call to mind the transformation of figures, e.g., from animal to human form in myth and Märchen, as also such creations of the artist's mind

Further corroboration is obtained from the fact that, in spite of great individual differences in detail, sublimations do not seem to occur entirely at haphazard; certain general types can be established, and individual sublimations are very often found to occur along these typical lines. This correspondence of the findings with different individuals adds greatly to the evidential value of the results obtained; though it has to be admitted that psycho-analysts have not yet succeeded in reducing their data to a form in which quantitative comparisons can profitably be made.[1] Nevertheless, the indication of the existence of these typical paths of sublimation affords hope of the application of psycho-analytic findings in both education and vocational guidance.

As in the case of other psycho-analytic discoveries, corroboration can also be sought from history, biography, folklore, anthropology and philology. In the first two of these categories we are dealing with individuals—though, it may be, with individuals long dead;[2] in the others with racial or collective productions. In so far as the evidence from these sources is clear, and does not itself require excessive interpretation along psycho-analytic lines, it has the great advantage of being entirely free of bias or suggestion from psycho-analysts themselves.

This brings us to the direct study of anthropology itself. The outstanding work of Róheim[3] has shown that the intensive study of different cultures from the psycho-analytical point of view is likely to throw valuable light upon the relations between the predominant forms and activities of a given culture and the early experiences of the individuals who grow up in it, i.e., upon the nature of the typical lines of sublimation in the people concerned.

Thus he contrasts certain features of life in Central Australia and in Dobu (Papua) respectively, two cultures that he had studied intensively at first hand. In the former culture power is predomi-

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as the celebrated statue of the *Dukatenmännchen* at Goslar, who is carrying out the act of defaecation and whose faeces are seen, as it were, in the very process of turning into coins—thus illustrating, long before the advent of psycho-analysis, one of the most striking psycho-analytic discoveries concerning particular forms of sublimation.

[1] The work of F. Alexander in Chicago in recent years shows a courageous attempt in this direction, but throws little light as yet upon our particular subject.

[2] Important early studies along these lines were Freud, *Eine Kindheitserinnerung des Leonardo da Vinci*, 1st. ed. (Leipzig and Vienna, Deuticke, 1910); Karl Abraham, 'Amenhotep IV (Echnaton)', *Imago*, 1912, i, 334.

[3] 'The Psycho-analysis of Primitive Cultural Types', *Int. J. Psycho-Anal.*, 1932, xiii, 1; *The Riddle of the Sphinx* (London, Hogarth Press, 1934); also op. cit., 1941.

nantly in the hands of men and the general outlook is thoroughly masculine, whereas Dobu has a matrilineal society. This difference is connected, according to Róheim, with certain typical infantile traumata—which the child suffers at the hands of the mother in Australia, the father in Dobu. Again, the Australian tribes studied by Róheim showed little thought for the morrow in economic matters, whereas the Dobuans were anxiously concerned with making provision for the future. Róheim connects this with the long period of breast feeding in Australia and the early weaning that is customary in Dobu.[1] (This corresponding in a remarkable way with certain observations made by Glover and Goldman-Eisler on the relation between early feeding and 'oral character' types in Britain.[2]) Comparable differences in adult behaviour that are correlated with differences in early treatment are reported by Mead from the same part of the world.[3]

Field work, such as Róheim's, can of course only be carried out on existing cultures. Where sufficient evidence exists, however, it may be possible similarly to contrast the cultures of different historical periods. An interesting example of this kind is provided by a study of Sachs,[4] in which he endeavours to trace the conditions of the momentous change in human attitudes and interests which made possible the development of the 'machine age' in which we live.

Perhaps the most novel attempt, however, to deal with the problems of sublimation from the point of view of anthropology is to be found in Unwin's work.[5] In the light of the recorded evidence of eighty more or less independent primitive cultures, Unwin set out to determine the relation between the degree of sexual restriction on the one hand and of cultural development on the other. The results of this investigation appear at first sight to present a quite astonishing vindication of the doctrine of sublimation. Taking his extensive material people by people, Unwin finds consistently that—so far as he is able to employ quantitative criteria—the greater the sexual restriction, the higher the degree of culture. The very completeness

[1] Actually reported in R. Money-Kyrle, *Superstition and Society* (London, Hogarth Press, 1939), 126.

[2] Edward Glover, 'Notes on Oral Character Traits', *Int. J. Psa.*, 1923, iv, 131. F. Goldman-Eisler, 'Breast-feeding and Character Formation', *J. Personality*, 1948, xvii, 189, and later papers.

[3] Margaret Mead, *Sex and Temperament in Three Primitive Societies* (London, Kegan Paul, 1935).

[4] Hans Sachs, 'The Delay of the Machine Age', *Psychoanal Quart.*, 1933, ii, 404.

[5] J. D. Unwin, *Sexual Relations and Human Behaviour* (London, Williams and Norgate, 1933); *Sex and Culture* (London, Williams and Norgate, 1934.)

of the correspondence found, however, is calculated to arouse some scepticism concerning the validity and reliability of the methods employed; for in dealing with such highly complex entities as human societies some approximation to a rule of this sort is all that could have been expected. Moreover, the results obtained seem to be incompatible with a number of previous findings in psychology; it is therefore highly desirable that this important pioneer work should be followed up, and its conclusions tested, by further studies employing comparable, but if possible more refined, methodological procedures.[1]

Róheim's and Unwin's researches deal primarily with the differences between cultures, endeavouring to find correspondences between the degree or nature of a culture and the experiences of early life or the restrictions upon impulse prevalent in that culture. Other methods deal statistically with the differences between individuals within the same culture, with a view especially to discovering correlations between certain experiences, habits, tendencies, or inhibitions, of early life on the one hand, and on the other with certain character qualities or forms of sublimated activity in adult years. Psychoanalysts, as a result of their intensive studies of a relatively few patients, maintain that there are certain typical forms of character or sublimation connected with the complexes of early life, such as the Œdipus complex, or with displacement of (or reaction formation to) some of the 'component instincts'. There is an urgent need that these findings should be corroborated by more 'extensive' methods. In the main, two such methods appear to be available.

The simpler of the two methods consists in getting measures or estimates of the relevant character qualities or sublimatory activities exhibited by a group of adult individuals in the present, and similar estimates concerning the supposedly corresponding unsublimated tendencies of earlier life. The comparatively few endeavours so far made in this direction are definitely encouraging, as regards both the possibility of obtaining positive results by such a method and the reliability of the psycho-analysts' conclusions that are thereby put to the test.[2]

[1] For a short exposition and critical discussion of Unwin's results, by Unwin himself and others, see 'Sexual Regulations and Cultural Behaviour', *Brit. J. Med. Psychol.*, 1936, xv, 162.

[2] See, e.g., G. V. Hamilton, *A Research in Marriage* (New York, A. C. Boni, 1929), especially 444, *et seq.*

E. Klein, 'The Relation between one's Attitude to his Father and his Social Attitudes', 1925, Thesis in Library of Columbia University.

It is true that by no means all of the particular traits examined in these researches would be considered to be sublimations, but there seems no reason why similar methods should not be systematically employed in the investigation of the antecedents of activities that would definitely qualify under this heading.

In view, however, of the notorious unreliability and bias of memories, whether of the subjects themselves or of their parents or others who knew them in their youth, it would seem highly desirable for this line of research to be supplemented by the second of the two above-mentioned methods, in which observations actually made during the early months and years should be compared with others made in later life—or, if possible, at intervals throughout life. The practical difficulties of such long period research are sufficiently obvious and are probably responsible for the fact that work of this kind is only in its earliest stages.[1]

Meanwhile, however, a relatively short-time study of development during the most crucial early years presents distinctly fewer difficulties. Given the materials for sublimation, how far and in what order do children make use of them, and what kind of mental changes appear to accompany the abandonment of one kind of material (or one kind of activity) and the adoption of another material (or activity)?

In writing of sublimation some forty years ago, Ernest Jones[2] commented favourably on the work of Archer,[3] who was one of the first to observe 'what children spontaneously do with snow, mud, earth, string, stones, knives,' etc. He regrets, however, that Archer did not trace the history of these activities forwards and backwards in time. More developmentally orientated studies of this kind should teach us much by revealing many sublimations *in statu nascendi*, and might ultimately be of the greatest service to the educationist, who

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S. Brahmachari, 'Moral Attitudes in relation to Upbringing, Personal Adjustment, and Social Opinion', Thesis in Library of University of London.

Helen Crocket, 'An Investigation of Social Attitudes in School Children', Thesis in Library of University of London.

G. B. Watson, 'Effects of Lax versus Strict Training', *J. Soc. Psychol.*, 1934, v, 102.

F. Goldman-Eisler, op. ct.

[1] See, for instance, W. F. Dearborn, *Predicting the Child's Development* (Cambridge, Mass., Sci-Art Press, 1941).

[2] Ernest Jones, 'The Value of Sublimating Processes for Education and Re-education', *J. Educ. Psychol.*, 1912, iii, 241.

[3] R. A. Archer, 'Spontaneous Constructions and Primitive Activities of Children analogous to those of Primitive Man', *Am. J. Psychol.*, 1910, xxi, 114.

should naturally take account of the spontaneous current of development, so as to work with this current rather than against it.

In recent years, extensive data dealing with spontaneous activities, play therapy, and the psycho-analysis of children have been collected by a considerable number of child psychologists. These data no doubt already contain much of value for this purpose, and need collating with the problems of sublimation especially in view; while the collection of further material with this specific aim should not present great difficulty.

In the last place, mention may be made again of sundry lines of experimental (as distinct from merely observational or statistical) research which have already been touched on in this paper. To the Gestalt school belongs the credit of a few pioneering researches dealing with the vicarious satisfaction of experimentally aroused needs. It was found that such vicarious satisfaction was of various degrees of adequacy and that this adequacy had a certain relation to the 'reality' value of the substitute satisfaction. Here we have the beginnings of a new line of investigation which may well have great importance for our subject. We have already referred (in Section V) to the experimental studies of the 'transfer of feeling' and their possible extension. Lastly there are the problems of output and energy (measured in terms of either muscular or mental work) dealt with in Sections II and III, many of which have shown themselves amenable to experimental treatment. It is true that all these researches deal with displacement rather than with sublimation, but an increase in our knowledge of the general process will surely be capable of application to that particularly precious kind of displacement that we call sublimation.

Thus, in concluding our survey, we find that the general outlook is very far from hopeless. The wide adoption of the term 'sublimation' indicates that it corresponds to a felt need in psychology and education. It would be useless, however, to pretend that at the present stage of our knowledge the concept is a clear one. We may agree with Glover when, at the end of a survey of the literature up to 1923, he says that 'our first and inevitable conclusion must be that the concept of sublimation as originally stated involves a considerable amount of confusion; the second that we have not yet extricated ourselves from this confusion'.[1] Taking a wider view up to the present time, we may perhaps add to these, two further conclusions of our own. The first is that the concept appears to be applicable to

[1] E. Glover, 'Sublimation, Substitution and Social Anxiety', *Int. J. Psycho-Anal.*, 1931, xii, 279.

the theories and discoveries of many workers employing different methods and belonging to a variety of schools—itself a not inconsiderable recommendation in these days of over-departmentalised psychology. The second is that, through the further employment and development of these methods, there is a reasonable prospect that the concept may grow in clarity and usefulness; and this is enough perhaps to make us treat the term, if not with enthusiastic approval or support, at least with a kindly, if provisional, indulgence.

Chapter II

FEELING AND THE HORMIC THEORY

I.—The hormic theory and its difficulties

The threefold classification of mental processes into the categories of cognition, affection, and conation has firmly established itself in modern psychological literature and has shown its usefulness in a multitude of discussions, introspections, and experiments. It is pretty generally admitted that this classification (like most others) to some extent distorts the facts, inasmuch as in real life processes of all three kinds are continuously occurring in intimate combination, and that we are guilty of abstraction when we single out processes of one kind or the other for separate treatment. Nevertheless, some such classification is probably necessary, if we are to attain any kind of ordered understanding of the rich facts of mental experience, and it may safely be said that no alternative classification can boast of anything approaching the same degree of success in actual practice. It is true that the distinction between affection and conation has proved in many cases more difficult than that between either of these and cognition; hence the increasing use in recent years, at least among British psychologists, of the term 'orexis', to cover both affection and conation as distinguished from cognition. Nevertheless, in many important matters it appears desirable and necessary to distinguish between feeling and striving as separable aspects of orectic experience and to determine the relations between them. One problem concerning these relations seems to be of supreme theoretical importance: that which deals with their respective roles in the initiation and development of behaviour generally. Put briefly and crudely, the problem is: Do we strive (and therefore act) because we feel? Or do we feel because we strive? The only plausible form of the first view is the doctrine now generally known as psychological hedonism, according to which all our actions are determined on one simple principle—we seek to procure pleasure and avoid pain.

This doctrine, immensely attractive because of its apparent simplicity, has been held by many thinkers of all ages, perhaps attaining

its greatest vogue among British philosophers and psychologists of the nineteenth century. At first sight it has a distinctly common-sense appearance; we all recognise in ourselves what seems to be a willingness to make an effort in order to attain something which promises pleasure or to avoid something which threatens pain. But a closer study of the facts reveals certain difficulties which can be surmounted only by arguments which are far from convincing and which at once deprive the theory of all its delightful obviousness and straightforwardness. Some of the most distinguished upholders of psychological hedonism have lived lives of a rigid and austere pattern which accords ill with our customary notions of pleasure-seeking. Although we ourselves sometimes gluttonise and seek escape from our worries in the befuddlement induced by alcohol, there is yet among nearly all of us a widespread distrust of pleasure, which manifests itself in a great variety of asceticisms, individual and social. Thus we hesitate to discard our garments even in the hottest weather; we raise 'moral' objections to birth control, which from the hedonistic point of view would seem to have removed the chief obstacle that foresight had previously placed upon the indulgence of the most thrilling and inspiring of our natural appetites; in their time our fathers raised similar objections to the use of anaesthetics, perhaps that one among the inventions of mankind which should have been least open to suspicion from the hedonistic standpoint. We are willing today to sacrifice many of the amenities which our increased power over Nature's could have given us, in favour of manufacturing vast armaments wherewith to kill each other and destroy those amenities we actually possess. Confronted with such facts as these, we can only save the theory of psychological hedonism by admitting that we are either enormously stupid or else enslaved to fear, guilt, and aggression of a kind that seems most perversely opposed to the claims of simple, healthy pleasure-seeking.

This immense influence of certain tendencies apparently opposed to pleasure, though it can and often has been 'explained' in a very roundabout and laboured way on the theory of psychological hedonism, strongly suggests that this theory is not in itself a sufficient explanation of human behaviour, but that we must take account of certain impulses which impel us to act in their own right, largely or wholly irrespective of whether such action brings pleasure or the reverse. This is precisely the position adopted by those, who, while still maintaining that behaviour is purposive and cannot be adequately described in terms of mechanical stimulus-response patterns, yet refuse to believe that all conduct can be accounted for as a seek-

ing of pleasure or avoidance of pain. Following McDougall, its most determined and consistent upholder, this opposing view is now called the 'hormic theory', the term 'hormic' in its modern usage having been adopted from Sir Percy Nunn. According to this view we possess certain drives, impulses, propensities, or instincts (including, in their later developments, ideals and powers of moral control), which impel us to attain certain ends, and these drives, etc., are the fundamental motive forces of our minds. They are activated by certain cognitions (sensory, perceptual, imaginal, or ideational in nature) so that conation may be said to be directly attuned to cognition, and not dependent on affection.

Where then does feeling come in? The hormic theory maintains that affection, far from being the cause of conation, is itself dependent on conation—and dependent in a way that has been recognised from the earliest times. Pleasant feeling, it is said, is an accompaniment of successful conation, conation that is in process of attaining its end or has just attained its end, whereas unpleasant feeling accompanies frustrated conation (whether the frustration be due to external obstacles or to internal inhibitions). This view finds clear expression in Plato and in subsequent writers far too numerous to mention, including, in recent years, G. F. Stout, J. Dewey, S. Alexander, T. P. Nunn, P. Bousfield, Burlton Allen and, above all, W. McDougall. The treatment given to the subject by these various authors naturally varies as to detail, emphasis being sometimes laid, for instance, upon the relation of pleasure to the pre-existing tension which is responsible for the conation, at other times upon the intensity, duration, or complexity of the conation, but fundamentally there seems to be little or nothing that is mutually incompatible in the accounts that have been given of this hormic theory; all the above writers are agreed that pleasure is conditioned by success, unpleasure by failure.

Ample experimental confirmation of this view was meanwhile provided by Ach's celebrated researches on the will,[1] as also by subsequent investigators working along similar lines. Allied researches upon the nature of choice, such as those of Boyd Barrett,[2] Michotte and Prüm[3] and H. M. Wells, at the same time appeared to bring a direct refutation of the theory of psychological hedonism, at any rate in that form which McDougall has described as 'teleological hedon-

[1] N. Ach, *Über den Willensakt und das Temperament* (Leipzig, Quelle and Meyer, 1910).

[2] *Motive Force and Motivation Tracks* (London, Longmans, Green, 1911).

[3] *Étude expérimentale sur le choix volontaire* (Archiv. de Psychol., 1910), x, 119.

ism',[1] the theory that we act for the sake of obtaining pleasure or avoiding pain. In these researches the subjects were, as a rule asked to choose between alternative stimuli or tasks for some good reason. Nothing was done to exclude hedonic motives; nevertheless, the less pleasant stimulus or task was sometimes chosen, and even in cases where the choice followed hedonic lines it is not clear that affection generally determined conation in the way that the hedonistic theory demands. Wells, indeed, even tells us, as regards her own results, that 'we have in no instance any definite report that affective states exert a controlling influence on the development of conative activity'.[2]

Nevertheless, in spite of all this powerful support for the hormic theory, a great many writers have sensed a difficulty in applying the hormic explanation consistently and ruthlessly to all kinds of feeling. Some, indeed, including in recent times authorities of such eminence as James Ward and Sigmund Freud, have been quite frankly (though perhaps not quite deliberately) eclectic, inclining sometimes to the hormic, sometimes to the hedonist view; and generally it seems to have been felt that, while the hormic theory accounted very well for those pleasures and unpleasures that obviously implied a pre-existing conation or activity, there were other feelings which were apparently independent of such a pre-existing conation, and could therefore not easily be explained along hormic lines.

This distinction between the two classes of feeling is of great antiquity, having been clearly stated by Plato, who in the *Philebus* points out that some (the impure or 'mixed') pleasures are dependent on a preceding disturbance or need, and are indeed in the nature of a relief from pain (such as the enjoyment of a drink by a thirsty man), while other pleasures are 'pure', in the sense that they do not imply antecedent pain; for instance, merely not to possess geometrical knowledge may not be painful, though the study of geometry may be delightful. In general, these latter 'pure' pleasures, as considered by Plato and subsequent authors, would seem to fall into three classes: the aesthetic, the intellectual, and the sensory. Thus C. E. M. Joad, upholding Plato's distinction, says: 'Nor can it, I think, be denied that the very real pleasures of listening to good music, of looking at good pictures, of solving a difficult problem, of carrying on an abstract discussion, of pursuing a difficult but valuable line of research, are in no sense dependent upon a preceding state of need, or

[1] In *Psychologies of* 1930 (Worcester, Mass., Clark Univ. Press, 1930).

[2] 'The Phenomenology of Acts of Choice', *Brit. J. Psychol., Mon. Suppl.*, 1927, xi, 118.

a preceding experience of pain. We are not made miserable because we are *not* listening to music, although we may enjoy ourselves very much when we are'. He also mentions the more simple sensory and perceptual pleasures as falling in the same class—the smell of violets, the taste of chocolate, 'one's pleasure in a bright frosty morning in winter or in the colours of the leaves on an October afternoon'.[1] We have only to add corresponding experiences on the negative side, listening to a banal tune, looking at an ill-drawn picture, contemplating an ugly or depressing landscape, hearing a raucous noise, seeing a washy colour, experiencing some nauseating smell or taste or some racking pain—and the problem is set. The problem is: How far, if at all, can the pleasure or unpleasure in such situations be accounted for in terms of successful or unsuccessful conation?

In the light of recent discussion and experiment there seems little doubt that many of such experiences *can* be satisfactorily explained in accordance with the hormic theory. Indeed, such an explanation has actually been given in another place by Plato himself—and interestingly enough, in terms of the unconscious or subliminal; for in the *Timaeus*[2] he suggests that the mixed and the pure pleasures can both be brought under the same formula. In the mixed pleasures the need or 'depletion' has been consciously experienced, so that we become aware both of the pain of 'depletion' and of the pleasure of 'repletion'; whereas the 'pure' pleasures are occasioned by a sudden and appreciable 'repletion' of a 'depletion' that has been too gentle and gradual to reach the seat of consciousness, so that we are aware of the pleasure without being aware of the preceding need which makes it possible.

II.—Intellectual Feelings

Considering now the modern approach, let us deal separately with the intellectual, aesthetic, and sensory experiences referred to above. As regards the intellectual pleasures, the present-day hormic psychologist has little difficulty in showing that the pleasure of solving a problem or of carrying on a discussion is dependent on our *interest* in the problem or matter discussed; the arousal of interest being in turn dependent on the tapping of some source of instinctual energy. In the absence of interest we are merely bored, and unpleasure arises from the frustration of our desire to stop thinking or discussing; so

[1] C. E. M. Joad, *Guide to the Philosophy of Morals and Politics* (London, Gollancz, 1935), 408.
[2] Secs. 64, 65.

the hormic theory is satisfied. If our interest *is* aroused, then we get pleasure in so far as we are advancing in our knowledge, or understanding of the problem, and unpleasure in so far as we are baffled. Here again the hormic view is justified, though we may note in passing that some degree of previous bafflement is inevitable if we are to experience the pleasures of 'solving a difficult problem', so that in reality the intellectual pleasures are very far from being unmixed.

We may however profitably make some distinction along the lines that Plato and Joad suggest. In some cases Joad's statement that the pleasure in solving a difficult problem is 'in no sense dependent on a preceding state of need' is manifestly untrue. The problem may be of real life or death importance or may otherwise have roused desire to such an extent that the thinker may experience an intense and almost agonising unrest until it is solved—an unrest that is almost as severe as that which arises from some urgent physiological need. Thus a trapped miner might endeavour to think out some method of escape; an embarrassed business man might consider how to raise money to tide himself over some financial crisis; or a scientist might struggle desperately to find the solution of some last difficulty that still blocks the way to an attractive theory or useful invention; in each instance the relief on finding the solution would be preceded by great tension and anxiety. In a second type of case, there may indeed be no obvious preceding state of acute need, but the problem may be such as immediately to appeal to us in virtue of some sentiment that we have formed. Here the existence of the sentiment (like the instincts which enter into it) makes us permanently liable (as McDougall would say) 'to perceive and pay attention to' the matter with which the problem is concerned. If, for instance, we are 'interested' in conjuring, we immediately desire to understand the methods employed in some new trick that we have witnessed. Here it is scarcely an exaggeration to say (along the lines of Plato's suggestion in the *Timaeus*) that there is a permanent unconscious need to know more about the subject and that the pleasure in solving the problem springs from the satisfaction of this need. In the third place, the problem may deal with a subject that is entirely new to us —perhaps geometry. In this case it may quite well be, as Plato suggests, that our previous ignorance of geometry has been in no wise painful. Nevertheless, if we now derive pleasure from the solving of a geometrical problem, it is clear that our interest in it has been aroused, and the hormic psychologist would say that some fundamental urge (probably that of curiosity) has found a new outlet and that a new sentiment is in process of formation; if a Freudian, he

might be inclined to look upon it as a new sublimation. But if we accept this formulation, we must agree that the need was there before the satisfaction—not indeed a specific need for geometrical knowledge, but a more general or more primitive need, which had hitherto been satisfied, though perhaps inadequately, in other directions.[1]

The distinctions here drawn may perhaps be illumined from another angle. There would seem to exist an analogy—perhaps more than an analogy—between the differences presented by our first and third cases on the one hand and the difference between what Drever[2] and some others have called 'appetitive' and 'reactive' tendencies upon the other. It is well recognised that in such fundamental urges as those of nutrition and sex there is an appetitive element, dependent (though perhaps indirectly) upon physiological condition, and a reactive element dependent upon a suitably stimulating object in the environment. If we are sufficiently hungry, we may actively search for food; food stimuli possess a 'valence' (*Aufforderungscharakter*), as Lewin would say from the point of view of the Gestalt school.[3] But if we are not hungry, we may yet partake of food, if it is present and sufficiently enticing; and recent researches by Katz and others[4] have shown how, as regards food and sex, the requisite degree of attractiveness tends to vary inversely with the strength of the physiologically determined appetite. Now the first of our three kinds of intellectual problem seems analogous to the appetitively determined tendency; there is, in all the cases considered, an obvious antecedent need. In the second kind the need is less primary and is not consciously experienced in the immediately preceding period; there is, however, an

[1] The case here is somewhat akin to that of falling suddenly in love of which Plato and Freud have in their different ways both proposed a hormic explanation in terms of a prior unconscious need.

[2] *Instinct in Man* (Cambridge Univ. Press, 1917) and *An Introduction to the Psychology of Education* (London, Arnold, 1922).

[3] Vorsatz, Wille, und Bedürfnis, *Psychol. Forsch.*, 1926, vii, 294.

[4] For references to experimental observations bearing on this point, see David Katz, *Animals and Men* (London, Longmans, Green, 1937), Chap. 6, especially pp. 154, 195. In this chapter Katz very clearly draws attention to the distinction with which we are here concerned, which he designates the 'two component theory'. His terminology however is different from the older one of Drever, here adopted. Katz's term 'need' corresponds to Drever's 'appetite', while for Katz 'appetite' is a need for a specific form of diet. Except for a certain difficulty in the choice of a suitable adjectival form (e.g., 'needy' and 'needful' seem scarcely appropriate), the term 'need' is perhaps preferable to 'appetite', as involving less change from established usage. On the other hand, there are also advantages in confining 'appetite' strictly to physiologically determined needs and using 'need' to designate any conscious tension, longing, or desire (including, for instance, the desire of the scientist to find the solution of his problem).

obvious previous readiness to experience a need the moment the stimulus is presented. In the third case the quasi-appetitive element is still more in the background and the reactive element is much more prominent. Nevertheless, the hormic psychologist would assume with some plausibility that in the absence of some urge of curiosity we should refuse to be interested in the geometrical problem, in the same way that in the total absence of the hunger and sex urges we should fail to be stirred by appropriate edible and sexual stimuli, however attractive in themselves.

We see then that a pretty good case can be made out for the hormic view of feeling as regards all types of intellectual pleasure.

III.—Aesthetic feelings

Let us now turn to the second category of Plato's pure pleasures—aesthetic satisfaction. In the light of innumerable discussions on the nature of aesthetic enjoyment, we are fairly safe in asserting that the appetitive element, if present, is relatively unobtrusive here. It is generally admitted that any strong admixture of appetite destroys the aesthetic attitude. The antecedent need, if there is one, resembles that in the second or third classes of intellectual pleasure that we have just considered, rather than that in the first, and so far as mere introspection goes, it is usually true to say that the aesthetic pleasures are pure, in that no unpleasant craving is necessary for their enjoyment; as Joad puts it, 'we are not made miserable because we are *not* listening to music'.

Properly to weigh the evidence for and against the hormic explanation of aesthetic pleasure, we must, however, make a further distinction. Most writers on aesthetics describe two factors in aesthetic experience—that which depends on matter or content and that which depends on form, respectively (though, of course, the actual terms used vary considerably, and the distinction does not apply in quite the same way to all kinds of art). In so far as the pleasure depends on the matter, there is clearly something in common with intellectual enjoyment; interest must be present in both cases, and as regards the understanding of our satisfaction in the themes or objects treated by the artist, psycho-analysts have done much service in showing that the work of art, as created or as contemplated, may (perhaps unconsciously) give expression to deep-seated desires, tendencies, or complexes; and they have to this extent greatly strengthened the hormic view. As regards matter or content we therefore seem justified in saying that the pleasure results from the

satisfaction of conation, although, of course, the satisfaction differs from that of a non-aesthetic kind in ways that do not directly concern us here.

When we come to the pleasure connected with form, we enter a field which undoubtedly presents greater difficulty for the hormic theory. Here there seems no question of conation in the sense of goal seeking, of the kind that the hormic psychologist is inclined to regard as instinctual. The goal, if we may use the term here, lies only in the exercise of the perceptual activity itself. To this extent, art, as has often been pointed out, resembles the simpler forms of 'play', as when we sing, or shout, or run, with no ulterior motive but just for the pleasure that these actions give us.[1] This pleasure in mere exercise has of course been recognised from Aristotle onwards; it is indeed the kind of satisfaction chiefly envisaged in Aristotle's theory of pleasure as perfect energising,[2] a theory which at first sight contrasts strongly with the relief theory that Plato applies to his mixed (and perhaps to all) pleasures. But it is a form of pleasure which would seem to have received all too little attention at the hands of most modern psychologists[3] and it has not been brought into a really adequate relation to the prevailing modern systems, such as those of gestalt, behaviourism, psycho-analysis or hormic psychology. In all these systems there is a tendency to imply that living beings are fundamentally lazy, that they only act as a result of some tension or stimulus which upsets their equilibrium, and that pleasure results from the success of conation in re-establishing this equilibrium. If we are to retain the essential features of this assumption, we must, it would seem, understand it in a sense wide enough to allow of the existence of certain tensions which can be relieved by exercise as such. A conspicuous example of such a tension is the need that a healthy man feels to exercise his muscles when he has been engaged for a long period in some sedentary work. The inability which most civilised people feel to spend an evening by themselves without reading, writing, sewing, listening to the radio, playing Patience or indulging in some other activity, seems to indicate a similar need upon the intellectual side, and it may quite well be, as Woodworth

[1] Though, as is well recognised by all students of play, these simplest forms tend to become more complex by the creation of arbitrary or conventional goals, the seeking of which makes the play more satisfying, by enlisting the co-operation of more specific instincts and interests.

[2] *Ethics*, Bk. X.

[3] Unless indeed, with Spearman (*Psychology Down the Ages* (London, Macmillan, 1938), i, 327) we consider that in modern times Aristotle's theory has reappeared disguised in physiological form, as in the theories of Grant Allen, Marshall and Lehmann.

for instance maintains, that in a certain sense our capacities are also sources of impulsive or motive power, inasmuch as they crave exercise or stimulation. McDougall has severely criticised this view, but even he admits that it may have a 'modicum of truth',[1] and it seems clear that (both in its relation to the hormic theory and for other reasons) the whole problem urgently demands further investigation. In dealing with the aesthetic pleasures connected with form, McDougall of course retains the hormic position, but with a somewhat unsatisfying lack of detail and precision. Thus he says,[2] 'the (aesthetic) object evokes in us a multitude of conations that work together in delicately balanced harmony to attain satisfaction in a rich and full appreciation of the significance of the object'. Spearman in his *Creative Mind* has endeavoured to show in much greater detail what these processes are and relates them in interesting and instructive fashion to the five quantitative and three qualitative 'principles of cognition' as expounded in his *Nature of Intelligence*. But neither he nor McDougall has much to say as to why the object evokes in us 'a multitude of conations', why we desire this 'rich and full appreciation' of the aesthetic object.

If, with McDougall and Spearman (and, of course, with many others) we assume that we have this desire, then, on hormic principles, we can easily see that the fuller or less impeded the appreciation, the greater the satisfaction of our conation and the greater the pleasure, while anything that impedes this desire for appreciation is aesthetically unsatisfactory, i.e., arouses unpleasure; and the hormic psychologist may gratefully follow Spearman in his masterly analysis of the details of the process.

Granted this desire for the exercise of our capacities, we may say then that, here too, as regards the more difficult matter of the formal aspects of aesthetic pleasure, the hormic theory can satisfactorily account for the feelings that occur, even though we are painfully aware that our present understanding of the nature and relationships of the conations involved is often far from adequate.

IV.—Sensory feelings

Let us turn now to the third of the categories into which we have divided Plato's 'pure' pleasures—that of sensation. Here we find that some instances can be easily accounted for on hormic lines, while

[1] *Psychologies of* 1930 (Worcester, Mass., Clark Univ. Press, 1930), 20.
[2] Op. cit., 19.

others present much the same problems as those which are encountered in the case of aesthetic enjoyment, and are perhaps the hardest of all to fit into the hormic theory.

The difficulty for this theory is that, on superficial introspection, sensory feelings seldom, if ever, seem dependent on a prior conation. In some cases conation may seem altogether absent, as when we enjoy the warmth of a hot bath, contemplate a pleasing colour, or listen to a lovely tone. Sometimes again, as Stout suggests, disagreeable consciousness and aversion appear to coincide, as in toothache. In still other cases, the theory of psychological hedonism seems to fit the facts much better than the hormic theory; it seems much more natural, for instance, to say that we like lobster because its taste is pleasant, than to say that it is pleasant because we like it—and yet it is this latter state of affairs that the hormic theory demands. So forced and artificial does the hormic explanation seem in such cases, that even enthusiastic supporters of the hormic view begin to hedge and falter when they come to deal with sensory feelings. Thus Stout, while dealing with feelings in general, appears whole-heartedly hormic and says: 'Whatever conditions further and favour conation in the attainment of its end yield pleasure. Whatever conditions obstruct conation in the attainment of its end are sources of displeasure. This is the widest generalisation we can make from a purely psychological point of view as regards the conditions of pleasure and displeasure respectively';[1] and he illustrates this thesis convincingly so far as the categories of action, ideation, and perception are concerned. But when he comes to sensory feelings he appears to be uneasy. He takes refuge in such sayings as that 'there is always a potential conation' or that 'the conative attitude is always lurking, as it were, behind the scenes';[2] and (writing, it is true, at an earlier date) he even changes surreptitiously to the hedonistic standpoint, completely reversing the causal relationship between feeling and conation, as when he says: 'In so far as the experience is pleasing, there is a tendency to maintain and develop it by whatever means may be found effective until its pleasure-giving capacity is exhausted or is overpowered by the inter-mixture of unpleasing elements. In so far as the experience is unpleasant, there is a tendency to discontinue it by whatever means may be found effective. Thus, on the level of mere sensation, agreeable feeling tone corresponds to the positive phase of conation and disagreeable with the negative'.[3] Here the

[1] *Manual of Psychology* (London, Univ. Tutorial Press, 1929), 392.
[2] *Groundwork of Psychology* (London, Univ. Tutorial Press, 1927,) 22.
[3] *Manual of Psychology* (2nd ed., 1901), 243.

word 'corresponds' glosses over the reversal of cause and effect, and the standpoint adopted is that which McDougall has designated 'hedonism of the present', according to which 'all action is prompted by the pleasure or the pain of the moment of experience'.[1]

Of all hormic psychologists, McDougall is by far the most thorough and consistent. He recognises the difficulty with regard to sensation and attacks it boldly.[2] In some cases the obstacles collapse at the first resolute approach. Thus he reminds us that, in general, some sensory feelings are clearly dependent on bodily needs and conditions, this being strikingly the case as regards food and sex. Oral or genital stimulation, which may be intensely pleasant when there exists a corresponding desire, may become indifferent or unpleasant in the absence of desire. So far, feeling depends on those internally generated tendencies which Drever calls appetitive. In other cases, however (and here the argument is less immediately convincing), we must invoke reactive tendencies. Thus genital stimulation is a specific excitant of the sexual impulse and tends to generate desire, which may not previously have been present, and the more the desire grows, the more pleasant becomes the stimulation. Sweet, McDougall maintains, is a specific excitant of the hunger impulse, and pain a specific excitant of the fear impulse, hence the fact that sweet is nearly always pleasant (because it at once stimulates and gratifies the hunger impulse—*l'appétit vient en mangeant*) and pain is nearly always unpleasant (because by its presence it stimulates the fear impulse, and by its continuance it frustrates it, since the object of this impulse is removal of the stimulus). Similarly, we may suppose that every sensory stimulus of such a kind as habitually to possess a marked feeling tone is a specific excitant of some type of behaviour, usually of approach or withdrawal. Thus McDougall mentions ache as connected with the impulse to change the bodily posture, and unpleasant odours as connected with the movements of aversion that are themselves correlated with the emotion of disgust.

In this way the at first sight difficult task of applying the hormic explanation of feeling to the pleasures and unpleasures of sense can perhaps be achieved. It seems clear, however, that much work remains to be done before McDougall's view can be regarded as definitely proved and the hormic theory thus triumphantly established as regards every class of feeling. The remainder of our task here is to consider very briefly some of the problems that have still to be dealt

[1] *Psychologies of* 1930 (Worcester, Mass., Clark Univ. Press), 11.

[2] Especially in 'Pleasure, Pain and Conation', *Brit. J. Psychol.*, 1926, xvii, 171.

with and to indicate in what direction solutions of these problems are most likely to be found.

V.—Some outstanding problems

In the first place, we obviously require experimental verification of McDougall's doctrine that habitually pleasant and unpleasant sensory stimuli are 'specific excitants' of particular conative tendencies. The classical methods of 'impression' and 'expression' here need to be employed with a new purpose in mind. In view of the great number of such stimuli this task is itself a very considerable one; and it is much complicated by the fact that the closeness and constancy of the connection between stimulus and feeling varies greatly from one stimulus to another, and, for the same stimulus, from one individual to another.

As regards the difference between stimuli, it seems likely that those stimuli, the responses to which depend largely on appetitive tendencies, are, other things being equal, more variable than those as regards which the reactive elements preponderate. This distinction is to a great extent coincident with that between the so-called 'lower' and 'higher' senses. The pleasures connected with the digestive, reproductive, and muscular functions depend intimately upon physiological condition, and display corresponding periodical fluctuations. The pleasures connected with sight and sound are far less subject to such fluctuations—and this is the case even when the higher senses are put in the service of appetitive tendencies; the visual perception of a bowl of choice fruit or of a lovely girl may in their different ways pleasantly stir the imagination even when the desire for eating or for sexual intimacy is absent owing to satiation or to other causes. Still more constant perhaps are the feelings connected with more purely sensory experiences which are less obviously linked up with appetite, e.g., a pleasing patch of colour or a musical note which is agreeable in virtue of its pitch and timbre. It is, then, especially as regards the pleasures connected with the 'higher' senses that the more difficult explanation in terms of 'specific (reactive) excitancy' will have to be worked out in detail.

But, in spite of such constancies in any given individual, there are nevertheless great differences as regards the nature or intensity of the feelings aroused by almost any simple sensory stimulus in different individuals. Here again, the simplest case concerns the appetitively determined feelings. Recent experiments show that physiological factors may influence appetite in very specific ways, and thus perhaps

account for many individual idiosyncrasies as regards food preferences. When animals have been experimentally fed on a diet which is deficient in some important respect, they tend to make good the deficiency, as soon as there is a possibility of doing so. 'Similarly, after years of investigation on newly weaned infants (C. L.) Davis reached the conclusion that children if left to themselves choose correctly according to nutritive value and vitamins.'[1] In this respect food preferences may reflect 'the wisdom of the body', and individual differences in taste may correspond to a larger extent than is often imagined to individual differences of constitution.

But in view of the great capriciousness of individual taste as regards both the 'higher' and the 'lower' senses, and in view also of the fact that it is undoubtedly possible to acquire biologically detrimental tastes, we can scarcely hope to explain all individual differences in this way, and to this extent we must fall back on 'reactive' tendencies. If we accept McDougall's hormic explanation of these in terms of specific excitancy, the problem arises as to how far these individual variations are due on the one hand to hereditarily determined differences (either in the strength of the impulse whose furtherance or frustration gives rise to the feelings concerned or in the strength of the link between this impulse and the particular specific excitant) or on the other hand to the development of the impulse or the link by the circumstances of the individual's life. There is evidence that considerable changes can be made by the process of conditioning, as regards our attitude even towards sensory stimuli the feeling tone of which we are accustomed to consider relatively constant. We may refer in this connection to Pavlov's experiment on the conditioning of the dog's salivary reflex to pain stimuli, an experiment which, we are told, succeeded in abolishing 'even the slightest sign of defence reaction' when the dog was stimulated by 'an electric current of great strength'. Cauterisation or pricking of the skin produced the same results, none of the changes in pulse or respiration that are otherwise characteristic responses to nocuous stimuli being observable.[2] Almost equally remarkable are Péto's observations on the reactions of young children to what are usually regarded as disagreeable smells.[3] He found that under the age of five, there were practically 'no signs of aversion, reaction of displeasure or repulsion' even to the smells of putrefaction. Since there

[1] Quoted from Katz, op. cit., 171, where further references will be found.
[2] I. P. Pavlov, *Conditioned Reflexes* (Oxford Univ. Press, 1927), 29, 30.
[3] E. Péto, 'Contribution to the Development of Smell Feeling', *Brit. J. Med. Psychol.*, 1936, xv, 314.

is no reason to suppose that children are deficient in the sense of smell, we can only assume that the strong attitude of aversion almost universal in later life (and exhibited according to Péto's results by most children over six) is either biologically determined by maturation or—as seems more likely—is acquired through experience, and probably through the behaviour of adults. Results such as these, in which a 'normally' unpleasant sensation appears to be welcomed, or in which other 'normally' unpleasant sensations appear to have become such as the result of experience, would seem to be very favourable to the hormic theory; at the same time they suggest that a great variety of individual differences in the feelings aroused by sensory stimuli can be explained hormically in terms of conditioning, and that there may be little need to postulate large differences in innate constitution, which, if they exist, might prove much more difficult to study or explain.[1]

If the attitude towards sensory stimuli—and the resultant feeling can thus be radically modified by involuntary conditioning, the question naturally arises, how far a similar change of attitude can be brought about in a more conscious and deliberate manner. McDougall has little hesitation in saying that such a voluntary change of attitude is possible; he instances his own attitude on a certain occasion to the surgeon's knife, the case of fanatics 'who voluntarily gash and bruise themselves without sign of disagreeable feeling' or of martyrs 'who, in the exaltation of religious aspiration, accept the physical injuries inflicted upon them as contributing to their supreme goal, the glory of God or their own salvation'. Experimental confirmation of the general influence of attitude upon the orectic aspects

[1] Incidentally, these results strongly suggest also that the 'stamping in' of successful movements according to the 'law of effect', which was originally interpreted hedonically by Thorndike (in a way that McDougall describes as 'hedonism of the past') should be interpreted hormically. It is the success (i.e., the fulfilment of a conative tendency) which makes certain situations or reactions pleasant, even if they be of a kind to be normally unpleasant, or vice versa. Thus Pavlov's dogs had learnt to recognise the pain as a step to the satisfaction of eating, while Péto's older children had presumably learnt to dislike certain—originally pleasant or indifferent—smells, as connected with situations which called forth adult displeasure and which they themselves had come to consider disgusting. Muenzinger's experiments, showing that a shock accompanying a *correct* response may help in establishing this response ('Electric Shock for Correct Response in the Visual Discrimination Habit', *J. Comp. Psychol.*, 1934, xvii, 267) seems to afford further strong evidence against the hedonic interpretation of the 'law of effect'.

Of course, even though we abandon any interpretation of the 'law of effect' in terms of pleasure and unpleasure, there is still much to be learnt about the 'confirming' or 'O.K. reaction' (as Thorndike has called it) which appears to be operative in trial and error learning. A symposium (*Psychol. Rev.*, 1938, xlv, 191) brought little general agreement as to the processes involved.

of sensory experience is amply forthcoming from experiments on aesthetic appreciation, such as those of Bullough[1] and of Myers and Valentine,[2] from experiments immediately concerned with attitude, such as that of E. F. Wells,[3] from more general introspective studies of feeling such as those of Wohlgemuth,[4] Nafe[5] and Young,[6] and from many incidental studies of suggestion, both with and without hypnosis, as well as from the more systematic work of Hull.[7] Washburn and Grose[8] made a more direct attack upon the problem as to whether one can voluntarily change one's likes or dislikes with regard to colour. They found that in the vast majority of cases it was possible to do so, but often only with the help of a shifting of attention or of an imaginary context. Finally, Yuan Pan[9] endeavoured to carry out a straightforward test of the hormic theory by instructing his subjects to adopt three different kinds of attitude: (1) a seeking or welcoming attitude, (2) an indifferent attitude, (3) an attitude of aversion, towards a great variety of stimuli of all sense departments, and noting the effect upon the feeling. He also conducted experiments on conditioning the reactions to pleasant and unpleasant stimuli, on providing motives for submitting to unpleasant stimuli, on suppressing the usual motor reactions to pleasant and unpleasant stimuli, and on observing the feelings accompanying successfully and unsuccessfully attempted tasks. His results throughout all this large field were, in general, overwhelmingly in favour of the hormic theory. The feeling tone of the total experience could nearly always be altered by an appropriate attitude, the experience connected with a normally pleasant stimulus becoming unpleasant and vice versa. Usually, however, this change in the feeling tone of the total experiences was, as in Washburn's and Grose's experiments, accom-

[1] E. Bullough, 'The Perceptive Problem in the Aesthetic Appreciation of Single Colours', *Brit. J. Psychol.*, 1908, ii, 406.

[2] C. S. Myers and C. W. Valentine, 'A Study of Individual Differences in Attitudes towards Tones', *Brit. J. Psychol.*, 1914, ii, 68.

[3] E. F. Wells, 'The Effect of Attitude upon Feeling', *Amer. J. Psychol.*, 1930, xlii, 573.

[4] A. W. Wohlgemuth, 'Pleasure-unpleasure', *Brit. J. Psychol., Mon. Suppl.*, No. 6, 1919.

[5] J. P. Nafe, 'An Experimental Study of the Affective Qualities', *Amer. J. Psychol.*, 1924, xxxv, 387.

[6] P. T. Young, 'Studies in Affective Psychology', *Amer. J. Psychol.*, 1927, xxxix, 176.

[7] C. L. Hull, *Hypnosis and Suggestibility* (New York, Appleton Century, 1933), 17.

[8] M. F. Washburn and S. L. Grose, 'Voluntary Control of Likes and Dislikes', *Amer. J. Psychol.*, 1921, xxxii, 284.

[9] Yuan Pan, 'The Relation of Feeling and Conation', Thesis in the University of London Library, 1930.

panied by some shift of cognitive content or cognitive emphasis. Thus in dealing with a normally unpleasant stimulus, attention might be paid to certain pleasant elements or aspects, or else it might acquire a pleasant meaning or pleasant associations. Or, again, consciousness might become predominantly cognitive and analytic, more or less excluding feeling altogether. In certain cases, moreover, one of the two following events occurred. In the first place, the stimulus might be 'tolerated', i.e., no attempt was made to get rid of it; here the sensory unpleasure persisted, though there was a great reduction or a total disappearance of the unpleasure connected with frustrated conation. In the second place, the 'unpleasant' sensory stimulus might be actually enjoyed in spite of the fact, perhaps indeed just because of the fact, that it was unpleasant. There is here, in this latter case, a production under laboratory conditions of a masochistic attitude, such as is exemplified more luridly in the behaviour of sexual masochists.

Thus Florrie, the flagellant, whose case is described in great detail by Havelock Ellis, says of her own experience: 'Strange but true, one's keenest enjoyment (if so one may call it) is when the strokes are given in defiance of one's wishes and have passed the limit of endurance'.[1] So also, in a milder form, for instance, does one of Pan's subjects enjoy the taste of quinine: 'Although the sharp taste was strong, sour and acid, it was welcome as an intense sensation. It was electrifying, yet enjoyable'. In such cases the hormic theory is satisfied, in so far as one part of the mind actually seeks unpleasant stimulation—even though from the standpoint of another part of the mind such stimulation may be 'in defiance of one's wishes' and to that extent unpleasant. The simultaneously present pleasure and unpleasure can both be adequately accounted for on hormic lines.[2]

[1] H. Ellis, *Studies in the Psychology of Sex* (Philadelphia, Davis, 1928), vii, 163.

[2] The whole problem of pleasure in suffering, which has been brought into great prominence by psychoanalytic work, is one which still presents many obscurities, which are of course not confined to the sphere of sensory feeling. Thus the precise relations between sex and pain, between sex and anxiety, between aggression and guilt, is still a matter of speculation and discussion. On the whole, however, the data available and the present balance of opinion fit in well with the hormic view that, here too, the pleasant elements are connected with the satisfaction, the unpleasant elements with the frustration, of impulses; the complexity arising partly from the fact that the satisfaction of the one impulse demands and depends upon the frustration of another impulse, and partly from the further fact that the forces at work may be 'overdetermined', as, for instance, in the case where the conations that are satisfied through suffering are both 'libidinal' and moral in nature. It would, however, be altogether beyond the scope of the present chapter to follow up this theme through the intricacies of sexual masochism, of abstinence and asceticism, of

But in spite of this ample evidence of the general position that feeling, even that connected with sensory experience, depends upon conation, there still remains one little difficulty. A study of Pan's vast introspective material reveals very few, if any, clear cases of a stimulus which is normally distinctly pleasant or unpleasant acquiring an opposite feeling tone, while the cognitive aspects, elements, or attributes of the sensation most clearly in consciousness remain unchanged. In the vast majority of cases a successful change of the affective tone of the total experience is brought about with the help of some cognitive readjustment, as the result of which pleasant elements are brought into conscious prominence and unpleasant elements are neglected; while in the two cases last mentioned (from Ellis and Pan), where there is no such cognitive adjustment but only a change of attitude, the sensory feeling *in itself* remains unaltered (however great the change in the feeling of the mental state *as a whole*). It still remains possible, therefore, that certain of these elements are invariably, and in themselves pleasant or unpleasant, and that their feeling tone is independent of conation.

This for the present must remain the last stronghold of the psychological hedonist, driven it would seem, from every other part of the field. In this one matter the hormic psychologist on his part may still be compelled to resort to the relatively unsatisfactory device of invoking the aid of unconscious (and therefore unintrospectable) conations. How these are to be described is still a matter for speculation. We may of course attempt an explanation in terms of Plato's subliminal 'depletions' or of Burlton Allen's[1] 'analogue of conation in the sense organs and the body generally which may condition the appearance of bodily pleasure and unpleasure'. Or again, we may extend the concept of 'appetites' or 'needs' to cover all cases of invariable feeling tone. In view of our existing knowledge concerning the varying closeness of connection between sensation and specific response, it may be, however, more helpful to suggest that, in the case of sensations which appear to be invariably pleasant or unpleasant, we are confronted with the extreme case in which the link between sensation and conation is so firmly established that it cannot be broken by any of the methods hitherto employed, in the same way that it is difficult or impossible to abolish certain reflexes.

'reaction formation,' of the 'need for punishment', and of moral control in general. For a discussion of some psychological aspects of asceticism, see the author's 'Asceticism and Education', *Report of the Conference of Educational Association*, London, 1935, while the more general aspects of the subject are treated in his *Man, Morals and Society* (London, Duckworth, 1945).

[1] A. H. Burlton Allen, *Pleasure and Instinct* (London, Kegan Paul, 1930), 14.

It seems on the whole unlikely that the theory of psychological hedonism, which once made such vast claims and is now reduced to the doubtful tenure of one tiny fraction of its original territory, will hold out permanently even here. Nevertheless, the fact that it cannot for the moment be dislodged is a standing challenge to the hormic psychologist to prove his point in this one matter too, and thus establish his sway over the whole realm of feeling. It may be that, with sufficient patience and determination, the conations involved could be fatigued or satiated in the same way that the appetitive tendencies can be satiated, and that there will then occur a change of feeling tone of the same kind as that which can be induced so much more easily in the case of food and sex. Or again, it might be possible (with the aid of the right incentives) to mobilise counter conations of sufficient strength to overcome the conations which, on McDougall's hypothesis, are 'specifically excited' by the sensations concerned. The incentives available in the laboratory are, we must remember, for the most part far inferior to those which may be aroused, for instance, by the religious fervour[1] which McDougall thinks may have rendered certain martyrs insensitive to pain. But whatever the ultimate issue, it is to be hoped that, with the help of new and more delicate methods of research, it may soon be possible to solve this last remaining fundamental problem, which, though practically it may seem of little moment, is yet clearly of great significance for the whole theory of orexis.

[1] Hypnotic suggestion may perhaps be of service here. In this connection it is interesting to note that according to recent experiments (C. L. Hull, op. cit.) suggested analgesia in hypnosis, while abolishing introspectively observable pain and all voluntarily controllable manifestations of pain, also reduced, though it did not quite abolish, such manifestations—as those affecting the pulse—which are not under the control of volition.

Chapter III

'L'APPÉTIT VIENT EN MANGEANT'

I.—Self-sustaining needs and the tension theory of action

Everyone must be more or less familiar with the situation described by the French proverb which I have chosen as a title for this chapter. We are not feeling hungry and have no special urge to eat, but it is a meal-time, and because habit or convention dictates or because someone has actually prepared food for us, we sit down and start eating. Very soon the food to which we were at first indifferent becomes attractive (acquires, as Lewin would say, a 'positive valence') and prompts us to go on eating, so that, in spite of the absence of all perceptible initial hunger, we end by consuming a fair-sized meal with quite definite enjoyment. Comparable situations in other fields are not difficult to find. On a holiday we may feel idle and averse to physical effort, but if, yielding to the exhortations of some more energetic companion, we start on a walk or expedition, after a little while we may begin to enjoy the muscular exertion itself and may even express our gratitude to the disturber of our rest by saying 'I'm glad you dragged me out'. Similarly, in intellectual work, there are many tasks which, approached at first with reluctance and distaste, soon become so interesting that we may be loath to break them off if some more urgent matter compels an interruption. In the sphere of sex, too, there are many persons (especially women) who may at first submit to the embraces of their lovers with indifference or even with a certain aversion, but whose desire and active participation are presently aroused. Indeed, the capacity to bring about this change, to overcome this initial frigidity, may be among the most valued characteristics of a 'skilful' lover—just as a good cook is one whose dishes 'tempt' the appetite when hunger is not present. Passing from single occasions to longer periods of time, we may recall that there are many activities which we were at first compelled to undertake against our wishes, but which gradually became so fascinating and absorbing that we returned to them, time

and again, without any outer compulsion, or even in the face of other claims to our attention. Thus a good teacher may arouse a genuine and permanent interest in some subject that was at first repulsive; while it is generally recognised that a desire for riches or for power may obtain such a hold upon a person that it may continue to be the main driving force of his career, long after the goals to which it was at first incidental have been achieved.

How is the psychologist to account for such familiar situations and attitudes? From the point of view of the psychological hedonism of the nineteenth century there was little difficulty. The activities, once embarked upon, present pleasant or interesting situations, whether the pleasure is of the senses or the intellect, and since it is a fundamental law of behaviour that we seek pleasure and avoid pain, we naturally endeavour to prolong or renew the situations that are found to afford the particular pleasure concerned. But psychological hedonism has been for the most part abandoned by modern psychologists, though not always whole-heartedly or consistently,[1] and for such the problem is not quite so easily disposed of. The prevalent theory today is that conation aims at the relief of tension, and that pleasure is experienced in so far as tension is being relieved, unpleasure in so far as tension is accumulating. Now in the situations in question there appears to be no initial tension (or at most only a minimal one) of the kind that would be relieved by the particular activities concerned. How then can the activities give rise to pleasure? How, in particular, can this pleasure actually increase as the activity is pursued, when the tension is even at the beginning at a minimum, and therefore presumably incapable of being further diminished?

If we are to retain the theory, the answer can only be that new tensions are aroused by, or in the course of, the activity itself, and that the new or increased pleasure is connected with the relief of of these new tensions.

As regards the nature of these new tensions, one possible answer would consist in invoking some very general law, such as Spearman's 'first quantitative principle' or the psycho-analysts' principle of 'cathexis'. According to Spearman's principle (which was, it is true, formulated with reference to cognition rather than orexis) 'every mind tends to keep its total simultaneous (cognitive) output constant in quantity, however varying in quality'.[2] Adopting this

[1] *Vide* the preceding chapter in this book.

[2] C. Spearman, *The Nature of Intelligence and the Principles of Cognition* (London, Macmillan, 1923), p. 131.

notion, we could say that every new activity when started can somehow call upon a general fund of mental energy. By a further assumption we could say that this energy manifests itself as tension or desire, and that the activity in question remains pleasant in virtue of the continued reduction of this tension: throughout the duration of the activity tension is constantly being supplied and reduced and the pleasant activity is thus self-perpetuating. Very similar use could be made of the principle of cathexis, according to which the activity in question would be 'invested' with ('libidinal') energy.

There is no doubt some great fundamental truth in this notion (implied in one form or another in many psychological theories) that every activity, once embarked upon, can tap some source of (more or less) general energy. A simple illustration of this truth in the motor sphere would seem to be found in the fact that, as a task becomes more difficult (either through its intrinsic nature or because of increasing fatigue), we call upon successively more distant groups of muscles to help us in its performance; or again, in the fact that when the general muscular tonus has been increased (by preliminary 'limbering') we can with comparative ease carry out physical tasks which are beyond our power when we attempt them immediately after a prolonged period of rest.

But an answer in these terms is too general to be satisfying. Not to speak of the assumptions involved in connecting 'energy' with 'tension' and 'desire' (in the way that we did just above), it is clear that not all the general mental or physical energy is available for every task. Spearman in considering this availability has to invoke his 'engines' as well as his 'energy', while Freud considers not only that there are different distinguishable elements in the 'libido', but also that there are a number of very specific factors responsible for any particular process of 'cathexis'. And, just as the 'cathexes' of the psycho-analysts appear to be capricious and variable, so that much detailed study of them is required before the sources and channels of energy in any given case can be even approximately explained, so also not all activities once started are equally self-perpetuating; our proverb does not apply with equal force to all of them. There is need, therefore, of a closer examination of the nature of the new tensions that are called into play in any given instance.

In many cases it is not so difficult to see what these new tensions are. They are often of a sensory order. In the case of eating the sensations of taste are obviously concerned; in the case of sexual activity there is stimulation of the sensory organs of the external

genitals, reinforced usually by other skin and pressure sensations (and often also of powerful ideational elements); in the case of exercise all the muscle, joint and skin sensations involved in locomotion will come into play. As many psychologists have observed, the experiences connected with all such sensations are far from being purely cognitive in nature, and it is only in the artificial conditions of laboratory introspection that they can become relatively divorced from conation. Thus McDougall tells us that the sensation of 'sweet' is a 'specific excitant' to the process of eating, while Boring[1] in his careful introspective studies of certain classes of sensation connected with the alimentary tract found that it was sometimes hardly possible to separate the cognitive from the conative aspects of the experiences involved; many such sensations 'meant' a 'call' to a certain kind of action, vomiting, urinating, defaecating, etc. Among cutaneous sensations the sensations of itch are also of this character. They obviously, and indeed often very insistently, 'call' for relief by the process of scratching.[2] In the case of intellectual activities the important stimuli are of course not sensory but ideational: some interest or curiosity is aroused, with an accompanying tension which urges to the solution of a problem, the completion of a task or the increase of knowledge concerning the subject involved (as when one desires to continue the reading of a book, whether this be a work of fiction or a treatise on some branch of knowledge). Finally, in the case of long-distance goals, the situation would seem to be in some respects similar, though more complicated. It is more complicated in two ways: first, in that the activity is not continuous but intermittent (there are long periods in which the goals in question are not consciously present, or at most present only in the background of consciousness, perhaps as guiding 'sets'); secondly, in that the new tensions are themselves likely to be more numerous, varied and complex. The process of acquiring power or riches may require activities of many diverse kinds, and the satisfactions that they bring will vary correspondingly, each adding to the total of enjoyment connected with the ultimate goal that we call 'power' or 'riches', but each prompting to the continuance of activity upon somewhat different lines.

These additional complications are obviously important. They involve, among other things, habits, sentiments (and perhaps complexes), and these are relatively permanent structures of the mind

[1] E. G. Boring, 'Processes Referred to the Alimentary Tract', *Psychol. Rev.*, 1915, xxii, 306.

[2] J. Fröbes, *Lehrbuch d. exp. Psychol.* (Freiburg, Herder, 1923), i, 146.

which it is perhaps wise to keep out of the picture as far as possible in a consideration of the simpler examples which relate to a single occasion. This we shall, on the whole, endeavour to do, but it is difficult to do so quite consistently inasmuch as: (1) interruptions are, for one reason or another, liable to occur in any activity, and these may range in duration from a few seconds (or indeed a fraction of a second) to hours, days or weeks, so that there is often a certain arbitrariness in distinguishing between 'continuous' or 'one occasion' activities and activities that are interrupted but resumed; (2) because the pleasure or success that accompanies an activity of the kind under consideration will often, in virtue of the law of effect (or the law of success, if we prefer that term), lead to its being undertaken again in the near future. Nevertheless, even in the narrow field of more or less continuous activities, examples are sufficiently numerous and varied to make it convenient to use a special term to designate them. We may perhaps consider them to be manifestations of 'self-sustaining' desires, needs or activities; while, by a further less apt but perhaps still justifiable extension, we may refer to the general process involved as 'self-sustenance'.

II.—Functional Autonomy, the Tension Theory and the Joy Emotions

It is clear, I think, that we are here dealing with phenomena which, viewed from a slightly different angle, have already received considerable attention from modern psychologists. They are allied in particular to those which G. W. Allport[1] has recently considered under the heading of the 'functional autonomy of motives', while they may also have some relation to those which psycho-analysts have for some long time now treated as cases of 'displacement' or 'sublimation'. According to Allport, a line of activity once started may tend to perpetuate itself without further reference to, or call upon, the motives which originally prompted the activity—much perhaps as the internal combustion engine of a car will go on working if its mechanism is once set in action by the starting-handle or by an auxiliary motor run from a battery. With Freud and the psycho-analysts, less stress is laid on the independence of the new or secondary activities from the original motives; these secondary activities are, rather, for the most part regarded as alternative paths along which, under certain circumstances, the original motives may find

[1] G. W. Allport, *Personality: A Psychological Interpretation* (New York, Henry Holt, 1937), and elsewhere.

expression. Nevertheless, in the case of sublimation at least, it is pretty generally agreed that new values or interests have been found which exercise an attraction in their own right, even if they still operate (largely or wholly) with deep instinctive energies originally directed to more primitive ends (for a fuller discussion of this, see the study of *Sublimation* in this volume), while even in the case of neurotic symptoms there is often some 'epinosic gain' which may provide a new and independent motive for their continuance.

In either case we should expect to find some relation between these 'new' values, new paths or new autonomous functions and the 'new' tensions which we spoke of in the examples that we considered in the previous section. The most obvious difference is that in most of the cases that Allport and the psycho-analysts have in mind, the new activities and the original motives are further removed from one another than in the cases suggested by the proverb 'l'appétit vient en mangeant'. The amassing of wealth or the painting of pictures might seem to differ *toto coelo* from the primitive excretory functions with which psycho-analysts have (at least in some cases) found them to be connected, whereas all that our proverb suggests is that when an activity such as eating is once begun, it tends to engender motives that prompt to its continuance in much the same form, even if with greater gusto. Nevertheless, it is difficult to make the distinction an absolute one, for some change of form, however slight, is nearly always involved if an activity is long continued. Allport's examples vary from the 'circular reflex' to cases where the dominating motives of a lifetime appear to have been modified (sometimes by a single 'traumatic' experience), and psycho-analysts have shown that the higher sublimations may often be of slow growth, involving activities of various intermediate grades between the original instinctive behaviour and the final sublimation thereof.[1]

Furthermore, even if the mechanism prompting to the continuation of an activity in more or less unaltered form may seem of less interest and significance than one that fosters an entirely new activity, it is, nevertheless, far from being unimportant, especially if, as we have already suggested, it raises a problem from the point of view of the prevailing 'tension' view of behaviour (and the associated 'hormic' theory of the relation between feeling and conation).

Of the writers known to me James Drever, Sen. is the one who seems most clearly aware of the nature of this latter problem.[2] He

[1] S. Ferenczi, 'Zur Ontogenie des Geldinteresses', *Int. Z. (ärztl.) Psychoanal,* 1914, ii, 506.

[2] J. Drever, *Instinct in Man* (Cambridge University Press, 1917).

encountered it as a result of his attempt to modify McDougall's theory of emotions. For McDougall each specific instinct has its more or less specific emotion and this emotion is inevitably aroused (at least in some degree) whenever the corresponding instinct is stimulated; the emotion is indeed only the central affective part of the whole instinctive process, which includes cognitive, affective and conative aspects. According to Drever's modification of this theory, only some instincts have an emotional aspect, and with these the emotion is contingent rather than necessary, arising only when some obstacle prevents the instinct from achieving its end easily and rapidly; emotion in fact is a consequence of the rise of tension that follows on frustration, and on this point Drever is in agreement with many other modern writers. An especial merit of his treatment, however, is that he saw the difficulty that is presented to this tension theory of the emotions by the existence of what he called the 'joy emotions'.

According to this tension theory in its simplest form, we might expect that all emotions would be unpleasant, since they spring from some tension, need or disturbance of equilibrium, which has to be relieved before the organism is once again fully adjusted and working smoothly. Indeed, by an extension of the theory all feeling, and in the last resort perhaps all consciousness, should be unpleasant, since all activity both psychic and behavioural arises from the existence of tensions—a view which is adumbrated by many authors from Plato to Freud. But since, fortunately and undoubtedly, pleasant consciousness and pleasant emotions exist, the theory (whether in its more restricted form as applying to the emotions or in its extended form as applying to all consciousness) is usually modified and qualified by the further assumptions that the process of relieving tension is accompanied by pleasure, and that the greater the tension that is relieved and the more rapid the process of relief, the greater the pleasure.

Now, according to this modification of the tension theory, we should expect all acute pleasure to be relatively short-lived and to diminish in so far as the tension is relieved and a state of equilibrium or 'Nirvana' once again established. But the joy emotions seem to flourish in a state of activity, to be (within certain limits) the more intense the greater the activity, and therefore presumably the greater the tension. Phenomena like these may be accounted for on certain alternative views: by the theory of psychological hedonism, by the theory of a separate 'life instinct', Eros or libido (the unimpeded manifestations of which are perhaps by their very nature

pleasant), by Aristotle's theory of pleasure as accompanying 'perfect function' (either of the organism as a whole or of the parts or faculties concerned). But they are hard to reconcile with the tension view of emotion and behaviour.

One way out of the difficulty would be to admit frankly that neither the tension theory nor the alternative theories fit all the facts. The latter theories could then be used to explain the joy emotions and all the pleasures of activity, the former to explain the distressful emotions and (with the above-mentioned modifications) the pleasures of relief. But such a fundamental dualism is hardly satisfying to those who can only feel at home with an all-embracing theory and for whom a dualistic explanation itself creates a 'tension'. It is not surprising then that the upholders of the tension theory should seek some way of applying it to active pleasures also. Indeed, what is surprising is rather that they have not made more frequent, vigorous and thoroughgoing attempts in this direction; that, for instance, the implications of Drever's suggestions have not received further consideration and elaboration.

Drever's explanation of the 'joy emotions' is that with these emotions the process of reducing the original tensions (which give rise to the emotions) itself continuously engenders fresh tensions which are themselves then rapidly reduced (he attaches particular importance to the speed of the process). The total tension is thus maintained at a high level, but, inasmuch as it is also being continually reduced, the process is a pleasant (and needless to say, an active and exciting) one. While it lasts, the process is indeed self-perpetuating, each reduction of tension itself arousing fresh tension, which in its turn is then relieved—much perhaps (once again) as in the engine of a car each explosion so moves the piston that another charge of gas is compressed and thus ready for the next explosion. In this analogy, compression would correspond to tension, explosion to relief of tension (and perhaps, though this involves certain further 'teleological' assumptions, the resulting movement of the car towards the desired goal to the pleasure engendered by the total process).

III.—Nature of the tensions operative in the self-sustaining needs

Drever's explanation of the joy emotions is thus fundamentally of the same kind as that which, as we have already suggested, must be applied to the case of appetite aroused by eating if the tension

theory is to be maintained—and indeed we owe the fullest acknowledgement to Drever in this connection. But Drever (who only treats the matter in an 'Appendix' to his *Instinct in Man*) tells us little about the nature of the new tensions that, according to his suggestion, are constantly arising in the joy emotions, and perhaps the consideration of the, in some ways parallel but simpler, case of the self-sustaining activity referred to in our proverb may help to throw some further light upon this problem.

As we have seen, the new tensions engendered when we actually start eating are sensory in nature, but sensations of a kind that themselves compel to action, often probably in virtue of an innate mechanism. When we start eating, the taste or smell of the food prompts to a continuance of the eating movements. But, even on the purely sensory level, at least two further factors can be distinguished as adding to the influences at work in maintaining the activity. The first is the inertia or perseveration of the sensations themselves. In the case of eating this is no doubt helped by the existence of edible substances in solution in the saliva, which will stimulate the palate after the more solid contents of a mouthful have been swallowed; but in any case gustatory and tactual sensations have an inertia in virtue of which they persist for an appreciable period after removal of the physical stimulus, and during this period continue to influence conation; 'es schmeckt nach Mehr', as the Germans say of palatable foods. In the second place, there is the influence of the autonomic nervous system and the associated endocrine glands. In the case of eating and sex the parasympathetic part of the autonomic nervous system will be chiefly concerned, though in some of the joy emotions and in strenuous activities, such as those involved in playing football or tennis, the sympathetic and the related emergency glands, the thyroid, adrenals and pituitary, doubtless also play a part; and these chemical influences, which have a greater inertia than that associated with the functions of the central nervous system, will also tend to keep the process going, to maintain the tensions on which both desire and satisfaction depend.

As we have already suggested, in the case of more intellectual activities (such as solving a problem or reading a book) interest and curiosity—often appealing to already existing sentiments—will of course largely take the place of the simpler physiological mechanisms, while in these and all performances (whether muscular or mental) that can be regarded as 'tasks' self-regarding factors, such as those involved in combativeness, competitiveness, self-esteem and 'level of aspiration' will also come into play.

Between them, these numerous and somewhat diverse factors may sufficiently account for the new tensions that, in Drever's view, are being constantly generated (and reduced) in the joy emotions, as they do also for the situations to which our proverb seems naturally to apply. In the case of each of the emotions and situations in question these various factors may be present in various degrees, in some simple cases perhaps only one of them but often more than one, and it would require careful and detailed study of many individual cases to distinguish with precision their respective roles. One circumstance, however, is common to them all if they are to fall into the category that specially concerns us here, i.e., that they are not present (or only minimally present) in the original need that prompts the starting of an activity, but are aroused by and in the course of the activity itself.

IV.—Self-sustaining needs and the work curve

Since 'work' is an activity that has been intensively studied by psychologists in laboratory, school and factory, it is natural to ask what part, if any, is played by these factors in the data obtained from these experimental studies. In most such researches the centre of interest has lain in quantitative results or in the general effects of incentive, practice and fatigue rather than in a delicate analysis of motivation, and indeed the distinction made by Kraepelin[1] in his pioneering work of five major factors influencing the shape of the work curve has fallen a little into disrepute, as it has not always been easy to trace the separate quantitative influence of his factors. Nevertheless, from our present point of view Kraepelin's analysis is useful, as it seems likely that one of his five factors corresponds just to the particular set of phenomena we have been discussing, while the distinction between this factor and the other four noted by Kraepelin helps also to differentiate these phenomena from other influences from which—in theory at least—they are distinguishable.

Of Kraepelin's five factors, one, 'fatigue' (*Ermüdung*), was responsible for a deterioration of output, while the four others, when acting positively, were favourable to output. Of these 'practice' (*Übung*)—when the term is not used, as it is by some other authors, in a very broad sense—would seem to be primarily cognitive rather than orectic in nature. It refers to that smoother and more efficient working that can only be attained through repetition and the resultant closer association of perception, thought and movement in

[1] E. Kraepelin, 'Die Arbeitscurve', *Philosoph. Stud.*, 1902, xix, 459.

a given correct sequence, so that what was at first performed haltingly, with effort, in relatively clear consciousness and with liability to error, is eventually carried out fluently, with little effort, more or less 'automatically' or subconsciously and correctly. It is of course the factor that is of prime importance in trial and error learning, though, if we accept the views of Spearman and the experimental findings of Gopalaswami,[1] fundamentally the processes are the same as occur in the more clearly conscious and deliberate forms of learning, i.e., the eduction of relations and correlates. Practice, in this sense at any rate, is not what we are here seeking. Another of Kraepelin's factors is 'spurt' (*Antrieb*), improvement in performance due to short-period intensification of voluntary effort. This also is not what we require. The other factors are 'adaptation' (*Gewöhnung*) and 'incitement' (*Anregung*). Here we are nearer to what we want. They are both factors that come into play when the work has been proceeding for a little while, and are not, like practice, carried over from one occasion to another in such a degree as to produce marked cumulative effects, nor are they like 'spurt' directly dependent on voluntary effort. 'Adaptation' in this sense would seem to consist in attainment of the proper 'set', so that attitude and attention are optimally adjusted, with minimal interference from irrelevant stimuli, external or internal. This, of course, may result from the influences we have been considering, but would seem to be a secondary consequence rather than a direct expression or reflection of them. This latter is perhaps best found in the factor of 'incitement', which, as the name itself implies, is more definitely orectic in nature, more dependent on the stimulation, excitement and interest aroused in the course of the actual work, as it proceeds. Here then in this factor, long ago (as the history of psychology is reckoned) described by Kraepelin, we have perhaps the nearest equivalent in the sphere of work to what happens in the more spontaneous and instinctive activities to which the phrase 'l'appétit vient en mangeant' is usually applied.

V.—How self-sustaining activities are terminated

As Kraepelin, and of course many others after him, have pointed out, fatigue works against incitement (as also against the other factors tending to improvement or maintenance of output). Its in-

[1] M. Gopalaswami, 'Intelligence in motor learning', *Brit. J. Psychol.*, 1924, xiv, 274.

fluence is to be seen not only in the case of work curves but in all kinds of reflex, instinctive, or acquired behaviour, and is often responsible for eventually bringing such behaviour to a close after it has been kept going for a period under the influence of self-sustaining factors. After a time fatigue (intellectual or muscular, general or specific as the case may be) produces a desire to desist from the behaviour, and this desire runs counter to the self-sustaining desire and eventually overcomes it, as when we feel a need (which may ultimately become irresistible) to stop walking, reading or thinking and 'have a rest' or change of activity.

Clearly distinguishable from fatigue in some cases is the factor of satiation. Like fatigue, it tends to bring self-sustaining activities to a close, but it does so in a rather different way, viz., by directly abolishing the satisfaction derived from the self-sustaining activity rather than by adding a new and more or less independent unpleasant element, as is usually the case with fatigue. In studying, walking or playing a game, fatigue may show itself by the fact that, even though the activities themselves are still pleasant and interesting, we begin to feel that the intellectual or muscular effort required is telling on us, so that, notwithstanding the continued interest, we may desire to desist because of the new and independent source of unpleasure thus introduced. With eating or sex, on the other hand, the stoppage of the activity is more likely to come about through satiation. The sensations connected with the activity lose their pleasant and self-sustaining character and if persisted in may become positively unpleasant.[1] With eating this is a gradual process, but with sex it tends (especially in the male sex) to take place suddenly and so to speak catastrophically after orgasm, the most intense self-sustenance being followed after a few seconds by its complete disappearance; pleasure of a different and more tranquil sort may indeed persist, but on the sensory side at least it has completely changed its character. Though the word 'satiation' is not often used in this connection, a rather similar, though not perhaps quite so sudden cessation of a need or desire may be experienced in connection with the excretory processes and with vomiting, while in other than the sensori-motor fields we find again an abrupt transition from (often intense) desire and effort to relief when we suddenly attain a goal, whether this

[1] Though not all the sensations concerned need be equally affected at the same time. Thus after long-continued eating the taste sensations may still be pleasant even though other, deeper and more suffused sensations, are beginning to indicate that the organism as a whole is rebelling against further consumption of food. It is clear there is room for research as to the way in which satiation gradually manifests itself.

goal consists in the winning of a race or the solution of an intellectual problem.

These last considerations make us realise that it is often desirable to distinguish two ways in which an activity can be terminated. In the one case, there is a clearly marked goal or terminus, on attaining which the activity comes to an end. This goal may be dictated: (*a*) by external circumstances, physical or social, as when there is no more food to eat or when an order or convention decrees that the activity should stop; (*b*) by physiological circumstances, as in sexual orgasm or the excretory processes; (*c*) by mental circumstances, as when a particular problem has been solved. In all these instances the goal is usually achieved suddenly and relief of tension is abrupt. Here we speak more usually of satisfaction, relief or attainment than of satiation. In the other case, there is no such clearly marked goal to bring the activity to a sudden end. It is here that we usually speak of satiation, and it is here too that fatigue and satiation become, as we have indicated, important factors leading to the termination of self-sustaining needs, which might otherwise continue indefinitely. Nevertheless, there is no quite hard and fast distinction between the two types of case, the difference between which is chiefly determined by the relative clearness of the goal and by the time factor. The difference between 'satisfaction' and 'satiation' is therefore not an absolute one, and there is nothing very misleading in applying the latter term to both cases.

In the case of certain activities in which self-sustenance plays a part a third factor may sometimes be responsible for bringing the activity to a close. This is loss of interest through practice and adaptation; after a time the activity loses its 'novelty' or fascination, we feel we have (either permanently or for the time being) exhausted its possibilities of interest for us. We may, for instance, have learnt some new mathematical formula and may be delighted to apply it to some of the examples given in our text-book. Success in the first example may act as a self-sustaining stimulus to tackling the next, and so on; but after a time familiarity with the processes involved is likely to make us lose interest in it and to desire to turn to something fresh. The speed with which the change occurs in such cases depends on a variety of circumstances, some of which may be connected with our general interest in the subject. To one brought up outside the influence of British culture a few minutes' contemplation of a cricket match may be ample to exhaust the mild curiosity-value that the game has for him, while an Englishman, Australian or Indian familiar with the niceties of the game may watch delightedly

the whole day through. There are, however, many activities which have a self-sustaining character in the learning stages, but which lose it when adequate skill for ordinary purposes has been attained. Thus in learning to ride a bicycle or drive a car there is usually a stage in which the activity is so full of manageable but still conscious problems (in coping with which we are proud and a little excited about our growing competence) that—unless fatigue has set in—we may be loath to abandon it and desirous of recommencing it at an early moment. But, when the requisite skills have been fully acquired, so that the necessary adjustments can be carried out with a minimum of conscious effort, many persons tend to lose interest in the activity as such and will only cycle or drive for some ulterior purpose. This loss of interest in what has become an easy and semi-automatic activity is as a rule clearly distinguishable from satiation, though it may have the same result in leading to the discontinuance of an activity—at any rate for its own sake.

Allport in his discussion of functional autonomy rightly stresses the importance of this factor of loss of interest through practice and adaptation, and he makes the general observation—important to bear in mind if we are to understand his position—that it is only when skills are still in process of perfection that there is a desire to exercise them for their own sakes. Those that remain permanently autonomous are, he suggests, of such a kind that they are never 'perfected' and thus continue to present a challenge—as is the case with scientific discovery, artistic production and many games of skill. He also suggests in this connection that here is the answer to McDougall's objection to Woodworth's earlier contention that 'mechanisms' can become 'drives'. Mechanisms, Allport thinks, can indeed be drives as long as they give rise to conscious problems but cease to be such when they have become quite 'mechanised'; but the more complex skills never attain this degree of perfection, and may therefore continue to be 'drives'. McDougall in his turn, if he were able to reply, would doubtless contend that just this quality of continually presenting problems, indicates that some deep source of instinct is being tapped, e.g. the instinct of self-assertion, as the word 'challenge' suggests, or the instinct of sex (as many psycho-analysts might be inclined to suspect). Of the existence of the interest and the challenge, with the accompanying maintenance of tension as new problems are constantly presented, there can be no reasonable doubt, though whether these depend upon some instinctive source of energy is an aspect of the great contemporary 'instinct' controversy which we cannot pursue further here. All that we are concerned to show is

that as long as tension persists the activities tend to continue, while when it ceases through lack of interest the activities lose their self-sustaining character.

Though they may not exhaust the list, fatigue, satiation and loss of interest through adaptation are probably the chief ways in which self-sustaining activities are brought to an end—apart of course from one other process, which applies to these like all other activities, viz. the irruption into consciousness of some new 'prepotent' interest or impulse, usually consequent upon some environmental change, though in human beings it can also occur when some new thought breaks in upon the mind (e.g. that it is time to keep some appointment—or to perform some urgent task). This, together with the factors already mentioned, is probably sufficient to answer the question—practically perhaps superfluous, but obviously of some theoretical interest—how and why self-sustaining desires and activities are eventually terminated?

VI.—Self-sustaining needs and deprivation

While dealing with the influences that work in a sense contrary to that of self-sustenance, it is interesting to consider for a moment the relation of self-sustenance to deprivation or lack of satisfaction. The slightly paradoxical element in the proverb 'l'appétit vient en mangeant' is derived from the fact that we usually (and especially perhaps if we are upholders of the tension theory) consider that appetite and desire arise from lack of satisfaction, not from the very process of satisfaction or relief. There is no corresponding proverb 'l'appétit vient en jeûnant', probably because its truth would be so very obvious (though Rabelais, in quoting our proverb, felt impelled to add: 'mais la soif s'en va en buvant'). Indeed the usual method of ensuring the arousal of desire is by depriving ourselves of the relevant satisfaction for a time. When we are in health, a good appetite can generally be guaranteed by the simple means of not eating for a longer time than usual, and when we have thus made ourselves hungry, we eat more and with a greater gusto than is our wont; we no longer need a choice cuisine to tempt our appetite. And similarly with other forms of satisfaction.

> Our stomachs
> Will make what's homely savoury; weariness
> Can snore upon the flint, when resty sloth
> Finds the down pillow hard.

Indeed, as I have pointed out in some detail elsewhere,[1] there are individuals who, either deliberately or from a certain complexity of mental constitution, habitually increase their tensions with a view to ultimate greater satisfaction, in accordance with the general principle of what I have called 'the increase of satisfaction through inhibition'.

But there are certain exceptions and limits to the general rule that deprivation increases desire. Within limits we can adapt ourselves to plenty, scarcity, or even abstinence. The principle of self-sustenance creates of course an improved adaptation to immediate plenty by enabling us to enjoy it to the full. But since it relates to an immediate situation, its influence soon declines and allows of an adaptation to a withdrawal of the gratifying stimulus. If, for experiment's sake or for some other reason, we suddenly break off eating some delicious dish just when enjoyment of it is at its height, for a few moments a very uncomfortable tension may be felt, but as the self-sustaining elements of desire fade away owing to the appropriate stimulus not being renewed, the lack of further satisfaction becomes quite tolerable and we may soon cease to take note of it—and similarly once again in many other fields.

A similar process of adaptation to the withdrawal of satisfaction applies to longer periods; we become, as we say, 'used to' prolonged abstinence. As has often been observed, complete abstinence may be easier to bear than minimal satisfaction. Hunger seems to disappear during prolonged complete abstinence from food (though of course other undesirable consequences will presently make themselves felt), while prolonged living on a very insufficient diet can give rise to great suffering and intense unsatisfied desire. Much the same holds generally as regards sex (though here the situation is complicated by the fact that substitute gratifications are more easily obtained) and also to such acquired addictions as those relating to alcohol, tobacco or drugs—though not to thirst or the excretory processes. Here is a whole set of interesting problems which have been too little studied by psychologists and physiologists. We said above that we can adapt ourselves to abstinence. But how little we still know of the details of this process of adaptation, of its conditions and limitations, of its relation to habit and attention, to confluence and contrast, to the 'law of pregnance', to the general tendency to relieve tension, to attain equilibrium or behave in accordance with the 'Nirvana principle'! These are problems with which we obviously cannot deal

[1] J. C. Flugel, 'Maurice Bedel's "Jerome": a Study of Contrasting Types', *Men and their Motives* (London, Kegan Paul, 1934).

here. We must content ourselves with pointing out that our principle of self-sustenance must surely play some part in the explanation of the paradox that it is so often easier to tolerate complete lack of gratification (even of a vital biological need such as is involved in feeding) than insufficient gratification. A little gratification arouses the desire for more because it immediately sets in operation some self-sustaining need and thus adds new tensions to those already existing, whereas in complete abstinence these new tensions are not aroused and the total situation is consequently easier to bear. We can, it would appear, often adapt ourselves to a relatively simple or slowly increasing tension (however biologically disastrous it may be —much perhaps as a fly may not notice a very slowly approaching hand that is about to crush it), but the additional and rapidly changing tensions brought about by occasional partial gratifications (even though this may be biologically preferable to complete abstinence) prevents adaptation and thus renders us much more acutely aware of the nature and intensity of our need.

VII.—Acquired self-sustaining needs and their relation to character

It is time perhaps to return to the self-sustaining activities themselves, and to say a few more words about their nature and the further problems to which they give rise. We have seen that their range is very considerable and that they also differ a good deal as regards their relative complexity. Perhaps the most obvious basis of classification would be to separate cases into two main groups: each displaying certain major features of a kind that are usually found together. In the first group would be: (*a*) those that are predominantly sensori-motor in character; (*b*) closely connected with the original activity itself; (*c*) this connection being probably innate. In the second group would be: (α) those that are predominantly ideational in character; (β) less closely connected with the original activity; (γ) this connection being probably acquired. But the three characteristics that we have labelled (*a*), (*b*) and (*c*) are not invariably found together. Thus some simple sensori-motor activities may (as T. H. Pear[1] and the culture pattern school of anthropologists have reminded us) be largely influenced by social, and therefore acquired factors. That is why, in view of the existing social pattern of the west, we have hesitated to give drinking as an example alongside of

[1] T. H. Pear, 'Personality in its Cultural Context', *Bull. John Rylands Library, Manchester*, 1947, xxx, No. 1.

eating. In a moist and not over-warm climate like that of England our drinking (at least of beverages other than pure water) has comparatively little to do with actual thirst. In large sections of the public considerable quantities of (usually alcoholic) liquor are imbibed under the influence of a social pattern, or for directly social purposes. In some individuals, however, the habit of much drinking of alcohol, as a rule originally under social influence, has created a need which may become independent of a social environment, as with the 'solitary drinker'. As we know, such a need may become imperative, give rise to immense distress if it is not gratified and occasion great efforts to secure gratification under difficulties. Here the need, though it may become sensori-motor rather than social is clearly acquired and not innate.

Very similar is the case of tobacco-smoking, an activity which in Europe has increased enormously in recent years, and an acute need for which is probably felt at the present time by a larger number of persons than is the need for alcohol. In former years again much the same may have been true of snuff-taking. Such acquired and self-sustaining needs are excellent examples of what Allport has called the functional autonomy of motives and there can be little doubt that further intensive study of them would throw further light upon our own particular related theme. From what is known it would seem that the needs are not necessarily dependent on any of the more obvious factors that occur to us as likely to be determinants, e.g. (as we have seen) not on the social stimuli that may have started them, nor on chemical influences. (Though these of course have their effects, sometimes very marked, experiment has shown that the effects of small doses of alcohol are largely influenced by suggestion, while under experimental conditions smokers have been shown to be ignorant whether they are puffing hot air or tobacco smoke.) Every individual who has acquired a self-sustaining need of this kind may develop his idiosyncrasies. Some like only wine, some beer, some whisky, while there are pipe, cigar, and cigarette smokers, all of whom may smoke predominantly at certain times and under certain conditions, e.g. for some the visual stimulus of smoke gently rising may be so important that it is pointless to smoke in the dark or in a wind.

These idiosyncrasies superimposed upon certain more general proclivities remind us on the one hand of sexual fetichism and on the other of neurosis. We are all endowed with sexual desires, but at the same time we are all fetichists to some extent, inasmuch as we are stimulated principally or exclusively by certain types of person, certain kinds of dress or circumstance. Though there are certain

general kinds of neurosis and certain favoured types of symptoms (which, it would seem, may change from culture to culture and from age to age—witness the great reduction in recent years of the 'classical' forms of hysteria), each patient has to some extent his own peculiarities, his special varieties of phobia, obsession or 'conversion' symptom—all of which can perhaps be traced (though often with difficulty) to the effects of particular events or circumstances reacting on his native characteristics.

And this in turn naturally induces the reflection that these self-sustaining activities with which we are concerned have much in common with the general process of canalisation and conditioning of the sexual instinct in particular and of our instincts in general and also with the special 'morbid' conditioning of instincts that are manifested in neuroses. Indeed, alcohol and tobacco addiction might easily be considered prevalent mass neuroses of an obsessional sort, comparable in kind to more individual 'tics', 'tricks' and compulsive mannerisms, though just because of their prevalence and their social character they are not usually considered to be pathological.

And if the sensori-motor self-sustaining needs are comparable to the more behavioural obsessions, the ideational self-sustaining activities correspond also to the more ideational obsessions, e.g. compulsive and stereotyped thoughts and anxieties and activities such as arithmomania. Zeigarnik's[1] well-known experiment on the retention of finished and unfinished tasks, together with many other experiments carried out by members of Lewin's school, show that there is a general tendency to complete tasks that are once begun, even though there is no outside necessity compelling us to do so. In other words, the tasks used in these experiments became in a sense self-sustaining activities, even though they may have sunk for a time below the level of clear consciousness. We have as yet no detailed information as to the nature of the motives that promote the better memory for unfinished tasks, but from several investigations we know that pride or self-regard may play some part in the remembering or forgetting of a task, so that even if the elements responsible for the self-sustenance of the activity may be at bottom of a very general nature and applying to activities of all levels (such, in fact, as might more appropriately be called sets or determining tendencies), they can be modified by the influence of more specific and high-level functions such as those connected with the self-regarding sentiment.

This brings up once again the relation of self-sustaining needs to

[1] B. Zeigarnik, 'Über das Behalten von erledigten und unerledigten Handlungen', *Psychol. Forsch*, 1927, ix, 1.

habits and sentiments, to which we briefly alluded in Section I. A habit differs from a self-sustaining need of the simpler sort in that: (1) it represents a more or less permanent structure of the mind and is not to the same extent dependent on immediate conditions; (2) it manifests itself in a repetition of a given piece of behaviour at more or less regular intervals (or on the occurrence of more or less regularly recurring stimuli) rather than in the continuance of a certain kind of behaviour on a single occasion; (3) it does not so much depend on the generation of new motives or energies as on the canalisation of existing ones; (4) it is less associated with pleasure (we have many habits that are indifferent or even unpleasant—compare, for instance, the relative indifference usually associated with brushing the teeth to the pleasures of eating). Adopting Spearman's[1] distinction, we can say that self-sustaining needs are related to the 'inertia' aspects of retention, habits to the 'facilitation' and 'association' aspects. A self-sustaining need may no doubt help to form a habit by the fact that it is responsible for prolongation of the activity on each occasion of its occurrence, but it is likely that habit is responsible for the inception of the activity on all except the earliest occasions. Thus habit may make us start a meal but the self-sustaining needs help to keep us at it.

Much the same differences would seem to hold as between self-sustaining tendencies and the phenomena which have sometimes[2] been brought under the heading of the 'law of development by stimulation', which asserts that 'the more frequently a natural tendency is evoked, other circumstances remaining unchanged, the more readily can it be evoked and the more powerfully does it operate'. This law seems to be the orectic counterpart of Spearman's 'law of facilitation' (as distinct from his 'law of association', which corresponds rather to the 'law of transference of impulse'). But the implications of this law (e.g. its relation to the 'law of effect', the 'law of transference of impulse', sentiment formation, etc.) are so complex and the consideration so far devoted to it so relatively small that it seems wiser not to pursue the matter further in this place, taking perhaps in the meantime some comfort and justification from Drever's statement that 'the phenomena (covered by the law) could possibly be brought under the general rubric of habit by interpreting that sufficiently widely'.

[1] C. Spearman, *The Nature of Intelligence and the Principles of Cognition* (London, Macmillan, 1923), 132 ff.

[2] J. Drever, *An Introduction to the Psychology of Education* (London, Edward Arnold, 1922), 65.

The relation of self-sustaining activities to sentiments is rather similar but more complicated, corresponding to the fact that sentiments are themselves more complicated than habits. Sentiments by their very nature are apt to manifest themselves in behaviour of a wider and more variable kind; thus, as McDougall in particular has stressed, new emotions are liable to be aroused if the object of the sentiment is found in new situations. Sentiments are more dynamic than habits, and if an activity succeeds in stimulating a sentiment the activity may become self-sustaining in virtue of the energy that can be tapped by the sentiment: as illustrated by a case I recently observed of a man who, having been induced rather unwillingly to attend a lecture in the expectation that it would be 'mighty dull', suddenly remarked *sotto voce* to his neighbour, 'By Jove, this is what I've always been wondering about', and thereafter listened with the closest attention. In the ideational field, therefore, self-sustaining activities are apt to depend very largely on sentiments, either already existing, as in the above case, or *in statu nascendi*, and the arousal of a sentiment on the first occasion can make us ready and willing to return to the activity on a later one. Such self-sustaining activities, however, do not constitute a class of mental 'structures' or 'mechanisms' comparable to sentiments, but are in many cases themselves the natural and inevitable consequences of the existence of sentiments.

The relations of self-sustaining activities to two other mechanisms we have mentioned, viz. 'determining tendencies' and 'sets', are perhaps not quite so easily stated. On the whole, however, we may say that determining tendencies, as usually understood, differ from self-sustaining activities in: (*a*) being started by a more or less voluntary decision (though this is less the case in sets, as the term is often used); (*b*) manifesting themselves in a state of readiness rather than in continuous activity; (*c*) being more frequently and intimately connected with definite goals, the attainment of which brings the determining tendency to a more or less abrupt end (in the way indicated in Section V). Certain features, which determining tendencies and self-sustaining activities might seem to have in common, concern the maintenance of tension involved in the state of 'readiness' occasioned by the former. Here we can only suggest that this 'readiness' tension is: (*a*) largely subliminal (whereas in the self-sustaining needs the tension is supraliminal), and (*b*) maintained by the original—still unfulfilled—determination (as contrasted with the 'new' and secondary needs or desires that are characteristic of the self-sustaining activities).

And what of functional autonomy? Phenomenologically speaking, there can be no doubt that Allport is correct in insisting that many activities once started may continue automatically without any obvious reference to the motives (instinctive or otherwise) which may have led to their inception. Our self-sustaining activities are of course functionally autonomous in this sense. In his controversy with the upholders of instinct Allport has, however, perhaps a little unnecessarily stressed the novelty and mystery of functional autonomy. Our own previous considerations in this paper have, it may be hoped, somewhat reduced the element of mystery by showing that a few already known factors may account for many of the phenomena that Allport brings into this category. As regards one-occasion activities we have in particular: (*a*) sensations intimately (either innately or as the result of habit) linked to particular conations, and (*b*) interest depending upon the arousal of sentiments; while as regards activities that are frequently resumed we have: (*a*) habit (brought into being by the law of effect), or (*b*) sentiment (which may lead to spontaneous resumption when the mind is not otherwise engaged or to resumption on the occurrence of any stimulus —sometimes quite a feeble one—that may prompt in the required direction).

We know very little concerning the relation of self-sustaining activities to such aspects of the mind as the '*p*' '*w*' and '*f*' of the factor school, the super-ego of the psycho-analysts or Jung's introversion and extraversion. We might at first be inclined to suspect a close positive relation between the tendency to the formation of self-sustaining needs on the one hand, and 'perseveration', 'secondary function' or 'ergic rigidity' on the other; there is especially an obvious resemblance between certain varieties of the former that we have just been considering and such quasi-obsessional instances of 'perseveration' as a tune or jingle running in the head or the need to resume unfinished tasks as studied by Lewin and his pupils. It might also seem likely that there is a similar relation with the more definitely motor forms of perseveration mostly used as tests of '*p*'. But '*p*' has shown itself to be a much narrower factor than Otto Gross,[1] the great theoretical exponent of 'secondary function', had thought it to be, and although later investigators have shown that it has in its extreme forms indeed certain special relationships with '*w*' or moral consistency, it seems clear that the attractive hypothesis of a general neural tendency to perseveration affecting in much the same way all mental levels is no longer justified. Since, moreover,

[1] O. Gross, *Die cerebrale Sekundärfunktion* (Leipzig, Vogel, 1902).

we are still quite ignorant as to whether there is anything in the nature of a 'factor' of self-sustenance in virtue of which individuals who are liable to form self-sustaining needs in one sphere are liable to form them in another sphere with a corresponding degree of intensity, it is better perhaps to abstain from speculations as to any relation between self-sustenance and the factors so far unearthed by the factor school.

VIII.—Self-sustaining needs and the persistence of motives

One very general philosophical reflection, however, we may perhaps allow ourselves. Persistence of action until a goal has been achieved or a tension removed is one of the fundamental characteristics of life, and within certain limits and qualifications we may say that the higher the form of life the greater the degree of this persistence—a persistence which gives orderliness and integration to vital activity. Human beings are in general more persistent than animals, adults than children, the moral and intelligent than the delinquent. the unstable and the stupid. This persistence implies continuous concentration on a given task or problem once selected and relative neglect of what are for the moment 'irrelevant' stimuli. The arousal of self-sustaining needs must obviously help towards such concentration. They keep us at our dinners or our work, so that we are not liable to be distracted from these important occupations by every passing event that happens in our neighbourhood or every stray thought that enters our heads. They do this, as we have seen, by creating fresh tensions in the very process of relieving existing ones. Sometimes, as in the simplest instances, these new tensions impel us merely to the continuance of a relatively monotonous 'circular' activity. At higher levels, however, they impel to constantly varying activities of behaviour or of thought, as when we are driven to take the successive steps necessary for the solution of a complicated problem.

Of course persistence of this kind may have its drawbacks as well as its advantages—the drawbacks attached to all fixity of structure and canalisation of function, from simple habits to the most exalted sentiments, viz. that they to some extent limit our possibilities of reaction and may make us treat as 'irrelevant' stimuli that are really of importance. Köpke's studies (described by Lewin[1]) on the

[1] K. Lewin, *A Dynamic Theory of Personality* (New York, McGraw-Hill, (1935).

spontaneous resumption of experimentally interrupted tasks showed that the mentally defective suffered from a relative 'rigidity' of tension systems, as a result of which they tended to find either complete satisfaction in a substitute task or no satisfaction at all, whereas normal individuals with a greater flexibility of mind gave evidence of finding a partial satisfaction, a partial lowering of their tensions in this way. The psycho-analysts on their side have of course demonstrated very fully the disadvantages inherent in the rigidity and unadaptability of the more primitive and unconscious layers of the super-ego, which may often be in serious conflict with a more conscious, adult and 'reasonable' moral code. In the experiments on perseveration too it has been shown that extreme perseveration (like extreme lack or perseveration) is often associated with moral backwardness. In these instances perseveration at lower levels may prevent the development of higher levels. But even at the highest levels some drawbacks are still present. The intense absorption in a problem characteristic of great thinkers and artists may render them unpractical in everyday affairs, as is witnessed by the proverbial absent-mindedness of professors, and by the story of Archimedes who, concentrated on some mathematical problem, failed to take seriously the irruption into his study of a Roman soldier and lost his life in consequence. Like all good things, persistence (in which, as we have seen, self-sustaining activities play a significant part) has the inevitable defects of its merits. Nevertheless, on the whole there can be no doubt that the tendency to persevere in an activity caused by the maintenance of tension until some—perhaps complex, difficult and distant—goal has been achieved is of the highest biological value and has in particular contributed immensely to the achievements of the human race.

It is indeed what I have elsewhere ventured to call a 'fundamental paradox of homeostasis'[1] that in the very process of seeking to relieve our needs we are creating ever fresh ones. In endeavouring to attain an optimal 'adjustment of internal relations to external relations' (to use Herbert Spencer's definition of life), our thoughts and actions —whether for dealing with a problem actually confronting us or one that we are anticipating—become ever more complicated. In other words, fresh problems—problems of means or of subsidiary aims—are constantly arising, so that new tensions are constantly aroused. The fact that in eating, or in any other of the activities to which the phrase 'l'appétit vient en mangeant' may apply, a new and secondary appetite is aroused in the very process of satisfying a fundamental

[1] See the chapter on 'The Death Instinct', end of Section IV.

biological need, is only a particular example of this very general tendency. And indeed our own reflections on the little problem we have chosen themselves exemplify this tendency. Starting from an everyday occurrence so familiar that it might seem hardly worth discussing, we have now found ourselves concerned with questions relating to the ultimate nature of all vital activity—and even though any slight tensions relating to our theme that we may at first have felt have perhaps been to some extent alleviated, other and vaster tensions have been engendered in the process. We can only hope that the reader's appetite may have been sufficiently aroused to cope with the unexpectedly large and perhaps not too easily digestible meal with which he has found himself confronted.

IX.—Self-sustaining needs and pleasure

Reflections of this order are apt to be disturbing. The fact that it is hard to relieve our tensions without arousing others may seem to justify a pessimistic outlook on life in general, and human life in particular. Varendonck[1] indeed tells us that in virtue of the very facts we have been considering man 'is continuously tormented by desire'. And yet our proverb is usually quoted with no such pessimistic implications and Drever's considerations which we related to it are concerned with the 'joy emotions'. How is it then that self-sustaining needs can so often be a source of happiness and pleasure? Here we have one last problem about which we must surely say a few words in conclusion.

Drever's answer as regards the joy emotions is to the effect that the new tensions are themselves being continually and rapidly reduced—presumably at least as fast as they are engendered. Here clearly there is room for mathematical speculation, but in our vast ignorance of the ultimate nature of mental tensions and the forms of their interaction it would be of doubtful profit. According to the usual form of the hormic-tension theory (which explains pleasure as connected with the lowering of tension and unpleasure with its increase) we should expect that if the reduction and the renewal of the tensions involved are approximately equal, the resulting experience would be one of indifference rather than of joy or pleasure. We must therefore—in terms of the tension theory—suppose that on the whole the reduction of tension is greater than the increase. And if we assume further, as is perhaps usually (though often

[1] J. Varendonck, *L'Évolution des Facultés Conscientes* (Paris, Felix Alcan, 1921).

implicity) done, that there is a more or less simple and direct correspondence between intensity of pleasure and amount of reduction of tension in a given time, it becomes difficult to see how the balance of reduction over regeneration of tension can be so great as to correspond to any state that we should call joy, especially in view of the fact that the joy emotions can often last a considerable time with relatively little fluctuation.

Perhaps, however, the case of 'l'appétit vient en mangeant' can help us here again—at least so far as to point in the direction in which we may begin to look for a solution. In eating we deal with mouthfuls rather than with dishes or full meals. The conations set up by the taste of each mouthful enable us to deal with each mouthful rapidly, confidently and successfully; we do not worry about what remains on the dish or what courses are to follow—or if we do think about them it is with a feeling of confidence that we shall be able to deal with them when their turn arrives. Two points are of importance here. First, the time element: the fact that there is no delay between the application of the stimulus and the beginning of relief of tension. Secondly, the fact that we deal with the whole problem piecemeal and thus in manageable form, and in so far as we contemplate it in its totality, we do so vaguely but with confidence. The tensions we are dealing with at any moment are thus not those connected with the total situation, as it would appear were we to contemplate it in its totality and try to deal with it fully and at once; but rather those connected with some small time-fragment of this total situation—and these tensions we *can* deal with, and in such a way as to reduce them rapidly.

If there is any change in these respects, if, for instance, our salivary glands fail to function adequately, by reason of strong emotion or from any other cause, our pleasant 'appetite' vanishes and gives place to frustration and a feeling of nausea and anxiety, both with regard to the immediate mouthful and to the meal to follow. The situation would seem to be similar in essential respects in the case of solving an intellectual task. Just as a meal consists of many mouthfuls, so most intellectual tasks involve a number of steps, stages or sub-problems (though these will probably be more diverse in character than the successive mouthfuls of a meal). In so far as we are successfully dealing with each step as it arises we experience satisfaction, and in so far as we feel that we shall be able to deal with the remaining steps in due course, we can look forward to the completion of the task with pleasant confidence. True, the pleasure here is as a rule not so continuous and unalloyed—and for the reason that we are

more likely to be held up for a time by not being able to solve the step immediately before us; our intellectual powers are seldom as adequate to their task as are our salivary glands and the other organs involved in eating. At these moments when the (intellectual) stimuli cannot be adequately dealt with, tension arises and unpleasure replaces pleasure till the solution has been found. Similarly, in the case of the 'joy emotions', joy gives place to anxiety or some other unpleasant emotion if our powers seem unequal to the demand made upon them. Again, if we take too long-term a view of our problem as a whole we may easily feel overwhelmed at its complexity (and indeed ultimately at the complexity of life itself), and thus prevented from 'getting on with the job', i.e. from adopting efficiently the piecemeal procedure that may lead us to success. Although, so far as cognition is concerned, a long-term view is no doubt essential to the higher types of adjustment, if we allow it permanently to dominate our orectic life we shall become too distracted, worried and depressed to engage with gusto in the steps that lie immediately before us. Here perhaps we get some further insight into the probable connection of the liability to joy emotions (and pleasure in activity generally) with certain 'types' or 'factors' —'extraversion', 'rhathymia', 'surgency', etc.—as also with the results of psycho-therapy or prefrontal leucotomy in reducing the tyranny of a too active super-ego.

Again in some such way as this (i.e. by stressing the importance of the piecemeal procedure) it might be possible to reconcile the tension theory of feeling and emotion with the optimal function theory of Aristotle, and such corresponding modern physiological theories as have been propounded by Grant Allen, Marshall, Lehmann and others—theories which stress the relations between the energy demanded by a task and the energy at our disposal for dealing with it. But the reader, if not already fatigued, will certainly be satiated by this long sequence of theoretical reflections and his appetite (as indeed that of the writer) unequal to what might prove to be another 'filling' and substantial dish.

X.—Summary

1. Certain 'self-sustaining' needs, desires or activities, when once aroused, may continue and even gain in intensity and occasion prolonged satisfaction in a way that is not explained by the intensity of the original stimulus and that is difficult to account for in terms of the hormic-tension theory of feeling and action. These self-sustaining

needs, together with their consequences, would seem to be due to the influence of new or secondary needs or desires which are aroused by the very process of attempting to satisfy the needs that originally started the activities. These new needs may be sensory or ideational according to the nature of the activity concerned.

2. The process involved here is similar to that suggested by Drever in explanation of the joy emotions.

3. The nature of the secondary needs, sensory and ideational, is more closely considered.

4. Self-sustaining needs may affect the work curve in the manner described by Kraepelin under the heading of Incitement (*Anregung*).

5. Self-sustaining activities may be terminated through fatigue, satiation (gradual or abrupt), loss of interest through improved skill and (like all other activities) by the arousal of some other 'prepotent' tendency.

6. The arousal of desire by the very process of satisfaction contrasts strangely with the more familiar method of arousal through deprivation. The principle involved in self-sustaining desires may, however, account for the fact that partial deprivation is sometimes harder to bear than complete deprivation.

7. Self-sustaining desires are considered in relation to innate and acquired tendencies, social factors, canalisation of instincts, obsessional neurosis, habit, sentiment, determining tendencies, functional autonomy, perseveration, etc.

8. Self-sustaining desires may play a part in the general persistence of motives that is a characteristic of developed life. Such persistence of motives, however, may have its drawbacks in impeding further development and in limiting the possibilities of reaction.

9. The pleasure involved in the joy emotions and other active states may perhaps be explained by the adoption of a 'piecemeal' procedure, as a result of which the mind is continually active in reducing some small fraction of the total tensions engendered by a situation.

Chapter IV

THE DEATH INSTINCT, HOMEOSTASIS AND ALLIED CONCEPTS[1]

SOME PROBLEMS AND IMPLICATIONS

I.—Meanings and implications of the death instinct

There is little doubt that of all Freud's concepts, that of the death instinct has proved the most provocative and embarrassing both to his own disciples and to psychologists at large. To some, as to the present writer, it has a certain awe-inspiring quality, like that of a great natural phenomenon or work of art, the profound implications of which can be dimly felt though its precise significance as yet escapes clear consciousness. Only a few psycho-analysts have found themselves at home with it and there is still much truth in the words written by Sir Percy Nunn, a friendly critic, in reference to its first formulation by Freud in *Beyond the Pleasure Principle* (1922), [German original, *Jenseits des Lustprinzips* (1920)]: 'He here outlines a conception so tragically grand that it extorts admiration, yet so terrible that it seems to make even his most faithful followers uneasy'; while among those hostile to psycho-analysis there are probably many who would agree with McDougall when he called the death instinct 'the most bizarre monster of all Freud's gallery of monsters'.

The concept of the death instinct is embarrassing not only emotionally but also intellectually, for its relations to the other more generally acceptable features of psycho-analytic theory are often far from clear. The various aspects and implications of the doctrine permit of more than one classification, but it would seem possible and profitable to distinguish at least six features which in one way or another determine its meaning, as this emerges from Freud's own works and those of other analysts.

1. As the term itself implies, the death instinct relates to the

[1] Based on lectures given to candidates in training at the Institute of Psycho-Analysis, London. References made in this chapter will be found on pp. 151–154.

universal tendency of living organisms to die and suffer dissolution, i.e. to cease to exist as such, their matter and energy undergoing redistribution. Strange as it might seem, this most fundamental and obvious implication has received comparatively little direct treatment in psycho-analytic literature, the more important and illuminating contributions having been made under other headings or in connection with psychological tendencies other than a straightforward instinctual need to die.

2. The death instinct is intimately related to the stability principle, the tendency to achieve and maintain equilibrium, as manifested both in the inorganic and organic world.

3. In its more physiological and psychological aspects this principle manifests itself in the tendency to reduce or abolish 'tension' caused by stimuli from the outer world or from within the organism, all such stimuli being regarded as actual or potential disturbers of the state of equilibrium or stability. This in turn is related to a theory of feeling according to which pleasure accompanies or is aroused by a reduction of tension, while unpleasure is associated with its increase.

4. The regaining of equilibrium or the reduction of tension is associated with a tendency to reinstate the earlier conditions which existed before disturbance; hence in general the death instinct or stability principle may manifest itself as a repetition compulsion or tendency to repeat previous actions or experiences.

5. The death instinct is intimately related to aggression. It is indeed the very source of aggression, which in its most primitive form aims at the destruction or annihilation of the self, but which can be redirected outwards and then manifests itself as hostility to others.

6. The death instinct is contrasted with the libido or the life instinct, or, if more general 'principles' are substituted for 'instincts', Thanatos[1] is regarded as opposed to Eros. The latter has the function of binding, integrating and uniting, both as between organisms and within a single organism, whereas the former tends to separate and disintegrate all objects on which it operates. The death instinct or Thanatos is thus not a sole or all-explanatory principle but is rather one aspect of a fundamentally dualistic conception of life.

Of these various aspects of the death instinct theory the first and

[1] So far as I can ascertain Freud himself never used the term Thanatos (though it is sometimes attributed to him), the origin of which in the present sense of a vital principle opposed to Eros is somewhat obscure. It began to appear in psycho-analytic literature in the early 1930's.

fifth would appear to be the most characteristically psycho-analytic, in the sense that they are not to be found in the contributions of psychologists of any other school. The remaining four aspects are all stated, implied, or at least adumbrated, by non-psycho-analytic writers, though of course not always in precisely the same form, detail or emphasis as are to be found in psycho-analytic treatments. As regards (2), the stability principle, Freud himself definitely claimed Fechner as an earlier exponent of the same line of thought. There is at least one other notable predecessor, Herbert Spencer, while in the period that has elapsed since the appearance of *Beyond the Pleasure Principle* quite a number of psychologists have pursued the same theme, some of them, it would appear, independently of Freud or of each other. The doctrines represented by aspect (3) are characteristic of many modern views on the nature of conation and feeling. Indeed, it may be said that they represent the most prevalent contemporary theory of the nature and conditions of feeling and cannot be regarded as in any sense peculiar to psycho-analysis, except of course in the way in which they may be fitted into other more specially characteristic features of psycho-analytic thought. Allusion to (4), the element of repetition, is less common, and where found, there is a difference in emphasis and terminology, the tendency being to stress the familiar concepts of memory or habit, which are implied rather than directly invoked in most psycho-analytic treatments. Finally, as regards (6), the peculiar dualism of Eros and Thanatos is of course confined to Freud and his followers, but this dualism overlaps to some extent with the formulations of other dualistic thinkers, and indeed in some of its aspects corresponds to the old familiar cleavages between vitalism and mechanism, love and hatred, good and evil, which in various forms have been current through the centuries.

In what follows the six aspects will be further considered in the order named, though it will be neither possible nor desirable to avoid cross-references from one category to another, for most of these aspects are of course intimately related both in psycho-analytic thought and to some extent in psychological theory generally, and all play their part in the total psycho-analytic doctrine of the death instinct. Our main purpose will be to review briefly some of the major contributions to the study of these various aspects, in the hope that this total highly complex doctrine (which will be taken as roughly but not too inadequately summarised above) can be the better appreciated in its relation to the general background of relevant psychological thought. Somewhat similar treatments have,

it is realised, already been attempted in regard to some of the above-mentioned aspects, and indeed in greater detail and profundity than the present writer can hope to achieve. But the subject, dealing as it does with the ultimate nature of life and mind, is so vast and full of difficulty that further attempts such as the present one will surely be made from time to time and may be held as justified in so far as they succeed in producing even in the most modest degree some deeper or wider insight or some new creative or critical reflections in the reader.

II.—THE TENDENCY TO DIE AND THE DESIRE FOR DEATH

There is at first sight, and there perhaps always remains, an element of paradox in the notion of a death instinct—and this even if we make allowance for the difficulty of translating the word *Trieb*, of which the term 'instinct', beset as it is with the dust of many a wordy battle, is admittedly not quite a satisfactory equivalent. True, human beings sometimes wish for death, sometimes seek situations in which it is likely to occur, sometimes even deliberately commit suicide, but this is nearly always done with a feeling of despair, bravado, resignation, or as an escape from intolerable guilt, anxiety or pain, lacking the quality of directness and immediacy which is so characteristic of instinct as manifested, for instance, in sex, fear, anger, hunger, disgust or curiosity. We can hardly talk of the 'need' for death as we can talk of the need for food, drink, love, safety, warmth or sexual satisfaction—all of them fierce and obvious needs which (though we may seek to rationalise or justify them if there are moral difficulties in the way) yet seem to spring from our very nature and appear ultimately to be justified in their own right, requiring no further analysis or seeking of ulterior motives. Indeed we are far more often conscious of an urgent wish *not* to die and of a vivid fear of death, which we seek to escape by all means in our power even in circumstances (such as disease, loss of love, imprisonment, slavery, social disgrace or abject poverty) in which we may be intellectually convinced that life is lacking in everything which makes it worth the living. 'Clinging to life' under such circumstances seems to have a much more vivid instinctual quality than does the decision to end it—a decision in which this instinctual quality is overcome by reason or by some powerful contrary urge which bids us terminate our misery.

Primitive peoples in general seldom look on death as a natural process such as birth, feeding or mating, but usually attribute it to

some special maleficent influence, human or extra-human; while in civilised societies suicide is hardly ever considered as occurring as a result of a natural or instinctual impulse, but as pathological ('while temporarily insane'), immoral (punishable as a crime if the attempt does not succeed) or noble (a triumph of moral sentiment over instinct), according to the cultural standards of the community concerned.

Psycho-analytic and other studies of suicide indicate that, rather than being a direct expression of an instinct, its motives tend to spring from one or other, or from a combination of, four main sources: guilt, inferiority feeling, aggression, or escape—and the first three of these are often closely allied, inasmuch as guilt so often springs from conscious or unconscious impulses of aggression or from feelings of inferiority (failure to live up to the standards of the ego-ideal or to elicit love or approbation from others). Among the more recondite motives such studies have revealed that suicide may often be a substitute for murder (just as murder may sometimes be a displaced form of suicide), while it did not require psycho-analysis to show that suicide was often a combined attempt to express aggression and to elicit love ('now they'll be sorry!'). Among the motives in which escapism predominates it has been shown that fantasies of death can be combined with those of love ('dying together', *Liebestod*), that death is unconsciously equated with travelling or going away, and above all that the notion of life after death is connected with that of life before birth (intrauterine 'omnipotence') in which there is 'peace' and in which gratification is achieved without effort or frustration. But it is Nirvana, a *life* of peace, free from worry, pain, exertion or annoyance, that is wished for, rather than a cessation of life, which is indeed, as psycho-analysts themselves have often stressed, extremely difficult to envisage except in the most abstract way.

Freud himself was not unaware of this difficulty and to some extent he would seem to be endeavouring to meet it by saying: (*a*) that the death instinct is dumb or silent (in contrast to the 'clamour' with which Eros presses its claims to satisfaction); (*b*) that it is seldom if ever manifested in a pure form, nearly always undergoing some admixture with 'erotic' elements. The full acceptance of (*a*) would put the death instinct in a different category from the other instincts, the working of all of which can to some extent be observed by introspection in oneself or by observation of others, whereas the 'silence' of the death instinct would presumably mean that its presence and working can only be inferred. While making if difficult

or impossible to disprove the presence of the death instinct, this view makes it correspondingly hard to find any satisfactory means of proving its existence. The doctrine of the omnipresent or almost omnipresent admixture of Thanatos with Eros naturally suggests that Eros itself may be no less constantly subject to admixture with Thanatos and, especially since the identification of Thanatos with the primitive source of aggression, psycho-analysts have indeed been increasingly inclined to doubt the possibility of a 'pure' love in the sense of love uncontaminated by elements of hostility, however dim or subtle. This however does not put the same difficulties in the way of the study of 'erotic' elements, which, even if devoid of 'purity', are not devoid of 'clamour', and which make indeed such a lively and sometimes overwhelming impression upon consciousness.

In favour of the death instinct it can of course be maintained that death is just as universal a characteristic of living organisms (except perhaps the protozoa) as feeding or reproduction and that on *a priori* grounds at least it is just as reasonable to postulate an instinctual tendency to die as it is to consider that there are instincts to seek nourishment or sexual congress. The situation here is a little like that as regards sleep, which Claparède (1904) considered to be connected with a special instinct (a suggestion which does not seem to have been widely accepted by other psychologists). Sleep, as Jekels and Bergler (1934) remind us, has always been regarded as a phenomenon akin to death. Their view of sleep is that it differs from death in the presence of a large dose of Eros, which endows it with a beneficient and refreshing function and prevents a fatal termination. Sleep is indeed clearly related to recuperation from fatigue, and fatigue—like practice—is another general characteristic of living things. Fatigue is a state of lessened resistance and efficiency which in some ways resembles the condition of approaching death. In spite of the circumstance that it is undoubtedly influenced by psychological factors (the liability to fatigue being greatly lessened by strong interest or emotion), it is usually considered as due at bottom to physiological or biological conditions and lacking in that psychological primacy which would justify us in attributing it to an instinct. Much the same considerations might apply to death, though death, otherwise than through accident, is the culmination of a long-term and irreversible process of decreasing efficiency, while fatigue results from a corresponding short-term process and can be removed by rest or sleep. According to this view—which is probably that most generally held—death, like fatigue, is ultimately physiological, though, like fatigue also, it can be hastened or delayed by psycho-

logical factors. It is perhaps the prevalence of this view, for the most part implicitly rather than explicitly formulated, which, in addition to the difficulty of discovering a direct instinctual urge towards death, makes the notion of the death instinct seem so strange and paradoxical—even more strange perhaps than the notion that sleep and fatigue are due to the operation of specific instincts.

We must however bear in mind that, as soon at least as we admit the existence of unconscious mental processes, the boundary between the physiological and the psychological is a vague and uncertain one, that for Freud instinct is always regarded as having a physiological basis, and that, although his formulations are nearly always in psychological terms, he certainly has not in mind any clear-cut distinction between the psychological, physiological and biological spheres as we departmentalise them for the purpose of current scientific disciplines. If we are willing, as Freud seems to be in the *Jenseits*, to use psychological terms in speaking of certain tendencies and events which we customarily consider to fall within the domain of biology or physiology, this particular objection to the notion of *Todestrieb* tends to disappear and we can apply the words *Trieb* or instinct to those indubitably biological tendencies which make for death, even though we may still be puzzled by the fact that it is so much harder to find purely psychological evidence for this instinct than for the other tendencies which we recognise as instincts.

Having made this concession, and thus admitted that, for all our acceptance of the 'unconscious', we may still have been unnecessarily qualmish about extending the meaning of psychological terms, we may profitably remind ourselves of another of Freud's suggestions about the death instinct to which we have not yet alluded. In reply to the anticipated question, Why, if we have a death instinct, do we not seek to gratify it in the quickest and most effective way by committing suicide, he replies that this instinct can only be satisfied —in terms of the repetition compulsion—when life has run its appointed course. He does not elaborate this idea at any length, but the idea itself might suggest in turn that we should link it up with another well-known biological conception which has already been applied to instincts by psycho-analysts and others, viz. the concept of maturation. It is known that various capacities, tendencies and instincts mature at different periods of the life cycle, and this is true both of the physiological and psychological aspects of existence. May it not be that the death instinct is an instinct with an exceptionally late date of maturation, that it manifests itself, at any rate in its fully developed form, only when the life cycle of the individual is

nearing its completion and thus prepares the way for the termination of his personal career? It would be a very beneficient and appropriate provision of nature if, when his life task is accomplished, the individual would be instinctually impelled to mutter a thankful *Nunc Dimittis* and by dying satisfy the last and longest delayed of all his deepest natural cravings. In the case of some old people and animals who enjoy a 'peaceful end' we might well imagine that we are witnessing the consummation of some such instinctually conditioned desire, a desire which in its earlier stages is somehow correlated with a gradual decline of vitality and efficiency in all the bodily and mental functions.

It is easy to see that such an idea is not without its difficulties and is liable to objections on a variety of scores. More particularly perhaps, from the point of view of psycho-analytic theory, it may be difficult to reconcile with the view that the death instinct is also the fundamental source of aggression, which latter tendency psychoanalysis itself has shown to be very active in the earliest years and months of life. But if this view of the connection of the death instinct with aggression should for any reason appear unacceptable (and later on we shall have to consider serious objections to it) we could perhaps still conceive of the real existence of this instinct along the lines just indicated.

III.—Equilibrium, homeostasis and least effort

In this section we shall review some of the other attempts which have been made to formulate what Freud, adopting Fechner's term, called the stability principle. We find here a somewhat bewildering variety of terms applied to what are basically similar conceptions. As Fletcher reminds us, Spinoza was perhaps one of the earliest writers to suggest a connection along the lines of modern thought between on the one hand, the inertia of physical bodies and on the other the resistance to change and the tendency to re-establish previously existing conditions exhibited by living organisms. In both cases there was to be observed a *conatus se conservandi*, a phrase which, as Fletcher remarks, is a pretty exact equivalent of Cannon's later term 'homeostasis'.

Fechner's contribution (Fechner, 1873) in the little known work to which Freud refers consists largely in drawing an important distinction between various kinds or degrees of stability. In particular he enumerates four states, viz.: (1) 'absolute stability' without change or movement: (2) 'complete stability', in which there are

movements, but of such a kind that they lead back to the same original configuration in more or less equal periods of time; (3) 'approximate stability', in which the return to the previous condition is less perfect; (4) 'absolute instability', in which there is constant change.

One of the most ambitious and important treatments of the subject ever attempted was made somewhat earlier in the nineteenth century by Fechner's great contemporary Herbert Spencer (1855 and 1866), who in writing his philosophy of evolution had in mind that equilibrium was the goal, aim or termination, towards which all evolution tended, whether in the inorganic or the organic world. Life, which manifests the evolutionary process in the organic sphere, consists in 'the adaptation of inner relations to outer relations', and when this adaptation is complete equilibrium is attained. In a complex environment this may however be a long and never completely consummated process, since it involves 'as many specialised adaptations as there are specialised influences in the environment to be met'. Moreover, the attainment of complete equilibrium is liable to be preceded by the achievement of a dynamic equilibrium in which (as in Fechner's 'complete stability') movements balance one another in a cycle of events, as manifested in the solar system, in many machines and in living organisms. In the last mentioned, complete equilibrium is attained only at death, though here, owing to the highly complex and unstable chemical composition of living matter, the equilibrium attained is soon disturbed by a process of dissolution brought about by the various mechanical and chemical influences of the environment—a process which is apt to be a much slower one in the case of more stable inorganic bodies, but which under certain special conditions, such as intense cold, may fail to occur even with living organisms, as in the case of the frozen mammoths of Siberia. In mental life the process of adaptation (i.e. of seeking equilibrium) is manifested at various levels, corresponding to the general associationist principle that 'the persistence of the connection between states is proportionate to the persistence of the agencies to which they answer' (a principle which could of course be expressed in more behaviouristic terms if desired; the distinction between mind and body, consciousness and behaviour, was never one that worried Spencer). Reflexes are adjustments to simple frequently occurring situations. Memory and the process of recall are attempts to reinstate more complex and less frequent situations, the correct adjustments to which have not become automatic through repetition (in the individual or the race). Instincts, which are defined as 'compound

reflex actions', are adaptive responses which are more generalised and variable than reflexes, corresponding as they do to recurring situations of a more complex and general, and therefore less frequent, kind. Reason deals with still less familiar and still more complicated situations, the correct response to which can only be made by novel forms of adjustment which have to be discovered by the individual with the help of his mental capacities and previous experience; while will corresponds to the action that ensues when what appears to be the best response to such a situation has been found. Conduct at all levels thus represents an effort of adjustment, which itself aims at the maintenance or re-establishment of equilibrium in the face of varying environmental situations which threaten or disturb it. Spencer's whole psychology (and indeed at a broader level his whole 'synthetic philosophy') is accordingly based ultimately on what Fechner, and following him Freud, later called the stability principle.

To return now to more recent years, shortly after the appearance of the *Jenseits* R. B. Raup (1923) introduced yet another term for the same principle, which he called 'complacency', a term which, though it first appears strange since it bears another narrower and more familiar meaning, has at any rate the merit of stressing the psychological connection between pleasure and the maintenance of the *status quo*. In his treatment of the subject Raup laid much stress on the value of habit as affording 'reduction patterns' for dealing with disturbing and tension-producing situations.

Rignano (1922 and several later works), summarising at about the same time views already expressed in a number of previous publications, uses Ostwald's term 'the stationary physiological state' and (alternatively) 'physiological invariability' in the same connection. All needs and affects, he suggested, illustrate the felt tendency to return to such a state, but inasmuch as the state existed before it was disturbed, the return to it involves memory. Thus Spencer, Raup and Rignano all in their different ways stress factors which clearly play a part in that aspect of the death instinct doctrine which Freud subsumed under the heading of the repetition compulsion. Rignano is, however, perhaps less associationist and mechanist and more 'hormic' in his approach than Spencer or Raup. He admits the existence of foresight and the search for goals, which are envisaged with greater or less clarity according to situation and mental endowment, goals which function *a fronte* in the mind; but inasmuch as these themselves depend upon a memory of previous experience, they represent what was originally a *vis a tergo*, a force imposed upon

the organism by its environment. In other words, foresight of a desired condition in the future and an understanding of the means to attain it are only rendered possible by a memory of previous experience of that condition and of the circumstances which produce it.

The Gestalt school, including Köhler (1930), Koffka (1935), Lewin (1935-6), and their followers, has also concerned itself extensively with somewhat similar concepts, the notion that the mind seeks to reduce tension being fundamental to its whole outlook. Its particular approach however has two distinctive characteristics. In the first place it applies the concept of tension to the cognitive sphere (and especially to perception) as well as to that of orexis; indeed it was only under the influence of Lewin that this school began to occupy itself predominantly with the psychology of desires and needs. In the second place, whereas most of the other writers who have dealt with the stability principle were thinking primarily of the whole organism, or at least of one particular source of tension which for the moment dominated the behaviour of the organism, the Gestalt school, in relation to both cognition and orexis, thinks for the most part in terms of partial systems, several of which may be operating simultaneously, and in each of which the tendency to the reduction of tension may be more or less independently at work. This independence, however, is only a relative one, for the systems admittedly communicate with one another. In the words of Köhler, 'purposiveness and goal activity of organic differentiation and growth appear to be causally determined happenings in *communicating* systems, the inner dynamics of which impel towards equilibrium. Causality in such systems is constantly "directed" by the total pressure of the system'. There is thus no fundamental incompatibility between the Gestalt point of view and that of the other thinkers, who in their turn would doubtless be willing to admit that the total picture of an organism seeking equilibrium or the reduction of tension permits of being subdivided into a number of simultaneously active parts or systems.

The laws of 'closure' and of 'pregnance' illustrate well the Gestalt approach in the case of perception. The latter law asserts that every Gestalt tends to become as 'good' as the prevailing inner and outer circumstances permit, i.e. that the way we perceive things is such as to reduce tension by making our perceptions as simple and easy as possible. This law is illustrated by a multitude of experimental observations. Thus if we are shown tachistoscopically a circle with a small part of its circumference missing, we mentally fill in the gap and see the figure as a complete circle. Similarly in uniocular vision

we fill in the gap in the visual field caused by the blind spot on the retina; while, in virtue of the principle of 'constancy', we often see objects as 'round' or 'square', 'black' or 'white', even when the actual sensory impressions give us no justification for so doing. The distortions of memory are similarly determined by the tendency to reduce tension, as when we omit or modify elements of the original experiences which do not fit into a relatively simple scheme or pattern. In the field of orexis the results of the interesting experiments carried out by Lewin's followers on 'substitute satisfactions' have been interpreted on the same lines. If a task is interrupted before completion, it has been found that there is a tendency to return to it if opportunity is provided, even in the absence of reward, instruction, or any other special motivation, though this tendency may be reduced or abolished if 'substitute tasks' with some degree of resemblance to the original one are presented in the interval. These substitute tasks, according to this interpretation, supply a means of reducing the tension aroused but not relieved by the original interrupted task. A corresponding explanation has been given of Zeigarnik's celebrated finding (1927) that under certain circumstances uncompleted tasks can be recalled more easily than completed ones, the residual tension connected with the former conducing, it is supposed, to an easier recall of these tasks, whereas when a task has been 'finished and done with' there is no such (or at any rate less) residual tension to aid the process of recall. (In connection with the latter one thinks naturally of lawyers or examination candidates who 'mug up' a subject for a particular purpose, but forget it easily when this purpose is accomplished.) In these and many other ways the Gestalt school has found in the theory of tension-reduction both an inspiration for ingenious experimental work and a plausible explanation of the results obtained. That the theories and findings of the school may be capable of useful application to psycho-analytic work has been shown by a number of writers, e.g. Bernfeld (1934) and Devereux (1951), the latter of whom has recently applied the notion of closure both to the formation of symptoms and to the analyst's understanding of their meaning.

Meanwhile a number of writers had already discussed Freud's suggestion that the reduction of tension inherent in the death instinct illustrates, or is at least analogous to, the second law of thermodynamics (the law of entropy or degradation of energy). While admitting an obvious similarity, such writers (notably Bernfeld and Feitelberg (1931), Kapp (1931), and Penrose (1931)) have found themselves somewhat baffled and bewildered by the complexity and

manifold aspects of the death instinct doctrine, and have in general adopted a cautious and non-committal attitude towards any hasty identification of biological and psychological principles on the one hand with those of physics on the other.

Cannon in his *Wisdom of the Body* (1932) has given an impressive summary of the evidence (much of it based on his own researches and those of his collaborators) for the operation of the tendency to maintenance of equilibrium in the physiological sphere, and has at the same time coined the word 'homeostasis', which bids fair to become the most popular choice among the various competing terms which have from time to time been suggested. The 'wisdom of the body' consists, in Cannon's view, in its power of adjustment to varying external conditions, in virtue of which it is able to retain its normal composition and functions, or at any rate to return to them after a short deflection, in widely different environments. Thus the body temperature remains approximately constant within a range of about 300° F. in the outer air, there are elaborate equilibrating mechanisms for ensuring a relatively constant calcium content in the blood, for dealing with mechanical injuries, bacteriological infections, and so on; while hints are given concerning the existence of corresponding mechanisms in the psychological and social spheres. It will be noted that Cannon's notion of homeostasis differs from the corresponding conceptions of some other writers, including Freud, in that it is concerned not with absolute stability or the reduction of tension to an absolute minimum but rather with the maintenance of a dynamic equilibrium which is characteristic of the living body. We shall have occasion to return to this distinction, to which Spencer and Fechner had already drawn attention.

J. M. Fletcher (1943) has enlarged on the more psychological aspects of homeostasis. Both the body and the mind have, he stresses, a capacity to make novel adjustments (indeed without this capacity much of modern surgery would have been impossible), but the mind, with its faculty of foresight, has also the valuable additional ability to make preparation in advance for emergencies about to come, and this in turn may, through the autonomic nervous system, reverberate upon the body, as exemplified in the influence of emotion upon the endocrine glands (as Cannon's classic work so clearly showed). Among illustrations of the principle of homeostasis in the psychological sphere Fletcher suggests: Hering's theory of vision, with the postulated reciprocal action of the complementary pairs of red-green, yellow-blue and white-black processes; the after effects of movement, visual, kinaesthetic and tactual; the 'constancies' of

perception (to which we have already referred); the adjustment of effort to the anticipated length and difficulty of a task (a subject on which David Katz (1949) recently produced some further illuminating data), including the 'paradoxical' increase of output under distraction; and the process of 'rationalisation', which, it is suggested, is no less an act of organic defence against ego-disturbance than is a change of blood count against infectious disease.

G. L. Freeman in his book *The Energetics of Human Behaviour* (1945), which summarises and co-ordinates a great number of previous researches by the author and his collaborators, has attempted to outline the methods and viewpoint of a complete system of psychology based upon the concept of homeostasis—a psychology which is, however, strongly physiological and behaviouristic in its tendencies. He considers that homeostatic adjustment can be shown as operative at a variety of levels: in the individual cell, the organ, in the autonomic nervous system, and the neuro-muscular system. As regards the last of these, with which he is principally concerned in this book, his experiments are designed to measure: (1) the energy expenditure at the basic level of rest, (2) the variability of this level, (3) the energy mobilised on confrontation with a task or emergency situation, (4) the process (and variability) of return to the basic level. The measures used include calorimetry, oxygen consumption, blood pressure, muscular tension, electroencephalography and the psychogalvanic reflex. Among the 'tests' used were perceptual discrimination of various degrees of difficulty, 'stress interviews' (in which the subject is deliberately caused embarrassment) and withholding of micturition. On the basis of his results Freeman elaborates various concepts and measures, e.g. the 'arousal index', which measures the mobilisation of bodily energies to meet new or difficult situations, the 'discharge index', indicating the energy employed in the actual response, the 'recovery quotient', i.e. the ratio of rise to fall in the response curve, the 'compensatory energy mobilisation' to meet any resistance to the attempted response, 'focal-background ratio', i.e. the relative intensity of focal and non-focal energy aroused by a task or stimulus, 'backlash', the re-excitatory effects of the response itself, and 'residual load', the continuation of excitatory effects after adjustment (like an unexploded charge in a gun after faulty firing). Among his more important results he finds that neurotic and maladjusted individuals (both among children and among college students) exhibit a slower and more variable return to basic level than do normals, while work with Leon Saul suggests that among hypertense patients undergoing psycho-analysis blood pressure and electrical

palmar resistance diminish as the analysis advances. Freeman's view of mental health is that it depends greatly upon adequacy of discharge (though this itself depends of course also to some extent upon adequacy of adaptation to a disturbing situation) 'The basic cause of reactions considered "abnormal" is the blockage of physiologically appropriate outlets for the release of aroused excitation and a consequent re-distribution of energy through other tension systems.' Some persons, however, have the capacity to tolerate greater tension, to bear a bigger 'residual load', than others. It is suggested that if we could have an adequate test of how much residual load a system can carry without sacrificing homeostatic resiliency, this would provide us with a psychiatric plimsoll-mark comparable to the cardiologist's 'test for safe loading of the heart'.

G. K. Zipf, in his large book on *The Principle of Least Effort* (1949), also makes the stability principle the foundation of his psychology. The principle of least effort is, he says, the organic equivalent of the stability principle. The point of difference is that in the former there is implied a reference to the future which is not found in the inorganic world or in any principle which applies exclusively to that world. Homeostasis is not the ultimate goal of a living organism, as Cannon's treatment seems to suggest, but rather an economic device to facilitate survival. 'Least effort', as contrasted with 'least work' in the physical sense, is that line of action which implies the smallest expenditure of energy in the long run (though, as the future can never be predicted with certainty, there is always liability to error, whether the foresight involved be merely instinctual or based on reasoned estimation of the probabilities).

It is impossible in a short space to give an adequate survey of the vast field covered by this volume. Only a few (it is hoped representative) indications of Zipf's line of thought can be discussed. To illustrate his principle of least effort (the same principle which, it may be noted, Spearman used sometimes humorously to refer to as '*Das Prinzip der grössten Faulheit*') he takes the analogy of an artisan who has to use a variety of tools which are of necessity deposited when not in use at various distances from his actual workbench. He will tend to use these tools in such a way that the sum of the products frequency $\times$ mass $\times$ distance will be a minimum. As a consequence he will: (*a*) close-pack his tools, so that the distance to be traversed in reaching them when needed will be as small as possible, (*b*) reduce their size and weight as far as is compatible with their efficiency, (*c*) make some tools available for more than one purpose, (*d*) make special efforts to reduce the size and weight and to increase the

applicability of those which he uses most often. Hence there will tend to be an inverse relation between distance, size and weight of tools on the one hand and the frequency of their use upon the other.

Applying these principles to language (with which much of Zipf's treatment is actually concerned), we find that there is indeed an inverse relation between the length of words and their frequency of use (as revealed, for instance, by word-counts of James Joyce's *Ulysses* and other works—such counts showing in fact some surprisingly constant mathematical relationships). The shortest words have also the most meanings and are most frequently combined with other words (as in 'wishful', 'horsebox'). But when these tendencies are carried too far, the process becomes uneconomical and the opposite tendency to specialisation (as manifested particularly in technical vocabularies) sets in. There is indeed a conflict between the opposite tendencies of unification (using a single word to convey as many different ideas as possible) and diversification (giving each word a very precise meaning). How far economy in the case of the various sounds available for words has gone can be seen if we compare actually existing languages with physiological possibilities. In any given language there are roughly between twenty and sixty phonemes in actual use, whereas it has been estimated that some 10,000 phonemes are physiologically at our disposition. The schizophrenic making excessive use of the tendency towards 'unification', overloads his words with meanings. He has a specialist vocabulary and thereby saves himself work, as the scientific specialist does when he uses the technical terms peculiar to his field; the latter, however, employs the tendency to 'diversification', and has not lost touch with his social environment (in this case the environment of fellow specialists) as the former has when he employs a vocabulary peculiar to himself. The structure of dreams is like schizophrenic speech, but when the terms of a dream are related to those of a given culture, we have art.

Turning to another field, there is a conflict, Zipf suggests, between the claims of immediate homeostasis and the sensitivity necessary to permit more permanent adaptation and survival. As the environment of an organism becomes more complex, there is a need both for more delicate homeostatic devices and for greater sensory information (the immediate effect of which may be to disturb homeostasis). The best solution for these vitally important but conflicting claims lies in the development of special sensory surfaces, each sensitive to a particular kind of stimulus through which we receive samples of the environment. The utility of these special sense organs may be

supplemented by physiological devices such as (in the case of vision) convergence, accommodation, movements of the eyes and head. This sampling procedure is carried further within the mind by mental 'set' and selective attention. Furthermore, in dealing with varieties of experience, we find it economical to establish classes (concepts). The symbolic process illustrates this tendency to minimal effort; 'all living action consists of *kinds* of mental operations upon *kinds* of material objects'. As an extreme case 'mathematics', as Poincaré said, 'is the art of giving the same name to different things'. A social group is 'a number of individuals having similar objects which they pursue with similar operations', a culture is 'a unit system of social signals and correlated social responses'.

The evolution of higher forms of life is due to failure in the competition for simpler and more stable environments, the losers being forced to develop a more complex organisation in order to cope with the more difficult environments.

Ageing is connected with increasing rigidity. It is more economical to procreate than to attempt to readjust an ever more unadaptable organism to its environment. Nevertheless (and here I am not sure that I have been able to follow Zipf's thought quite adequately) the ego probably does not die; throughout life it has persisted in spite of the change of bodily material, and to some extent it has the choice of (*a*) 'dying and being reborn', and (*b*) continuing to live and procreate. (*a*) is here connected with the death wish, (*b*) with the life wish (apparently Thanatos and Eros respectively). There may therefore be a conflict between these two tendencies. Also there is some degree of conflict between procreation and self preservation (reminiscent of Spencer's 'antagonism between individuation and genesis'). Children are a source of responsibility and a nuisance as well as a source of satisfaction. The conflict between (*a*) and (*b*) and ambivalence towards children are both understandable as resulting from the principle of least effort. This principle (together with the conflicts to which it gives rise—as regards which course does actually involve least effort in any given case) abolishes the necessity for a dualistic conception postulating a fundamental antagonism between two opposing principles, such as is adopted by Freud, inasmuch as it can by itself account adequately for all the phenomena of life, including conflict.

To end this short review (which is of course far from presenting a summary of all the relevant literature) mention should perhaps be made of the modern school of Cybernetics, whose foremost representative is Norbert Wiener (1948). This school stresses the similarity

of 'steering' mechanisms in living organisms and machines. Thus modern machines have the equivalent of sensory organs (photo-electric cells, radar systems, thermostats, pressure gauges, etc.), as well as effectors (motors, solenoids, heating coils, etc.); there are also intermediate mechanisms whose function is to combine incoming impressions into such form as will produce the desired type of response in the effector (corresponding to the proprioceptive organs in the nervous system). In some cases machines may store impressions for future use (corresponding to memory), and finally their very rules of operation are susceptible of change on the basis of data received in the past (corresponding to learning by experience). Among these mechanisms special stress is laid on those subserving 'feed back' (of which the 'governor' of the steam engine was an early example), whereby the difference between a desired pattern of movement and any actual deviation from it can be used as a new impulse which corrects the deviation. The similarity between this and the corresponding processes at work within the body becomes very evident when they go wrong. Too brusque a feed back, for instance, may overshoot its mark, so that the steering mechanism may be thrown into a wild oscillation or 'hunting', similar to that which occurs in the 'intention tremor' often associated with cerebellar injury. The similarities between the nature and behaviour of machines and living organisms appear from the point of view of cybernetics to remove the justification for a dualistic theory which would make a clear-cut distinction between the organic and the inorganic spheres. 'In fact', says Wiener, 'the whole mechanist-vitalist controversy has been relegated to the limbo of badly posed questions'.

Cybernetics, with (as the term itself implies) its emphasis on 'steering', is concerned with the corrections of errors and deflections from some desired 'course' or other form of activity, and is only 'homeostatic' in the sense that it seeks to abolish or minimise these errors. It takes the course or other activity for granted, and thus at first sight might seem to differ radically from homeostasis, entropy, or a death instinct, which tend to reduce *all* activity and movement to a minimum. But on further reflection we can see that the difference is one of degree or order rather than of kind. Cybernetics deals with deflections or activities of a second order, which are 'accidentally' superimposed on a desired activity by forces (in the environment or in the organism) which are irrelevant to the main purpose of the activity. But from the point of view of a more fundamental homeostasis (which Freud and most of the other authors quoted

have in mind) this 'desired activity' itself is but an attempt to restore a state of, complacency' or 'equilibrium' which has been disturbed, and the forces or stimuli which have called forth this activity are themselves from this more fundamental point of view irrelevant and undesired. Some 'need' or other disturbing stimulus, for instance, is necessary to make men embark on a sea voyage, but there are secondary disturbances which deflect the course of the voyage when it is undertaken, and it is with these latter that cybernetics is chiefly concerned. We can indeed envisage not merely two but a whole hierarchy of corrective and adaptive activities of this kind, each higher or more superficial activity correcting the deflections of the more fundamental activity immediately below it in the hierarchy. In so far as the higher levels of activity are effective, they reduce the total loss of energy on 'irrelevancies' and help the more fundamental levels of activity of the organism (or machine) to pursue their course economically and uninterruptedly.

But what of the most fundamental level of all? It too seeks to reduce the disturbances which interfere with the maintenance of equilibrium, and if it were completely successful the whole system would come to rest and attain the state which Spencer called 'complete equilibrium' and Fechner 'absolute stability', and which according to Freud's theory of the death instinct would be 'death'.

Here perhaps there would be a significant difference between living organisms and machines. A machine can be at rest for long periods and yet, provided the environment does not cause damage or disintegration, can by appropriate means be made to resume its activity at any moment. But in living organisms 'death' does not permit of the resumption of vital activity (though the cyberneticist might perhaps attempt to question this by pointing to modern methods of preserving blood, tissues and spermatozoa in such a way that they will function again when introduced into a new living organism, or even to cases of 'suspended animation' or the resuscitation of apparently dead animals or human beings which have occasionally been reported). In such organisms there is always, even in the deepest sleep, trance or state of hibernation, some minimal degree of vital activity, so long as the possibility of continued life is present.

As we saw in the last section, it is 'peace' rather than death itself which is ultimately desired in any death wish or aspect of the death instinct which is discoverable by introspection. And, as we noted in connection with Cannon's conception of homeostasis and as is evident from the views of Freeman, Zipf and others, it is 'dynamic'

rather than 'complete' equilibrium which these authors envisage as the ultimate goal of living beings. Nevertheless there is, it would appear, one important consideration which might justify the use of the term 'death' in this connection. The more perfect is the action of the cybernetic, corrective or equilibrating mechanisms, the nearer does the organism approach to the condition of 'complete' equilibrium—and the nearer also to death. The process can be regarded as following an asymptotic curve which approaches ever nearer to a base line but never touches it; death is never reached as long as life persists. And yet the tendency towards death is there and is significant enough. The more perfect the function of the homeostatic and equilibrating devices which from the point of view of homeostatic psychology constitute life, the nearer the organism approaches to the completely static condition of death. This great tendency, which is ultimately implied in all such theories as we have been considering, deserves perhaps to be called the 'fundamental paradox of life'. It gives a new, more immediate and ever-present significance to the old familiar words 'In the midst of life we are in death'.

IV.—The tension theory of feeling

In our second section the death instinct in the form put forward by Freud emerged as a doctrine which could scarcely be disproved, but for which there was little empirical evidence and which seemed hardly the most accurate or convenient formulation of the facts which it was intended to cover. In the last section it also got through, one might almost say, 'by the skin of its teeth', as a proximate formulation of a general tendency which many authorities agree must exist, but which would seem to be more adequately described as 'equilibrium', 'homeostasis', 'principle of least effort' or some other of the terms proposed in this connection. Though undoubtedly a more vivid and arresting term than any other yet suggested, the 'death instinct' has the disadvantage of going beyond the ascertained facts, or of applying only to a limiting case.

But the difficulties which the death instinct doctrine has to meet are not yet at an end. In some of these further difficulties, however, it is not alone, but finds itself in company with all the allied doctrines which we mentioned in the last section, which, though they provide beyond doubt a bold and comprehensive formula for many of the facts of life and mind, have yet been challenged on the ground that they do not cover all these facts and that indeed they miss out some of the most essential characteristics of living matter, the behaviour

of which cannot be adequately accounted for in terms of any principle, such as equilibrium or entropy, which applies primarily to the inorganic world. But before we encounter these objections in their most general form, we will first engage in what might perhaps be regarded as an affair of outposts, i.e., a study of the analogous problems that arise in considering the relation of homeostatic doctrines to the theory of feeling.

As already mentioned in our opening section, the prevalent modern views of feeling appear at first sight to fit in well with these doctrines. In contradistinction to the nineteenth-century advocacy of psychological hedonism, according to which conation is dependent upon feeling (inasmuch as in all our strivings we are seeking to obtain pleasure or avoid pain), most modern views regard the relation as reversed and maintain that feeling is dependent upon conation, in the sense that pleasure accompanies successful striving while unpleasure results when striving is frustrated. Following McDougall (1926), probably the most determined and explicit propounder of such a view, this general theory may be called the 'hormic' theory, a term which conveniently distinguishes it from the earlier 'hedonistic' theory.

Now, if in accordance with the doctrine of homeostasis we consider that all striving aims at the re-establishment of lost equilibrium, we can combine the homeostatic and hormic theories and say that pleasure accompanies or is caused by the process of restoring equilibrium, while unpleasure is a consequence of the failure of this process—this being a view which was clearly expressed by Fechner (in a passage quoted by Freud). It is true that today such terms as 'homeostasis' or 'equilibrium' are seldom used in expounding the hormic theory (and that McDougall (1929) himself would definitely disapprove of them as too 'mechanist' in implication). The word 'tension' or some equivalent of this is more frequently employed, but the concept of tension is seldom discussed in detail; apart from physical, chemical or electrical analogies, it remains a vague psychophysical notion which at bottom seems to mean no more than the fact of striving or desiring, together with the accompanying feelings and sensations. In terms of a combined homeostatic-hormic theory we seem therefore to be justified in regarding this 'tension' as the psychological aspect of disturbed homeostasis.

On the other hand the homeostatic theory is less easy to reconcile with psychological hedonism. If our striving is directed to seeking pleasant situations and avoiding unpleasant ones, the whole notion of tension or of regaining equilibrium is no longer in the foreground

and may even disappear altogether. Feeling is no longer dependent on striving but striving is dependent upon feeling, and for all we know feeling may in some cases have no relation to needs, tension or lost equilibrium. The validity or otherwise of the hormic theory is therefore of some importance to the whole doctrine of homeostasis.

What are the facts? The subject has already been treated in some detail in the chapter on 'Feeling and the Hormic Theory' in this volume. The upshot of this discussion was that, although the hormic theory has in general been rather amply vindicated, even in many instances where it might at first seem faulty, there are still certain cases, especially those connected with unpleasant sensation, where it does not seem fully to account for the facts. Careful experimentation by Yuan Pan (1930) and others shows that it is often possible, by the adoption of an appropriate attitude to alter the feeling of the mental state centring round the reception of what is usually a pleasant or unpleasant sensation, but that in these cases there yet remains a core of sensory experience which seems to remain *intrinsically* pleasant or unpleasant, independently of the attitude we adopt towards it. Thus pain as such remains unpleasant, even when, as in the case of the masochist, the whole situation in which pain figures as the central element may be changed to one of pleasure. This apparently intrinsic pleasant or unpleasant core of certain sensations remains an obstacle to the universal applicability of the hormic theory of feeling.

Although, on the whole therefore, the upholders of homeostasis may be gratified at the increasing evidence from various sources of the wide applicability of the homeostatic-hormic theory in its relation to feeling, they can hardly yet congratulate themselves that all difficulties under this head have been removed and that all known forms of feeling fit in perfectly with the homeostatic conception of life and mind.

It may well be that the reader has become a little impatient by this time. And indeed this question of the intimate psychological relation between feeling and conation has a certain air of hair-splitting, of being that kind of psychology which H. G. Wells once stigmatised as 'a happy refuge for the lazy industry of pedants'. It is, in particular, apt to appear a trifling and pettifogging matter when contrasted with the magnificent generalisations implied in the doctrines of homeostasis and the death instinct. Psycho-analysis has indeed displayed a certain lofty indifference to the whole question at issue, taking little trouble to be either explicit or consistent in matters of detail. The general acceptance of the term 'pleasure

principle' seems to imply (as critics such as McDougall have not failed to point out) the old theory of psychological hedonism, whereas the general views about the functioning of the 'psychic apparatus' (even apart from the death instinct itself) fit in much more readily with the homeostatic-hormic theory that all conation aims at the reduction of tension and that feeling is a function of the success or failure of this conation. We have here an instance of the lack of integration of different parts of psycho-analytic theory, which have been formulated at different times and with different problems in view. We must remember that the pleasure principle was regarded as contrasting with the reality principle and not with any hormic or homeostatic principle, which only became of importance to psycho-analytic theory at a later date. Moreover (as psychologists of other schools have also found) it is in practice often easy to slur over the distinctions between the hedonistic and hormic theories, emphasising the very obvious connections between feeling, tension and conation, without inquiring too minutely into the causal relations concerned, even though the view of feeling adopted actually implies—or is held to imply—a causal relationship of a particular kind. In this way psycho-analysts, like certain other psychologists, have—perhaps unwittingly—attempted both to run with the hare and hunt with the hounds, enjoying the advantages both of the hedonistic and the hormic theories as circumstances favoured. Nevertheless, from the point of view of the death instinct and the stability principle (and neglecting for the moment the life instinct or libido, to which we shall return) they are exposed no less than the other upholders of homeostasis to any difficulties and dangers which the whole principle of homeostasis may encounter as regards its attempt to explain all the actual facts of feeling.

These difficulties encountered by the theory in relation to feeling prepare us for another, and in some respects a more formidable one—one which no longer deals with what we suggested was an affair of outposts, but which takes us nearer to the very heart of the battle. Are not the 'pure' pleasures of which Plato wrote evidence of the mind's capacity for 'active' enjoyment, for pleasure in the expenditure of energy, as distinct from, and contrasting with, the mere reduction of 'tension' and the tendency to homeostasis? In contra-distinction to Plato, who[1] on the whole (in spite of his doctrine of 'pure' pleasures) favoured what might now be called the homeostatic point of view, his great successor Aristotle tended to seek the

[1] As mentioned in Chapter II.

cause or correlate of pleasure, not in reduction of tension, but in 'perfect function', in 'entelechy', i.e. 'complete actualisation as opposed to merely potential existence'. If we take pleasure in gratuitous activity, if we experience what have been called the 'joy emotions', does this not mean that our strivings themselves are concerned, not merely with the reduction of tension, with the return to the homeostatic level, but also with the development and testing of all our latent capacities, with the fullest exercise of all our functions? From the point of view of feeling (with which we are at the moment chiefly concerned) many authors have, following Aristotle, stressed this more 'active' aspect of our pleasures, alongside of our desire to be at rest. Some, like Grant Allen (1877), Marshall (1894), and Lehmann (1912), have emphasised the fact that pleasures are somehow dependent upon our having adequate energy to meet the tasks which confront us. Others, like Wundt and Myers, have recognised a double aspect of both our pleasures and unpleasures; they are clearly of opinion that feelings must be distinguished, not only according to whether they are pleasant or unpleasant, but also according to whether they are active or passive (or at least whether they accompany active or passive states, i.e. states of high or low conation). Thus Wundt's celebrated 'three-dimensional' theory (1893), now seldom advocated but historically of importance, postulated three pairs of opposites: pleasure—unpleasure, excitement—calm, tension —relaxation, in which the two latter pairs reflect the contrasting influence of activity and passivity; while, according to Myers' descriptively useful and perhaps undeservedly neglected account (1923), there are four dimensions as follows:

strain + (manifesting itself as enhanced vitality, exhilaration, gladness);
relaxation + (bliss, ease, contentment);
strain − (unrest, uneasiness);
relaxation − (reduced vitality, depression, boredom, apathy).

Freud too in at least one place points out that there are active pleasures—and significantly goes on to infer that the death instinct cannot follow the pleasure principle, which in some of its aspects actively seeks stimulation.

Fortunately from the point of view of the happiness of living things, these active pleasures undoubtedly exist, and there can be no doubt also that they accompany strivings of a kind which are

often hard to reconcile with the homeostatic-hormic theory that all conation aims at the reduction of tension. This provides a strong argument in favour of a dualistic view, such as that of Freud himself, according to which the active pleasures would probably belong to the domain of Eros, the passive ones to that of Thanatos. Few psycho-analysts, however, have attempted to work out in any detail such a dualism with regard to feeling. The nearest approach to such an attempt is probably that of Karl A. Menninger in his treatment of 'Psychological Aspects of the Organism under Stress (1954)'. He here emphasises that homeostasis should be taken as applying to the internal (bodily and mental) equilibrium of the organism as well as its equilibrium in relation to external stresses. In its internal aspects this equilibrium, he thinks, means in the last resort the maintenance of a balance between the life and death instincts. The ego is a system of cybernetic control; it controls both the death instinct and the life instinct, achieving the latter feat through a process of 'feed back' whereby the forces of the life instinct itself are used to correct and guard against its own dangerous excesses. As such, the ego is always under stress; if the stress is too low there is sluggish inactivity, if it is too high there is discomfort and anxiety, while at the optimum level there is pleasure in action and achievement. This, if acceptable, certainly accounts for the active pleasures along Freudian dualistic lines, though there is a grave departure from Freud's position in another respect, inasmuch as the homeostatic control appears to be regarded as a function of Eros, and not, as with Freud, of Thanatos (since the ego which exercises the cybernetic control is 'an organised expression and product of the integrating forces which constitute the life instinct'). This is no doubt an indirect consequence of the fact that Menninger, like so many others, envisages homeostasis as a tendency towards a 'dynamic' rather than a 'complete' equilibrium, whereas Freud has always in mind the ultimate tendency towards 'death' or 'complete' equilibrium.

Another psycho-analytic writer who comes near to dealing with the same problem is Clifford Scott in a paper on 'A New Hypothesis concerning the Relationship of Libidinal and Aggressive Instincts'.[1] Love and hate, according to his view, depend on quantitative factors. If the stress or tension aroused is too great, hate arises, though lesser degrees of tension can arouse love (while what is often regarded as 'fusion' of love and hate may in reality be rapid 'oscillation' between them). Successful mental development, as also successful psycho-

[1] Read to the British Psycho-Analytical Society and since published in abbreviated form (1954).

therapy, increase the degree of tension which can still be reacted to in terms of love (thus—we may note—increasing that capacity for tolerance of stress which, as Ernest Jones, G. L. Freeman and others have reminded us, is quite generally looked upon as a characteristic of mental health).

In this last attempt, however, as distinct from that of Menninger, we can perhaps detect a tendency to get away from the Freudian dualism, and Scott thus comes nearer to those many upholders of homeostatic theories, whose work we have already reviewed and who are obviously disinclined to accept a dualistic standpoint. In view of this we may well ask, Is there any hope of accounting for active pleasures in a way which would be in conformity with the existence of a single universally applicable homeostatic tendency aiming at the reduction of tension? Perhaps the most explicit attempt to do this (though itself, alas, all too brief and vague) is one already referred to in the chapter 'L'Appétit Vient en Mangeant', viz. that made by James Drever (Senior) (1917) in the course of an effort to account for what he calls the 'joy emotions' in accordance with the tension theory of emotion in general. His suggestion was that, in the process of reducing the original tension which gave rise to an emotion, fresh tensions are engendered, which are themselves then rapidly reduced—a mounting general tension being thus accompanied and compensated by a mounting general reduction of tension.

It must be admitted that this suggestion is not without grave difficulties and obscurities. It appears to presuppose at least two sets of 'tensions', the original tensions and those aroused by the process of reducing them. On the tension theory of feeling we might imagine that there would be two corresponding sets of feeling: pleasant feelings accompanying the reduction of the original tensions and unpleasant feelings accompanying the rise of the new tensions.[1] Is there an algebraic summation of tensions and correlative feelings? Must we suppose, in accordance with the tension theory, that, so long as there is 'joy', the reduction of tension is somehow greater than the increase? If so, how is it that the joy emotions can sometimes last a considerable time (and apparently—though with variations in intensity—for quite long periods, especially in some pathological cases)? Is

[1] It is realised, of course (indeed, it is part of the tension theory of feeling), that the greater the preceding tension, the greater the satisfaction in the release, and that there are some types of character which, for reasons connected with their super-ego development, are relatively incapable of enjoying situations in which no dangers, difficulties or inhibitions are involved. For the moment, however, the problem is that of the intimate relations between *simultaneously* occurring increase and reduction of tension.

there some differential hedonic quality in the various impulses and tensions concerned? Is there some subtle but important blending, interaction, or even transformation, of impulses and tensions, as in the puzzling relationship between anxiety and sex—a problem which has confronted psycho-analysts since early days? Or have we to take account of some other factor, such as the anticipation of relief—the factor of future reference which was stressed by Zipf? Or, again, is there, as the present writer has suggested (in the chapter on 'L'Appétit Vient en Mangeant') a process rather of the opposite kind, an attitude in which the total tension is dealt with 'piece-meal', each problem being dealt with successfully as it arises at the moment, the wider and more menacing problem connected with the total situation being to some extent ignored? There is here a multitude of questions to which at present we have no sure answer. Ultimately perhaps mathematically-minded psychologists will be able to construct curves of the various simultaneously rising and falling tensions and on the basis of such curves explain the corresponding feelings. It is clear, however, that much intensive empirical work will be necessary before any such explanations can be regarded as more than airy speculations. Nevertheless in the meantime we may note that rough introspective evidence does give some verisimilitude to explanation along these general lines and that, furthermore, the joy emotions are as a rule very 'mixed' in Plato's sense, in that they contain strong ingredients of unpleasure mingled with those of pleasure, as explanations of this kind would lead us to expect. Perhaps the sexual activities, in which the more urgent the desire the greater is the delight even before orgasm is achieved (a delight in which the simultaneous presence of an intense need is an essential ingredient) afford the clearest example of this sort, but there are many other instances of such combined desire-delight; one thinks naturally of some strenuous and hotly contested game, some dangerous forms of sport or even of certain thrills of warfare which occasionally may enliven the fatigues and boredom of a military campaign.

These joy emotions, together with the active pleasures generally, have—more especially on the conative side—much in common with what I have elsewhere ventured to call the self-sustaining activities—activities which, once started for some reason, develop an interest or pleasure on their own account and may therefore continue (or be resumed after an interruption) long after the original incentive has been removed. Having already dealt in the chapter on 'L'Appétit Vient en Mangeant' with some of the many problems raised by these activities, we need here only remind ourselves that psychology can

now point to many factors which may be at work in their production, though much remains to be done in the way of detailed study of their individual nature and of the relationship and interaction between the various categories that have been suggested. Among these categories may be mentioned:

(*a*) In living organisms assimilation creates potential energy which seeks an outlet and which manifests itself psychologically through 'needs' or 'appetites' arising from proprioceptive and interoceptive stimuli—as opposed to the 'reactive' elements of instincts and desires connected with environmental stimuli received through the exteroceptors. Freud's conception of instinct is primarily 'appetitive', whereas that of some other well-known writers, e.g. McDougall, (1908) is primarily 'reactive'. In most instinctual behaviour, however, both appetitive and reactive tendencies are at work (often in inverse proportion to one another, as when, e.g. in the nutritive and sexual spheres, the stronger the appetitive drive, the weaker the reactive excitation required to produce a response, and *vice versa*). The appetitive elements in behaviour often give rise to apparently 'spontaneous' activities, which do not at first sight fit in easily with a simple homeostatic conception which only takes account of external stimulation, though if this conception is adequately widened to deal with internal stimuli also, there is no *a priori* reason why it should not do so.

(*b*) In complex organisms there is a considerable number of circular activities, as in heart-beat, breathing and locomotion, not to speak of such chain-habits as are involved in every kind of 'repetitive work', in which the completion of a cycle of activity provides the stimulus for recommencement of the cycle.

(*c*) There are many self-sustaining activities of the type exemplified by the proverb 'l'appétit vient en mangeant'. Among these may be mentioned:

(i) those of a sensory kind, as manifested in eating, sex, and perhaps in muscular exercises;

(ii) those of an ideational kind, involving the arousal or 'tapping' of some interest of sentiment (including the ego-ideal or self-regarding sentiment, in virtue of which we may feel it is 'up to us' to complete a task or activity we have begun). Such interests or sentiments no doubt play a part in the resumption of interrupted activities in the experiments of the Lewin school already referred to.

(*d*) Under his doctrine of 'the functional autonomy of motives', G. W. Allport (1937) has brought together a varied assortment of

instances at all levels in which a line of activity once started may tend to perpetuate itself without further reference to the motives which originally prompted it. This is a development of Woodworth's earlier view that 'mechanisms can become drives', a view which has aroused a good deal of controversy. On the purely descriptive level it is easy to find cases which fit in well with the doctrine of 'functional autonomy', though, as Allport himself admits in qualification of his view, this functional autonomy only manifests itself as long as some interest attaches to the relevant activities on their own account, as in the case of some 'skill' that has not yet become completely mechanised and is still in process of perfection. It may be, therefore, that many or all of these instances could be subsumed under (*c*) (ii) above.

(*e*) There are numerous cases which seem to come appropriately under Freeman's heading of 'backlash', in which more energy is aroused by a stimulus than is discharged in the response, this surplus energy then creating a need for some fresh outlet.

(*f*) Quite generally, in the (phylogenetic and ontogenetic) process of finding methods of better adaptation or of maintaining homeostasis under varying external conditions, new capacities and tendencies are developed which increase our needs and—paradoxically at first sight—make it more difficult to achieve homeostatic satisfaction. Three general categories of this kind may be mentioned (though of course other more elaborate and complete classifications could be made):

(i) The capacity for foresight and for altruistic sentiments creates problems and worries which would not be present in an organism whose adjustment is limited to stimuli acting on it at the moment. If present conditions are satisfactory an animal or child may be perfectly contented or may fall asleep, whereas a civilised adult may worry about his own future, the future of his family or the future of mankind.

(ii) Psycho-analysis has shown the difficulties of adjustment in the shape of problems, anxieties and guilt feelings connected with the development of the super-ego, with its high and sometimes mutually incompatible standards, and the complications it introduces in the way of 'need for punishment', etc. Indeed, all neurosis can be looked upon as a failure to achieve homeostatic adjustment due to causes in which the super-ego plays a leading role.

(iii) As psycho-analysis has also indicated, endopsychic conflict often results in the damming up of energy, which seeks a new outlet through some form of displacement, whether this be of a

pathological or of a sublimatory kind. Moreover, as Freud has suggested, these substitute outlets may perhaps never be able to provide a means of discharge as complete and satisfactory as the more primitive one which is inhibited, so that there is in man always an urge towards the discovery of some better channel, some more complete form of satisfaction.

This very rough list of ways in which it would appear that self-sustaining tendencies can be aroused is given here only as an indication of the lines along which it may ultimately be possible to account for the 'spontaneity' of human strivings (and their correlated feelings) without recourse to a dualism such as that implied in Freud's doctrine of the conflict between Thanatos and Eros.

In all these facts connected with the self-sustaining tendencies and with the closely related phenomena of 'spontaneous' activity and 'joy emotion' we begin to see dimly the working of an important principle which, when we have more fully understood it in its many and varied manifestations, may perhaps allow us more easily to reconcile the apparently spontaneous activity and energy of living beings, especially of those high up in the evolutionary scale, with the homeostatic theory of conduct and the tension theory of feeling. In the very process of endeavouring to become better adapted to a variable milieu and thus to preserve their homeostatic equilibrium under a wide range of conditions, the higher organisms—and especially man—develop all sorts of mechanisms, physiological and mental, which make it in many ways more difficult for them to achieve the homeostatic condition which is the very goal of this development. It is relatively easy to adapt to a situation which is bounded by the 'here and now'; but as, in the course of evolution, the organism attempts to adjust itself to an environment which becomes ever wider in terms of space and time, ever greater difficulty is liable to be encountered in the increasingly ambitious task and there is ever greater likelihood of a failure of adjustment to one or other of its increasingly complex demands (much perhaps—though the analogy is not at all a perfect one—as a complicated machine, capable of performing intricate and varied operations, is more difficult to keep in running order than a simpler one). Here we have another paradox, comparable in some ways to the paradox we noted at the end of the last section. It might be called 'the fundamental paradox of homeostasis'. Whereas 'the fundamental paradox of life' consists in the fact that, the better the function of the vital homeostatic processes, the nearer the organism approaches stable equilibrium or death, 'the fundamental paradox of homeostasis' lies in the

tendency for the development of better homeostatic devices to make it more difficult for the organism (owing to its increasingly complex nature) actually to achieve homeostasis. The former paradox relates primarily to function, the latter primarily to developmental equipment. The two paradoxes work in opposite directions; in the first the activities of life lead to inactivity or 'death', in the second the seeking of ever more perfect means for achieving rest and homeostasis leads to increasing activity and tension. Thus the two together constitute an example of those opposing and counterbalancing tendencies or 'laws' which science has so often revealed when it attempts to make generalisations concerning the function of any complex set of phenomena—in the organic as in the inorganic world. Both, however, have to be taken in to account in any explanation of the behaviour of living beings along homeostatic principles, and, though they add to the difficulty of the task, they yet—in their ability to reconcile apparent contradictions—hold out a greater likelihood of ultimate success. Those who seek in homeostasis an all-explanatory principle need not at present abandon hope that their wish may one day be fulfilled; though, in view of the multitude of factors that has to be taken into account and the comparatively little progress we have made in understanding the nature and inter-relations of many of these factors, such a consummation of their wish is unlikely to be achieved in their own lifetime.

V.—The tendency to repetition

The repetition compulsion was introduced by Freud in the *Jenseits* as an aspect of the death instinct and as a principle which was 'beyond' or more fundamental than the pleasure principle, which up to that time had served as the widest formula for conation. True, the pleasure principle already had two meanings, or at least two implications. In one sense it was contrasted with the reality principle (and was therefore in a classificatory sense co-ordinate with it); in another sense it was more fundamental than the reality principle, action according to the latter being conceived of as itself seeking pleasure and avoiding pain—but in a more adequate fashion inasmuch as it takes account of 'reality' and does not attempt to satisfy itself in fantasy. With the introduction of the 'repetition compulsion', the pleasure principle became subject to a new antithesis, and some uncertainty seems to have arisen once again—this time as to whether the repetition compulsion was co-ordinate with or more fundamental than the pleasure principle. Isolated passages in

Freud's works or elsewhere can perhaps be found to support either view, but there seems little reasonable doubt that the repetition compulsion, being 'beyond' the pleasure principle, is from the point of view of general psycho-analytic theory the more deep-lying of the two, and that the pleasure principle should be regarded as a special, and in some ways more developed, form of the repetition compulsion, just as the reality principle is a more developed form of the pleasure principle.[1] The connection of the repetition compulsion with the death instinct is to be found in the fact that 'the inanimate was there before the animate', and that if in 'repeating' we go back to ever earlier levels of development, we shall eventually return to the inanimate condition—which is the aim of the death instinct.

Leaving Freud's formulations for the moment, it would seem that we might profitably distinguish at least four kinds of repetition:

(1) In the first place there is what might be called 'character' repetition, with which psycho-analysts are very familiar in their patients, i.e. the tendency to deal with successive situations along lines dictated by the character or 'complexes' of the person concerned (themselves due to the interaction of his experience with his original instinctual endowment), as manifested in choice of love object, in recurring successes and failures, and in problems of all kinds, personal, professional and libidinal. It is in virtue of the permanent structure of the personality, its sentiments, fears, desires, 'need for punishment', and so on, that men show constancies of this type in their behaviour.

(2) In the second place there are the more specific, cognitive, manipulative or conditioned forms of repetition, as shown in all sorts of 'habitual' or quasi-reflex forms of dealing with more specialised problems and situations. Here again no doubt there is a mixture of 'nature' and 'nurture', though the latter predominates. As Raup especially has emphasised, this dealing with situations in terms of habitual actions affords an immense saving of energy and where profitably applicable (i.e. in really familiar situations) provides a much more rapid way of reducing tension and returning to the *status quo* than would otherwise be possible. We have here at work all the mechanisms of 'learning', 'retention', 'association' and 'conditioning' which very numerous writers have, from the earliest days

[1] Though later on, in Section VII, we shall raise the question whether the hierarchical relation between repetition compulsion and pleasure principle should not be reversed, if we interpret the latter in a wide sense so as to avoid the difficulties it encounters in connection with its implication of psychological hedonism.

of psychological thinking, in their different ways expounded and illuminated.

(3) In the third place we have the phenomena of regression, as studied by psycho-analysts and others. Following Hughlings Jackson, it has been customary to regard the mind and nervous system as functioning on a hierarchy of levels, and when for any reason (e.g. fatigue, nervous lesion, chemical action, or emotional disturbance) the higher and more delicate levels of adjustment are disturbed, there is regression to action on lower, coarser and more primitive levels. The hierarchical levels of structure and function correspond in the main to stages of historical development, so that structural and functional regressions usually coincide with regressions to more primitive and archaic forms of behaviour characteristic of the earlier history of the individual, and it is this temporal aspect of regression with which psycho-analytic studies have been specially concerned.

(4) Fourthly, there is the motive of 'mastery', which Freud in the *Jenseits* first brought into prominence in connection with children's play (where the child seeks to obtain some control over an alarming situation by doing actively what he had previously suffered passively) and terror dreams following traumatic experiences. These at first seemed strange as apparently contradicting the doctrine of wish-fulfilment (even allowing for the well-recognised fact that in dreams and symptoms wishes might express themselves in distorted and disagreeable forms). Perhaps, however, they can be regarded as only particular cases of the general human tendency to return to difficult or unmastered problems in the hope of finding a solution—as exemplified once again in the experiments of the Lewin school on unfinished tasks. There may also be an element of catharsis, though the precise relation of catharsis to 'mastery', either in general or with reference to these special cases, does not seem to have been made a subject of study. In any case however, whatever may be the respective roles of mastery or catharsis, the 'repetition' in question clearly aims at the relief of tension, and thus at the re-establishment of disturbed homeostasis. This aspect of the tendency to repeat may therefore probably be regarded, not as a separate principle in its own right, but rather as a particular instance of action according to the principle of homeostasis or as a particular manifestation of the death instinct.

The same would seem to be true of the other three kinds of repetition we have mentioned. In all three cases repetition is, or at any rate seems to the agent at the moment, the best or only method available for the re-establishment of homeostasis. This process of re-

establishment must work through the individual's character and general experience (1 above) and through his special skills and habits (2 above). It is true that in case 3 the capacities available may be very inferior to those which the individual may normally have at his disposal, but they may still be the best available under the disturbing conditions which affect him. Homeostasis, rather than repetition, is therefore always the fundamental principle, repetition being only a particular means of which the homeostatic principle may in certain cases avail itself.

Here, however, rather by way of parenthesis, we may permit ourselves to add a few comments on the fact that repetition, when thus employed, is far from being always the most effective means. As many authors have pointed out, habit, while it has great advantages from the point of view of immediate economy of effort, has the disadvantage that it tends to limit the individual's adaptability to new situations. It was William James who said, in relation to our liability to become habit-bound, that 'we are all old fogeys by 25', while Spearman (1928) went so far as to attribute all error to the operation of a reproductive process under circumstances which demanded an 'eductive' one. When environmental conditions have undergone a change, homeostasis cannot be achieved by 'repeating' the old habit-conditioned methods of adjustment. A *new* form of adaptation is required, or at least some modification of the old procedures must be made. An example of this with which psychoanalysts are painfully familiar may be found in the need felt by many patients to protect themselves against dangers and difficulties which no longer exist, behaving for instance as though they were still small children who had to obey parental whims appropriate only to a time long past, or who have to make good in some way the deficiences and weaknesses of childhood—as though, in fact, the events of the intervening years had never happened. Similar kinds of 'fixation' or arrested development underlie many of the inadequate adjustments to adult life from which neurotics suffer. From our present point of view they can all be looked upon as examples of inappropriate 'repetition', the individual dealing with new situations in terms of those long past, which he has not sufficiently 'outgrown'.

The disadvantages of the strengthening of inappropriate reactions through habit can also be seen in the generally admitted fact that symptoms of recent development are usually easier to treat than those of long standing—a practical corollary of which finds recognition in the common belief that after an accident it is best, if circumstances permit, to expose oneself again without delay to the situation

in which the accident has occurred: flying, motoring, riding, etc., as the case may be—a point which is emphasised by Allport in connection with his doctrine of 'functional autonomy'. In many cases moreover (especially where symptoms are of long standing) the situation is complicated by a secondary 'epinosic gain' becoming attached to 'repetitions' of an inadequate or pathological kind. As psycho-analysts have shown, this may apply even (or perhaps we should say specially) when the 'repetitions' are of a disagreeable character. They may then serve as satisfactions of the 'need for punishment', or they may attract masochistic libidinal desires (as in the instances, so frequent among masochists, when a feared or actually inflicted punishment, e.g. a beating, becomes almost indissolubly associated with the gratification of a forbidden wish, so that sexual enjoyment can only be experienced in connection with the suffering of pain). In some cases the patient may even devise a system of 'balancing' pleasures and pains, so that all pleasures have to be 'paid for' in some form of suffering—a situation in which painful tendencies to repetition may serve the purpose of providing a ready means of suffering.

Our consideration of the 'repetitive' elements of the death instinct would not be complete without a reference to Ferenczi's very suggestive (though at the same time in some respects highly speculative) contributions to the subject (1922). As regards ontogenesis he has stressed the finding (with which most psycho-analysts would be largely in agreement) that in the later stages of development we tend *mutatis mutandis* to repeat certain characteristics of earlier phases. Thus behaviour at the genital stage may be determined in some of its features by a 'repetition' of tendencies originally manifested in phases where oral, anal or urethral elements were predominant. Seminal ejaculation may be treated as equivalent to giving milk from the breast, it may suffer disturbances in which the influence of micturition (e.g. in ejaculatio praecox) or of anal retention (e.g. in ejaculatio retardata) may be detected. Coitus itself may be a 'repetition', inasmuch as it constitutes an abortive attempt (on the principle of *pars pro toto*) to get back to the mother's womb, while the common 'perversion' of the love bite may also illustrate the same tendency, through the equation of tooth and penis. This doctrine of 'amphimixis' of component instincts gives rise to some interesting problems connected with overdetermination, similar in many ways to those connected with symbolism. It seems as though in passing to a 'higher' level we never entirely give up attempts at gratification at lower or more primitive levels, but that, through the process of over-

determination, gratification of this latter sort somehow creeps in as an undercurrent of the whole higher level activity—a view which[1] Wälder has expressed in his 'polyphonic theory of mental life', and which certainly reveals the enormous influence of 'repetition' in all psychic development.

On the phylogenetic side Ferenczi's suggestions are more daring and go far beyond the facts as they are at present ascertained. He links on the idea of biological repetition to Freud's notion that the repetition compulsion may be a method of dealing with traumatic stimuli. He suggested that instinct itself may arise from trauma (though this is perhaps no more than an extension of Freud's view that instinct arises from an internalisation of external stimuli—a view which corresponds closely to that which had been put forward much earlier by Herbert Spencer), and, pursuing this line of thought, surmised that even life itself was a traumatic occurrence, the damage inflicted by which could only be undone by dying. The traumatic occurrence, however, is repeated in reproduction, so that in this way the maintenance of life—through successive generations—becomes possible. We can also, in Ferenczi's view, trace the process of repetition in certain fundamental correspondences between ontogenetic and phylogenetic development: above all, the phase of intrauterine life in mammals corresponds to the aquatic existence enjoyed by the earliest forms of life, while the process of birth in an individual 'repeats' the phylogenetic process whereby living beings emerged from the sea and adapted themselves to an air-breathing existence on the land.

Ferenczi's 'Essay', breath-taking in its sweep of vision, and partaking as it does of the point of view of the recapitulation theory, which itself has exercised considerable if indirect influence on psychoanalytic thought, is certainly calculated to make us realise the great significance and possibilities of repetition as a descriptive concept. It suggests that, both ontogenetically and phylogenetically, we deal with new situations in terms of those through which we have already passed, by repeating forms of behaviour with which we have reacted —with at any rate success sufficient to ensure survival—on earlier occasions. If we combine the notions of 'repetition' and 'recapitulation' with that of homeostasis, we can say that all these repetitions serve in different ways the purpose of preserving the dynamic equilibrium which shows itself in life. But Ferenczi's suggestions still do little to reinforce the idea that the repetition tendency in general aims ultimately at the 'stable equilibrium' which is death.

[1] See Chapter I.

The tendency to repetition, for all its scope and variety of manifestation, seems still to be subsidiary to the yet more fundamental principle of homeostasis and this latter, as we have seen, tends ultimately to a quiescent, near-death condition rather than to death itself. The reinstatement of earlier situations which results from the tendency to repetition is merely an aspect of the return to the *status quo* which is the essence of all homeostatic behaviour; and, as with the latter, the return to 'the inanimate which was there before the animate' can be regarded at most as a limiting case rather than as an actual result or 'aim' of the repetitive process.

VI.—Aggression and the death instinct

The theory that the death instinct is the ultimate *fons et origo* of all aggression is an outcome of Freud's (1917) discovery of aggression 'turned against the self', a process analogous to one he had already described in the case of the sexual instincts. There can be no doubt as to the great importance of this discovery, which, since it was originally made in connection with the self-accusations and self-punishments of melancholiacs, has thrown a flood of light upon a wide range of psychological processes, including especially the anxieties and aggressions of infancy, the development of the harsher aspects of the super-ego, the restrictions and torments imposed upon the self in asceticism, neuroses and character disorders, and some of the motives operative in suicide. The whole process of aggression turned against the self is so frequent and significant that it surely deserves to be designated by some shorter and more convenient technical term, and I have elsewhere suggested that the word 'nemesism', first proposed by Rosenzweig, should be used for this purpose. Freud's discovery of the turning inwards of aggression was supplemented by the further revelation that this aggression could be turned outwards again against others (an aspect of projection) and that this process was perhaps no less frequent or significant than the other. Freud's next step was to suggest that direction of aggression against the self was the original and most primitive form in which aggression showed itself, that the first change in its direction was outwards, and that the 'nemesistic' turning inwards observable in melancholia and other conditions was only in the nature of a return to its original direction, in which it functioned as an aspect of the death instinct.

It is important to realise that these last two steps—the assumption of the priority of inwardly directed aggression and the identification of this with the death instinct—are inferences or theories, which do

not in themselves enjoy the immense amount of empirical evidence supporting the occurrence of displacement of aggression inwards towards the self or outwards from the self to others. They are theories which, if verified, provide a substantial and illuminating addition to the general conception of the death instinct or stability principle, but which may stand or fall without affecting the fundamental nature of the latter.

From the point of view of modern psychology two main difficulties attend the acceptance of this view of Freud's concerning the ultimate nature of aggression. The first difficulty—in the opinion of the present writer definitely the less important of the two—is indeed a very modern one, having only become prominent in psychological literature in quite recent years (though it depends on etymological implications which were present from the earliest use of the word). 'Aggression', from the Latin *aggredior* and *aggressus*, means literally a 'going towards' without any definite implication as to the purpose of the approach, and on realising (largely as a result, direct or indirect of the psycho-analytical discovery of the widespread prevalence of 'ambivalent' attitudes) that there was an element of hostility in many forms of activity, even in those of an apparently loving or constructive kind, some psychologists have tended to widen the meaning of the term, so as to apply it to all kinds of active interference with the environment, or at any rate to all kinds of 'adient' (as distinct from 'abient' or 'avoidant') behaviour. Constructive work or active love-making would thus be 'aggressive' no less than destructive fury or hate-impelled attack. But this, while doing justice to the great significance of ambivalence, still leaves us with the obvious practical need of distinguishing (however arbitrarily we may draw the line) between behaviour which is primarily constructive or loving and primarily destructive or hostile, and if we are to retain the word at all in making any such distinction we must qualify it in some way. Thus, to take an example of a writer who has faced this problem, Ben Karpman (1950) asks us to distinguish between primary and secondary aggression. The latter, he holds, is due to frustration (the problem which constitutes the second of our two above-mentioned 'difficulties', to which we shall turn in a moment). The former is an integral part of our instinctual life, it is 'instinct in action', it is 'coeval with life', indeed 'it is life itself' and expresses itself in 'reaching out' for what the organism needs. Such a conception as is here adumbrated by Karpman might be considered to constitute a doctrine of 'panaggressiveness' comparable to the 'pan-sexualism' of which at one time Freud was (falsely) accused. Freud was always a dualist as

regards the fundamental sources of instinctual energy, and though this view of aggression may be compatible with many aspects of his death instinct, it differs from it radically inasmuch as it is not contrasted with Eros or libido and allows no place for these in the total scheme of human endowment. Karpman is indeed rather vague as to how love comes about, though he does suggest that the role of society is to control aggression and lead it into constructive rather than destructive paths, anxiety playing a part in this transformation. On the whole, however, it would seem that to adopt any such doctrine of pan-aggressiveness is to allow too much weight to the (doubtless very real) facts of ambivalence and that it is more helpful to confine the term 'aggression' to its more usual meaning as signifying a predominantly hostile attitude. And indeed, to do justice to Karpman, he admits that he is here, as it were experimentally, seeing how this wide conception of aggression works and that he could just as well consider behaviour from other points of view, e.g. of tension, frustration, or guilt.

In this more usual meaning aggression takes its place along with one or more other instincts or fundamental tendencies. There then arises, however, the second of the two difficulties referred to, i.e. the view held by numerous psychologists (starting perhaps in the modern period with its clear enunciation by McDougall and leading up to the work of Dollard and his collaborators (1944)) that aggression is a reaction to frustration. According to this view it differs somewhat from other instincts as regards the circumstances of its arousal, inasmuch as it is not primarily connected with any particular appetite or physiological need (such as is the case with hunger and sex) or with any particular kind of outer object, but is brought into play (as an additional energising force) when the operation of any instinct or impulse meets with interference. It then generates hostile and destructive tendencies against the interfering object. It is thus, according to this view, essentially a reactive instinct, though when aroused it may receive powerful secondary reinforcement from appetitive sources connected with the function of the endocrine glands (particularly, as Cannon has shown, from the adrenals) stimulated by combative emotion. In this, as well as in other ways, it contrasts not only with the 'pan-aggressive' theory just mentioned, but also with Freud's view, according to which aggression is essentially 'appetitive', i.e. connected with forces (ultimately in this case self-destructive forces) developed within the organism quite independently of outer stimuli.

This frustration view of aggression is a very formidable rival of

Freud's theory, in virtue both of the indisputable facts pointing to a close connection between frustration and aggression and of its supposedly less pessimistic implications. In our present age, in which mankind has suffered so disastrously from its own violence, it is hardly surprising that some are beginning to see in aggression a great menace to the welfare or even to the continued existence of humanity (though there are not wanting others who, with considerable show of reason, contend that aggression *per se* is not the only or sufficient cause of 'man's inhumanity to man'). If aggression depends entirely on frustration, there is some hope that by diminishing unnecessary frustrations we can reduce aggression and the evils which flow from it (though it has also been pointed out that unavoidable frustrations will still remain so numerous that, even if the frustration view expresses the whole truth, there will still be ample occasion, perhaps especially in infancy, for the arousal of a very considerable measure of aggression). If, on the other hand, Freud is right and a large and irreducible quantity of aggression is inherent in man's nature, is indeed in the form of the death instinct one of the two fundamental principles of organic existence, all hope of diminishing this (perhaps fatal) aggression must be vain, and we can at most endeavour to provide for relatively harmless channels for its expression (either of the nemesistic or externally directed kind) and ensure that there are opportunities for its becoming adequately mixed with Eros.

At any rate, if Freud's view is to be upheld, it must somehow come to terms with all the facts connecting aggression with frustration. This may not be impossible, but the task has not yet been seriously attempted, so that it is not to be wondered at that the majority of psychologists at the present time are inclined to adopt the frustration theory, which seems both better supported by existing evidence and perhaps somewhat more optimistic in its implications.

Here again we come across the fundamental difficulty of finding unambiguous manifestations of the death instinct—here in its aggressive aspects, as before in its self-annihilative aspects. We have, it is true, advanced a little when we come to deal with these aggressive aspects. In his earlier presentations Freud maintained that the death instinct was 'silent'. Later he recognised that after all it had a voice, and that its voice was that of aggression. Nevertheless there is still a difficulty to be met. Admittedly, the manifestations of aggression are evident enough—most painfully so to the present generation—but the most obvious of these manifestations are directed outwards, and even when aggression is clearly turned against

the self, this seems in most cases to be the result of a redirection of what had previously been outwardly directed aggression. It is still difficult enough to find the supposed primary condition of aggression embedded in the death instinct.

The proof of the pudding is in the eating, and, without going into the vexed question of the pragmatic criterion of truth, we must at least admit that the test of the usefulness of a scientific theory lies in its power to explain and illumine known facts and to suggest new lines of observation and experiment. On the whole it would seem that in the thirty-odd years which have elapsed since its formulation the theory of the death instinct—in its relation to aggression, as in its other aspects—does not emerge very creditably from this test. In this it contrasts with the principle of stability or homeostasis, which, though not without its difficulties when proposed as a fundamental law of all conation, has yet proved its usefulness in the hands of many thinkers and observers as an explanatory principle applicable to a vast array of facts. In itself the death instinct has suggested few if any new methods of approach and in general it has done but little to help in the interpretation of the data obtained by psycho-analysis or any other method, and even in the general body of psycho-analytic theory it has to a large extent played the part of a static and apparently inessential background rather than that of a property or tool in constant use, such as is the case with most of the other theoretical conceptions of psycho-analysis.

There are, it is true, a few cases in which psycho-analytic writers have endeavoured to make use of it, and although in some instances these applications might seem striking, if the death instinct were already better established on other grounds, they are in themselves hardly yet sufficient to convert those who are sceptical. We may briefly mention four such attempts by way of illustration. We have already referred to Jekels' and Bergler's suggestion that sleep differs from death in virtue of the fact that in the former Eros transforms into a pleasant, restful and recuperative process what, if Thanatos had its way, would be a complete and permanent withdrawal, equivalent to death. The same authors have suggested a rather more elaborate hypothesis (1934) concerning the two aspects of the super-ego (ego-ideal, corresponding to 'thou shalt', and Daimon, corresponding to 'thou shalt not'). In the course of development the ego tries to defend itself against the self-destructive tendency of Thanatos, by turning Thanatos' aggression against outer objects. By a second effort to control this destructive trend, Eros in its turn incorporates

these objects, which then become (internal) objects of the individual's own narcissism and form the core of his ego-ideal, inasmuch as the ego has now to live up to the standards of these objects. By a further hypothesis, this incipient ego-ideal makes use of 'the fund of undifferentiated energy' which Freud had postulated (in *The Ego and the Id*, p. 61). Thanatos and Eros then struggle to gain control of this undifferentiated energy; in so far as Eros succeeds we have the more positive and kindly aspects of the ego-ideal, in so far however as Thanatos prevails, we have the harsh and destructive elements of the super-ego, the Daimon. I have doubtless failed to give in these few words an adequate summary of the authors' picturesque and fascinating treatment. It is, however, clear that this treatment displays *in excelsis* the tendency to personification and 'anthropomorphism' which so many critics have complained of in psycho-analytic theory; it is a striking, one is almost inclined to say heroic, attempt to apply the concepts of Thanatos and Eros to the very real problem of the origin and nature of the two aspects of the super-ego. But I think that many psycho-analysts would agree that this problem can be, and indeed has been (e.g. in such full dress expositions as those of Odier (1943), Richard (1946) and the present writer (1945)), dealt with just as plausibly and in a way that is in much closer contact with the known facts of development, without resort to the somewhat mythical figures of Eros and Thanatos at all.

The boldest, most thoroughgoing and most persuasive exponent of the death instinct in its clinical, as in some of its other manifestations, is Karl A. Menninger, to whom we have already referred in Section IV, and who in his two books *Man Against Himself* (1938) and *Love Against Hate* (1942) wholeheartedly adopts Freud's Eros—Thanatos dualism. In his view the whole course of life represents a continuous struggle between these two opposing forces. In the end Thanatos is always triumphant, so far at least as the individual is concerned, but the final victory can be postponed, and while life lasts its tendency towards destruction, of the self or others, can be neutralised by Eros. Menninger in fact gives full and detailed substance to the 'tragically grand' but 'terrible' conception which so deeply impressed Percy Nunn when the doctrine of the death instinct was first formulated. In Menninger's own words at the conclusion of *Man Against Himself*, 'Our final conclusion must be that a consideration of war and crime, no less than of sickness and suicide, leads us back to a reiteration and reaffirmation of the hypothesis of Freud that man is a creature dominated by an instinct in the direction of death, but blessed with an opposing instinct which battles heroically with varying success

against its ultimate conqueror. This magnificent tragedy of life sets our highest ideal—spiritual nobility in the face of certain defeat. But there is a lesser victory in the mere prolonging of the game with a zest not born of illusion, and in this game within a game some win, some lose; the relentlessness of self-destruction never ceases. And it is here that science has replaced magic as the serpent held high in the wilderness for the saving of what there is of life for us. Toward the temporary staying of the malignancy of the self-destructive impulse, toward the averting of a premature capitulation to Death, we may sometimes, by prodigious labours, lend an effective hand'. He traces the course of the struggle in its various forms. Suicide, he considers, is due to a sudden flare-up of the death instinct when object relations have been broken, so that love has temporarily lost its power and or aggression is deprived of its habitual channel of external direction. Other less drastic forms of death or destruction, such as asceticism, martyrdom, crime, alcoholism and disease, represent a relative victory of the death instinct, which thus induces in its victims a state of 'living death'. All this is illustrated by a wealth of material culled from clinical, biographical and historical sources, while even in conditions of what might appear to be exuberant vitality the death instinct, it is suggested, manifests itself in dare-devilry, dangerous sports (such as mountaineering) and many other forms of gratuitous aggression, nemesistically or externally directed.

Menninger has certainly made a great contribution in endeavouring to familiarise us with the death instinct in its protean manifestations and in attempting to use it as a source of illumination for the whole gamut of human psychopathology, while at the same time bringing it into vivid contrast with Eros, which is the hero, as Thanatos is the villain, of the drama of life as he sees it. To a greater extent perhaps than any other author, he uses the concept as a fundamental explanatory principle in psychology and medicine. Nevertheless, as regards the special point under consideration in this section, it is still, I think, possible to harbour doubts as to whether he has successfully demonstrated that the death instinct is the ultimate source of all aggression. He very fully admits the importance of such generally recognised factors as frustration, guilt, inferiority, etc., as also of the secondary erotic investment of aggression, both in its self-directed and externally directed forms, though he believes that in every case the original death instinct adds its force to these, and indeed constitutes their ultimate foundation. But for all his eloquence and detail, he modestly admits (e.g. *Man Against Himself*, p. 79) that this is still 'only a hypothesis', and as long as this most valiant and

consistent upholder of the theory confesses that he is not yet in a position to offer cogent proof, we cannot with certainty identify aggression with the death instinct in the way that Freud's formulation demands.

Shorn of their theoretical foundation in the death instinct, Menninger's data and his eloquent statement of the struggle between love and hate, can, one feels, be gratefully accepted by many who still hold that aggression is primarily reactive and only secondarily turned against the self (as one of its many possible forms of displacement)—in fact by upholders of the frustration theory of aggression. The death instinct theory of aggression has undoubtedly, here once again, a more vivid emotional appeal and is more 'tragically grand', but we must still beware lest we allow our scientific judgment to be prematurely carried away by the sense of the sublime which this theory in its all-embracingness so easily arouses.

Another very remarkable attempt to use the concept of the death instinct in connection with clinical findings is that by which Melanie Klein has endeavoured to illumine her well-known views concerning the origins of anxiety and guilt in early childhood (1937 and 1948). She here assumes a fundamental struggle between the life and death instincts in the young child. In virtue of the life instinct the child loves those who minister to his needs, but when the death instinct is directed outwards its aggression is turned against these very loved-ones, and (as a result of the 'omnipotence of thought') he develops anxiety lest through this aggression he should have killed or irreparably harmed them. He then makes attempts at reparation in the hope of undoing the damage occasioned, and these attempts are a manifestation of love—of the life instinct. The death instinct, through its destructiveness when directed outwards, is thus ultimately responsible for anxiety, though in this connection two kinds of anxiety are distinguished: persecutory anxiety, for which apparently the co-operation of love is not necessary, and which is manifested when the objects of the child's aggression threaten, as it seems, to retaliate; and depressive anxiety (with a strong element of guilt) when harm has supposedly been done to loved objects. All this may happen, it would appear, in the early stage when the objects concerned are 'part-objects' rather than whole persons. But at the later stage when the child is dealing with whole persons, there may be an additional element of anxiety due to the tendency of the death instinct to split up and disintegrate these persons, whom, of course, in accordance with its general trend, the life instinct endeavours to preserve 'whole'. Similarly, within the child himself, the death

instinct tends to produce 'splittings', dissociations and separations, e.g. into good and evil, the life instinct combating this tendency with its synthesising function, thus working towards an integrated ego which can tolerate both good and evil and see them as parts of a whole both in the child's own person and in others.

Certainly there are here some striking applications of the life and death instincts in their relation to aggression, and this author who has made such signal (though still to some extent disputed) contributions to child psychology has done her best to integrate the concept of the life and death instincts into the total picture of development as it had already emerged from her studies. But again, much as in the case of Jekels' and Bergler's contributions, the life and death instincts may seem perhaps to many to have been fitted as best they can into the facts and theories rather than to have provided a happy natural synthesis. Here again we can hardly help feeling that the known facts could be explained as well without them. Meanwhile, however, we cannot but be grateful to Klein and other authors who have made such attempts, which in time may show themselves to be precursors of more successful efforts to illumine our clinical findings by a great and fundamental truth (the origin of aggression in the death instinct) which Freud in his unique insight had divined long before we were able to make full use of it; or which, alternatively, may lead to a discarding of what eventually will have proved to be an unjustified and misleading identification, representing perhaps, as Ernest Jones (1940) has suggested, 'the only example in Freud's mental life where internal resistances [to the recognition of externally directed aggression in its own right] that had not been completely overcome may have played a part'.

VII.—The Life and Death Instincts as a Dualistic Hypothesis

These last considerations have led us to the threshold of our final subject: the contrast of Eros and Thanatos as the basis of a fundamentally dualistic conception of life and mind. This dualism is only one (though a very original and arresting one) of the many kinds of dualism to which those who reflect seriously on the nature of mind, life, and the universe in general, have at various times and in various connections found themselves compelled to resort. It is also the final outcome of a series of dualisms which Freud himself had formulated during his career.

As regards the general tendency to dualism as manifested by

thinkers through the ages, there is a number of important ways in which, as soon as they begin to philosophise, men find themselves confronted with a certain apparent duality in the world. There is the duality of the organic and the inorganic, that of mind and matter, that of free will and determinism, and when these thinkers begin to psychologise they become aware of yet another form of dualism within the mind itself, as revealed in intra-psychic conflict. The various dualities, moreover, clearly have some relation to each other: life, mind, free will, 'higher' and more conscious or rational motives, seem in some respects to contrast with the opposite terms of inorganic, matter, strict determinism, 'lower' and less conscious or more instinctual motives. These contrasts lead to opposing philosophical systems which can roughly be classified as vitalistic or mechanistic, according to whether a greater emphasis or reality value is placed upon one or other side of the contrasting dualities. But the philosophical problem is complicated by the fact that the various dualities concerned are not clear-cut. There are obvious similarities, chemical and even behavioural, between living and non-living objects. The mind is obviously connected with the body, especially with the sense organs, the nervous system and the brain. Free will is clearly limited in some way by the possibilities of action imposed by bodily structure and function and also by past mental experience (which determines the various lines of action which 'occur' to the actor as being possible and from which he can select). Finally, with the introduction of the notion of unconscious mental life, it becomes apparent that the 'conscious' and the 'unconscious' interact, neither being completely independent of the other.

The connections and relations between the two terms of the various dualities play into the hands of a need for simplification or unification which is a fundamental characteristic of the human intellect (no doubt itself a manifestation of homeostasis or least effort), so that in the history of thought—both in the race and in the individual—there is revealed a certain struggle between the conflicting claims of dualistic and monistic interpretations, some minds being more impressed by the differences, others by the resemblances concerned.[1]

[1] This raises a fascinating problem in the psychology of philosophers into which we cannot enter here, though we may perhaps be allowed to suggest in passing: (*a*) that in terms of the conceptions of Freud which we have been considering we might imagine that Eros, here as elsewhere, exerts a unifying tendency, while Thanatos tends rather to a clearer separation; (*b*) that the preference for a dualism may be connected with an intolerance of ambivalence, which manifests itself in 'splitting', projection, and certain other mechanisms known to psycho-analysts.

Among the writers we have already mentioned and certain others who have been concerned with the problems at issue, Freeman tends to adopt a mechanical-behaviouristic monism, his chief working concepts being physiological, while the Gestalt writers and the cyberneticists seem, wherever possible to interpret mind and action in terms of physics. Zipf's monism, on the other hand, is primarily psychological and he seems to have no difficulty in regarding foresight, purpose and 'least effort' as the mental representatives or equivalents of a fundamental physiological and physical principle. At the opposite extreme from any kind of monism we find such a writer as McDougall, who is convinced that psychology must deal in terms of unadulterated teleology, is suspicious of any attempt to explain mental events by what he calls 'crypto-mechanistic' concepts, and who is therefore an unrepentant dualist. Bernfield and Feitelberg, Kapp, and Penrose also, after a careful examination of the relation between entropy and the death instinct, all conclude that the latter can hardly be looked upon as a biological or psychological aspect of the former. Those who, like Bergson, Jung, Shaw or Wells, think in terms of élan vital, libido or the 'life force' would fall into the same category so far as dualism is concerned. There are, however, other writers, like Fechner and Höffding (1904), who are strongly conscious of and strongly attracted to both vitalist and mechanist approaches and who seek to solve the resulting conflict by a sort of fusion, as Höffding did in his pan-psychic monism, and Fechner attempted both in his formulation of the stability principle and in his better known work on psycho-physics (which was intended to bridge the gap—to him the painful gap—between the physical and mental worlds). Finally there are some, like Spencer and Cannon, to whom the antitheses concerned do not seem embarrassing, who pass easily from one set of terms to the other and who might perhaps be said to slur over what to others appear most vital distinctions, being satisfied if they can apply a single formula (such as evolution, equilibrium, homeostasis) to phenomena on either side.

Freud also, with his early interest in physiology and his subsequent adoption of the psychological viewpoint, was obviously conscious of the dualities which we have mentioned and which to some extent he attempted to bridge by his resort to Fechner's stability principle. But he never allowed the classical dualities to cause him much embarrassment. True, he remained a confirmed dualist, but his dualism is always found *within* the mind.[1] In this field, however, he

[1] In this tendency to displace the dualism to a position within the mind (or at least to find a second dualism there) Freud is not alone. Thus with Bernfeld

elaborated a whole succession of dualities, indicating perhaps that the discomfort which Fechner had felt so acutely concerning the distinction between mind and matter, had with Freud been displaced to another sphere. In his early psycho-analytic writing there was the contrast between libido and the ego instincts (which he himself compared to Schiller's 'love' and 'hunger'). Later came the distinction between narcissistic libido and other forms of libido, the ego sinking into the background for a time. Still later that between the ego-ideal (or the super-ego) and the id, though this was complicated by the re-emergence of the ego as a part of the mind which gradually took on an increasing importance (even though it was condemned to make the best compromise it could between the demands of three hard taskmasters, the id, the super-ego and reality). Later yet there arose the new duality of life and death instincts, of Eros and Thanatos, with which we have been here concerned. Meanwhile there had already been for long the distinction on other lines between the pleasure principle and the reality principle. And finally there was another dawning distinction between the ego-ideal and the super-ego —a distinction never very clearly drawn by Freud himself, but emerging obviously from his account of the former in *Narcissism: an Introduction* and his treatment of the latter in *The Ego and the Id*, and which has subsequently been emphasised by certain other writers, such as Jekels and Bergler, to whom we have referred. Yet further problems arise in connection with the various aspects of Thanatos (with which we have been dealing in this paper), their relations to the opposite characteristics of Eros and to the various previous formulations generally. Since Freud himself never undertook a final revision of his theories in relation to these various dis-

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and Feitelberg the refusal to identify the death instinct with entropy is supplemented by an additional (intrapsychic) dualism between the love and hate tendencies—a dualism which in its main lines is to be found in many other writers, both inside and outside the psycho-analytic school, though each dualistic system has its own special features. That of Simmel will be referred to below. Yet another interesting example of intrapsychic dualism—one that obviously mirrors the mechanist-vitalist distinction—is that of Lichtenstein (1935) who distinguishes the quasi-entropic tendencies undoubtedly exhibited by living matter from the instincts, which (according to him) work *against* entropy, and the ultimate aim of which is a state of continuous (i.e. timeless) life at its highest level—such as that enjoyed by the Olympian gods. The nearest approach to this which is available to mortals lies in the process of repetition (e.g., as an extreme example, orgasm cannot be prolonged but can be repeated), which, in contrast to Freud, he considers to be quite different from the process of regression—which latter is not, like repetition, periodic in character, but resembles rather a continuous tendency to entropy. Thus we might say that (all) instinct is a repetitive life process, while regression is an entropic death process.

tinctions, there is little wonder that certain later writers have found (with Orr (1946) for instance) that 'the situation becomes altogether somewhat confused' and have sometimes drawn varying conclusions as to the nature of these relations.

Let us, in the hope of achieving some greater measure of clarity, examine the relationship of the death instinct concept and of the Thanatos-Eros antithesis to the other Freudian dualistic conceptions we have mentioned.

In the first place, it would seem that the Thanatos-Eros antithesis entirely replaces the (now long obsolete) ego instincts-libido dualism.

The antithesis between narcissistic libido and other (alloerotic) forms of libido remains as a useful distinction within the field of Eros—just as does the distinction between the aspects of the libido connected with the various component instincts.

These latter, however, raise a problem in our present connection to which Simmel (1944) has drawn attention in the course of proposing an alternative theory of aggression. Starting from the well recognised psycho-analytic finding that the pregenital component instincts are more charged with hate and ambivalence than the genital ones, he suggests a division between hate and love largely based on this distinction. Aggression, according to his view, is part of the self-preservative instinct, the ultimate seat of which is the gastro-intestinal tract and which achieves satisfaction by devouring. There is continuous conflict between the more primitive and aggressive gastro-intestinal primacy and the later developing genital primacy. We might object to Simmel's formulation that it is too simple, inasmuch as there is surely muscular and probably genital aggression also (Bálint (1948) has recently shown how many unresolved problems still attach to our notion of genitality). But his contentions do point to the need of clarifying the relations between Freud's later theory of aggression as stemming from the death instinct and the earlier findings concerning the greater aggressiveness of the pregenital component instincts. In the case of masochism Freud himself of course attempted such a revision when, reversing one of his earlier views, he suggested that masochism was developmentally more primitive than sadism, as being nearer to the self-destructive aim of Thanatos. Moreover, his views on sadism and masochism as manifesting fusions of Eros and Thanatos would seem capable of application to other component instincts also; and if we allow for the proportions being different in these various instincts, the problem raised by Simmel's theory would seem capable of being satisfactorily met in terms of the Eros-Thanatos dualism.

As regards the distinction between the super-ego (and ego-ideal) and the id, the matter may be a little more difficult, though on the whole it seems fairly clear that both super-ego and id contain elements of both Thanatos and Eros. If with some authors we distinguish between the Daimon (the more prohibitive aspects of the super-ego) and the ego-ideal (the more positive and helpful aspects), we can say that in the Daimon the proportion of Thanatos to Eros is greater than in the ego-ideal, or we might (if we feel justified in making so clear a division—though it is questionable whether we have as yet empirical support for so doing) even say, with Jekels and Bergler, that the Daimon is exclusively 'thanatic' and the ego-ideal exclusively 'erotic'. As regards the id, we might at first feel inclined to say that Eros is far more prominent than Thanatos; for, even though the id may often reveal an embarrassing quantity of aggression, it is yet sometimes difficult to conceive of it as aiming at death or stability. But on further reflection it becomes clear that tendencies contained in the id also in the last resort seek relief of tension and thus can qualify as manifestations of the stability principle and therefore (on Freud's view) of the tendency to die. What difficulty there is here is connected with the fundamental problem as to whether homeostasis, stability or death instinct can provide an adequate account of life as a whole. On Freud's theory, however, we can to some extent evade this problem by admitting the participation of both Eros and Thanatos in the workings of the id.

Coming now to the antithesis of pleasure principle and reality principle, we must in the first place note (once more) that in Freud's view the difference between the two terms of this antithesis is one which concerns method of working rather than fundamental aim. It seems likely, moreover, that Thanatos and Eros here play no differential roles, neither of these latter being obviously less 'realistic' than the other. When we come to consider the nature of the more fundamental element of pleasure seeking and pain avoiding that underlies both the pleasure and reality principles, things are not quite so easy. The theory of psychological hedonism, as we saw earlier, has to meet the difficulties raised by the now more popular 'hormic' theory based on the view that feeling is determined by the success or failure of conation. Moreover, as we have also seen, if—as seems permissible and indeed not unusual—we combine the hormic theory with the 'tension' theory, it is actually a good deal simpler to fit in the 'stability' aspects of the death instinct with the hormic than with the hedonistic view—Freud's apparent espousal (or perhaps we should say retention) of the latter being, it would seem,

rather in the nature of an anachronism connected with the historical development of his thought. We can perhaps evade this difficulty (though at the cost of employing a misleading terminology) by slurring over and not taking too seriously the 'hedonistic' implications of the 'pleasure principle'—in the way that psycho-analysts and others have sometimes done in similar cases. But even if we do this, there still remains the difficulty connected with active pleasures and the 'joy emotions'. This in turn can be met by saying that they are manifestations of Eros—though here again some of us will be left with the disquieting problems inherent in any such dualistic explanation.

And there is yet one further difficulty in connection with the relation of the death instinct to the pleasure principle. This, which has already been raised by certain writers and to which we ourselves have already alluded, concerns the aspect of 'repetition'. What is the relation of the repetition compulsion to the pleasure principle? Freud seems to consider that it is 'beyond', i.e. more fundamental than, the pleasure principle. But in coming to this conclusion he was probably influenced by the implications of the word 'pleasure', which suggests a conscious and relatively 'high' level of mental functioning, whereas repetition in many of its aspects can take place at a 'lower', more automatic and less conscious level. If, however, once again, we do not stress the 'hedonistic' implications of the pleasure principle and equate 'pleasure seeking' with reduction of tension, then the relation between the repetition compulsion and the pleasure principle might seem to be reversed, inasmuch as repetition is only a particular method of attempting to reduce tension, which latter is the more embracing tendency, manifesting itself at all levels, from the lowest 'repetitions' and automatisms to the highest flights of invention, reasoning and reality thinking.

The really basic difficulties arising both in a confrontation of the Thanatos-Eros dualism with the earlier psycho-analytic dualisms and in considering this dualism in itself seem connected with: (1) the notion that Thanatos is the ultimate source of aggression; (2) the notion of the 'death instinct' itself, in which both words arouse controversial problems; (3) the fundamental concept of 'stability' or 'homeostasis'. We will take a further and final glance at these in concluding our review.

(1) The contrast of Thanatos (looked at as aggression) and Eros is straightforward enough, corresponding as it does to the more familiar distinction between hate and love. But we have already seen how

difficult it is to deal with the objections raised by the alternative frustration theory of aggression. Moreover, when we take into consideration the 'stability' aspect of Thanatos, there seems no adequate reason why aggression should have a closer connection with stability than any other instinct or impulse. Here again we meet the great so far unanswered question, Does Eros also seek relief of tension and stability (and therefore death)? And are we justified in supposing that aggression is more closely identified with the homeostatic tendency than any of the impulses connected with love?[1]

(2) Is the death instinct really the psychological equivalent of the physical notion of entropy or equilibrium or the physiological notion of homeostasis? Orr is probably voicing a question which rises in the minds of many of Freud's readers when he asks in effect: Why this 'jump' from the 'principle of stability' to 'death', and from 'the conservative nature of instincts' to 'destruction'? The problem becomes all the more acute when we realise that most other authors who have applied 'homeostasis' or some similar concept to the workings of the mind assert or imply that homeostasis subserves the purposes of life—conceived as the maintenance of a dynamic equilibrium. The answer, so far as it can be given, would seem to be along the lines we have already indicated: paradoxically enough, the more successful is this homeostatic life process in preserving equilibrium (the smaller are the disturbances of equilibrium and the departures from the *status quo*), the nearer does the dynamic equilibrium approximate to the condition of stable equilibrium, to that complete cessation of vital process which we call death. Spencer, Fechner and Freud have all in their different ways called attention to this basic tendency, which we have suggested might be called 'the fundamental paradox of life'. Here, if anywhere, lies the justification for making the 'jump' of which Orr complains. We might of course still question whether the term 'death', vivid and compelling as it is, is not also somewhat misleading, inasmuch as: (*a*) while life exists the process is never complete, following at best (as we suggested above) an asymptotic curve, (*b*) bodily death is in most cases followed by a rapid process of disintegration, whereas the kind of 'death' at which the stability principle and the death instinct may be said to aim is rather the permanent immobility and long persistence of inanimate objects (which are less quickly disintegrated than is organic matter). Nevertheless, many scientific laws refer to tendencies which are never fully actualised, and which are counterbalanced by other tendencies subsumed under other laws. A law or

[1] Menninger, as we have already noted, appears to reverse this relationship.

principle which refers to a limiting case may be justified and useful in psychology as in the other sciences, and the death instinct, if we bear in mind its limitations, may well claim to enjoy the same favour as is accorded to these other laws.

If we grant this, we may still, as certain authors have done, question the appropriateness of the term 'instinct' in this connection. This term has given rise to so many disputes in recent years that we might well wish to avoid it if we can. It is not easy however to find a really satisfactory substitute. The particular verbal objections brought against the 'death instinct' seem to depend upon two lines of thought, not always made explicit: (*a*) In psycho-analytic literature and in psychological writing generally the term 'instinct' is often used to designate tendencies of various grades of generality. Thus we talk of the component instincts and also of the sex instinct, which latter, in some respects at least, includes all the former. The term 'death instinct' seems perhaps even wider in its significance. Should not 'instinct' be reserved for more specific tendencies—tendencies a *little* nearer at any rate to the 'compound reflex action' of Spencer and the 'conditioned reflexes' of the behaviourists? (*b*) At the back of the minds of the objectors is once again the old problem, Do not homeostasis and the stability principle apply also in the last resort to sex and love and the constructive tendencies? If so, have we not to do with a wide *principle*—indeed perhaps an all-embracing principle—rather than anything that can properly be called an instinct? From Freud's own point of view however, his use of the term seems not altogether unjustified. As regards the classification of instincts there have always been, as McDougall said long ago, 'slumpers' and 'splitters', the former reserving the term for a few broad tendencies, the latter using it in connection with a greater number of narrow well-defined types of behaviour. Freud was one of the great slumpers, and in *Jenseits* was definitely engaged in formulating a dualistic conception of the fundamental vital tendencies. From this standpoint the use of the term 'death instinct' for one side of the duality (the 'sexual instinct', 'libido', or 'life instinct' being the other) is understandable and is hardly liable to cause confusion. Nevertheless, Freud's occasional use of the term 'Death' (*Tod*) in a personified way to contrast with Eros (as already mentioned it seems doubtful whether he ever employed the term 'Thanatos') perhaps shows that he himself was not altogether easy even with regard to the use of the less contentious German word *Trieb* and that he too would have raised no great objection to the substitution of 'principle' for 'instinct'.

(3) Again and again we come back to the problem in one form or another, Is homeostasis or any equivalent formula adequate to explain life and mind? Are our innumerable activities, efforts and ambitions really of such a kind that they can be subsumed under some 'principle of least effort', or do they not imply some new and further principle, of activity, of foresight and purpose, which is not present in the inorganic world? This is the most fundamental question of all, and if we had the true answer we should presumably be appreciably nearer to possessing a master key to the understanding of the ultimate nature of all life. Briefly and baldly we may say that three answers have been suggested:

(*a*) We may, with the vitalists and with McDougall (1929), reply with an emphatic 'No' to the first part of the question. Life, we should then say, is activity based on purpose (however dimly apprehended it may sometimes be) and this can never be reduced to any physical principle. McDougall, it is true, admits dynamic equilibrium, but says that this is seldom found in the inorganic world except in machines made and devised by man (apparently in his own image), though he rather grudgingly admits exceptions in the case of tops (themselves artifacts, if not machines) and whirlwinds. If we accept this position, we may reasonably suggest that the whole search for principles common to mind, life and the behaviour of inorganic matter is misleading and a waste of time, is indeed in the nature of an obsessional compulsion which can never be satisfied, since it seeks to bridge differences which are essentially unbridgeable.

(*b*) We can, with Freud and certain others, adopt a dualism within the mind, and say that one aspect, component or instinct (Thanatos) does obey a principle which is similar to, or indeed ultimately the same as, that of 'stability' or 'entropy', while another aspect (Eros) displays characteristics which—at any rate for the present—do not admit of this reduction and which are akin to those recognised and stressed by the vitalists. Like most compromises, such an answer implies much capacity for tolerance, and, as we have seen, is only too liable to give rise to discomfort and dissatisfaction. It seems likely indeed that Freud himself never quite faced the full implications—intellectual and emotional—of his dualism.

(*c*) Finally, we can attempt a monistic solution by endeavouring to show that 'purpose' and vital activity generally are but higher and more complex manifestations of the laws of homeostasis or entropy, that even in the highest flights of human intellect and emotion we can detect the same fundamental tendency to stability and equilibrium which is evident in the simplest phenomena of life and even in the

'behaviour' of inanimate objects. And, pursuing this line of thought, we must, I think, if we are consistent, admit that the more successful are the vital processes in achieving their essential homeostatic tendencies, the nearer they lead the organism to a condition of 'complete' or 'absolute' stability, herein lying 'the fundamental paradox of life'.

As between these three alternatives (or any others which may be proposed) in the present stage of our knowledge it will, I think, be temperament rather than any profound intellectual conviction which finally decides our choice.

VIII.—Summary of principal conclusions

The doctrine of the death instinct has a number of aspects, e.g. impulse towards death, stability principle, tension theory of feeling, repetition compulsion, identification with the primitive source of aggression, contrast of Thanatos and Eros, the relations between which and with earlier psycho-analytic formulations present some difficult problems.

It is hard to find psychological evidence for the existence of an impulse towards death. Death usually appears to be undesired, or if sought, this is usually for other than instinctual motives. 'Peace' rather than death is desired, though possibly death in old age may correspond to a late-maturing instinct.

The stability principle is one which, under various names (of which 'homeostasis' bids fair to become the most popular) has been recognised by many authors, who however mostly consider it as a principle for the maintenance of *life*. Nevertheless, inasmuch as the more perfect the stability achieved, the nearer is the approach to a complete cessation of vital activity (this constituting what might be called 'the fundamental paradox of life'), there is some justification for considering that 'the goal of life is death', as long as we recognise that such a statement refers to a limiting case.

The stability principle fits in well with the tension theory of feeling (though not so well with the hedonistic implications of the pleasure principle). This tension theory itself, however, is not free from difficulty, some kinds of feeling being more easily explained along the lines of psychological hedonism. This difficulty can perhaps be met by Freud's dualism, which however is open to objection on other grounds and is dissatisfying to many types of mind. If we reject a dualistic view, there is still a possibility of applying the tension theory even to active forms of pleasure—by assuming that in the very

process of reducing tension fresh tensions are engendered, these in turn being rapidly reduced. This view, however, in its turn presents many obscurities (though it has probably some relation to 'the fundamental paradox of homeostasis', noted below).

Repetition, habit and memory are useful (though sometimes inappropriate and dangerous) means of attaining stability, but not the same as the stability principle itself.

There seems at present little reason for considering that the stability principle has any closer connection with aggression than it has with any other fundamental vital tendency or instinct. The identification of primitive aggression with the death instinct has to come to terms with the facts pointing to the connection of aggression with frustration. Moreover it is difficult to show that aggression directed against the self is the most primitive form of aggression.

A fundamental difficulty about the Thanatos-Eros dualism lies in the problem of how far the stability principle applies also to the manifestations of Eros. This to a large extent coincides with the difficulty which all theories along the lines of the stability principle have in accounting for the apparently spontaneous activity of life and the more active forms of pleasure. The difficulty can perhaps be met by recognising that, in the very process of endeavouring to maintain stability in the face of varying environmental conditions, living organisms develop tendencies and capacities (such as those connected with foresight) which, in their increasing complexity, make it in some ways harder rather than easier to attain stability. This might be called 'the fundamental paradox of homeostasis', which is a counterbalancing principle to 'the fundamental paradox of life'. The two principles work in opposite directions, the latter tending to quiescence through the very process of living, the former tending to greater instability and activity through the very process of seeking equilibrium.

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Chapter V

A QUANTITATIVE STUDY OF FEELING AND EMOTION IN EVERYDAY LIFE

I.—Problem and method

Introduction

Philosophers and others have for many centuries been wont to reflect upon the relative proportion of pleasure and of pain that is encountered in human life. The very divergent conclusions that have been arrived at with regard to the nature of this proportion suggest however that the methods of estimation hitherto employed have been far from satisfactory. Such methods have usually taken the form of a general review of the circumstances and conditions of life, or of judgments based upon memory as to the predominant direction of feeling in the thinker's own life or in those of his acquaintances. A very little consideration suffices to show that results achieved in this way must necessarily be extremely unreliable. With regard to the method of inference from the external conditions of human existence, it is, I venture to think, quite clearly unsafe to argue (except perhaps in the very grossest manner) from such conditions—biological, economic, or other—to the accompanying psychic states. With regard to the more direct method of reliance upon memory, it is fairly plain that even to emotionally stable individuals the value of life as measured in terms of pleasure and pain will appear to vary very considerably according to the dominant feeling tone of the passing moment; this feeling tone not only colours concomitant experience but almost inevitably biases our judgment concerning the original affective nature of remembered experiences. Changing circumstances of an environmental or physiological character also conspire to make it difficult to form an accurate estimate of pains and pleasures encountered in the past.

The only hope of obtaining more reliable information with regard to this problem—a problem which must always be of intense interest, whatever may be our views as to the relation of pleasure and

pain to the ultimate goal of human existence—would seem to lie in the resort to the more precise methods of introspection and evaluation that have been developed by experimental psychology. Reliance must no longer be placed in general impressions or vague memories covering long periods, but upon systematically recorded data obtained from adequately trained observers by the method of introspection or of retrospection applied to short and immediately preceding periods. Recent experimental work[1] has shown that the introspective method carefully applied permits of the most delicate and detailed observation of the affective processes over periods of a few seconds' duration. Such observations over extremely short periods passed under special experimental conditions are, it is evident, useless for the problem here under consideration. But the success of the introspective method as applied to the study of the feelings suggested that it might be so modified as to permit of application to this problem. It seemed not unlikely that by repeated retrospective description and evaluation of relatively long periods, during ordinary everyday occupations instead of under artificial laboratory conditions, it might be possible to collect data concerning the nature and proportion of pleasure and unpleasure in daily life, which, though necessarily far inferior in accuracy to observations made over very short periods in the laboratory, would nevertheless be much more reliable than conclusions arrived at by the more *a priori* methods hitherto employed in estimating the hedonic value of human life.

Procedure

With these considerations in mind, the present writer undertook a series of preliminary observations with a view to elaborating a method which might eventually be used by other students for the purpose of accumulating data on a sufficient scale. Observations made in this way proved to be quite possible, though very irksome. In the interests of accuracy, very frequent records were of course desirable, but it was found that the process of recording, if attempted too often, became so irritating and obsessive as to interfere seriously with the very phenomena it was desired to observe, i.e. the feelings as experienced in *normal* life. The most satisfactory compromise appeared to consist in making entries in the record at varying intervals, the length of which was determined largely by the nature and duration of the day's occupations. Such intervals might sometimes

[1] Such, for instance, as that of Wohlgemuth, 'Pleasure and Unpleasure', *Brit. J. Psychol., Mon. Suppl.*, vol. ii.

be as short as two or three minutes, sometimes as long as two hours. The records had two main objects: (1) a quantitative evaluation of the duration and amount of pleasure and unpleasure experienced, (2) a rough description of the chief mental states (sensations thoughts, emotions, moods, etc.) that appeared to be intimately connected with the occurrence of the various pleasures and unpleasures—a description such as might eventually also lend itself to quantitative treatment.

When, as the result of these preliminary observations, it appeared that the study of the everyday affective life by the proposed method, though difficult and troublesome, was by no means impossible, the records obtained were discussed with one or two friends, and after a few further experimental observations by the present writer and by these friends, it was decided to invite the co-operation of others. A set of fairly elaborate 'Instructions' was therefore drawn up, with a view to ensuring such uniformity of procedure as might make the results from different individuals comparable with one another. These 'Instructions' are here reproduced almost in full; they will afford at once the most adequate description of the precise method ultimately adopted, and an indication of the suggestive influences to which the subjects who undertook the observations were exposed.

INSTRUCTIONS FOR MAKING THE RECORD OF FEELING

"1. The research in which you are asked to co-operate is concerned with the feelings experienced in the occupations of ordinary life. For the purpose of this research you are requested to keep a record of your feelings in everyday life, giving as full as possible an account of: (1) the pleasure and unpleasure which you experience [unpleasure is here used as the opposite of pleasure, the term pain being reserved for certain well-marked *sensations* (sometimes described as 'physical' pain), such as toothache, headache, the sensations from a wound, a sprain, or a burn. These in their turn should be distinguished from *unpleasant* sensations of sight, hearing, taste or smell, or such organic and muscular sensations as tiredness or nausea]; (2) whenever possible, the emotions or other affectively toned mental states which accompany this pleasure and unpleasure.

2. Owing to the fact that, in many cases, it is difficult to give an accurate estimate of any state of pleasure or unpleasure after this state has disappeared (cf. the very different feelings aroused by the smell of food in conditions of hunger and repletion respectively), it is desirable that the entries in the record should be made *frequently*.

The shorter the intervals at which the entries are made, the more accurate are your observations likely to be.

The *average* period between each entry should not, if possible, exceed one hour.

3. You are requested to estimate your affective states in the following manner:

Suppose that 0 corresponds to a state of complete indifference, in which you feel neither pleasure nor unpleasure; that +100 corresponds to the most intense pleasure which you have ever experienced; that −100 corresponds to the most intense unpleasure which you have ever experienced. Then you will divide up this total scale of feeling (ranging from +100 to −100) into seven grades, as follows:

+3. Any state between +100 and +66.
+2. „ „ „ + 66 „ +33.
+1. „ „ „ + 33 „ 0.
0. A state of indifference; or one in which pleasure and unpleasure are equally balanced (or very nearly so).
−1. Any state between 0 and − 33.
−2. „ „ „ −33 „ − 66.
−3. „ „ „ −66 „ −100.

4. You will possibly find that, in the period covered by any particular entry, it sometimes happens that there are some contents of consciousness which are pleasant, others which are unpleasant. The figure in which you express your estimate must always refer to *consciousness as a whole*; but, if possible, the existence of these contents of opposite feeling should be indicated. This may be done as in the following examples:

(1) Interest +, Pain − = 0
(2) Food +, Embarrassment − = −1

Here the first example would mean that you were pleasurably interested in your occupation, but that at the same time you were suffering from some pain (say a headache) which counterbalanced the pleasure, so that, on the whole, neither pleasure nor unpleasure was predominant.

The second example would mean that, while you were deriving pleasure from a meal, this pleasure was more than counterbalanced by an unpleasant state of embarrassment, caused, perhaps, by your social surroundings, so that, on the whole, unpleasure was predominant.

5. The description of the mental states accompanying your pleasures and unpleasures is left to your own judgment and discretion. Well-marked affective states such as Anger, Fear, Pain (in the sense indicated in paragraph 1), Jealousy, Hunger, Cold, are, of course, easy to recognise and to describe. Others may be more difficult to designate.

The following list of terms found in a record similar to that which you are asked to keep may perhaps be found of use, though, of course, it is by no means intended to be exhaustive:

Anger.
Fear.
Surprise.
Disappointment.
Food (the pleasures or unpleasures intimately dependent on eating and drinking).
Tiredness.
Pain.
Boredom.
Contentment.
Anxiety.
Worry.
Vague discontent.
Joy (described also as Elation).
Pleasant or unpleasant sensations not otherwise defined (recorded as pl. sens. or unpl. sens.).
Despair.
Interest (in the work or occupations of the moment).
Well-marked Organic sensations (recorded as Org. sens.).
Sexual excitement.
Reverie.
Embarrassment.
Shame.
Positive Self Feeling [cf. McDougall, *Introduction to Social Psychology*, p. 62]. (The feeling accompanying approval of Self or consciousness of one's own worth or ability. Described as P.S.F.)
Negative Self Feeling [cf. McDougall, *loc. cit.*]. (The feeling accompanying disapproval of Self or consciousness of one's own unworthiness or incapacity. Described as N.S.F.)
Positive Functional Feeling. (The agreeable feeling accompanying consciousness of the successful progress of the work, occupation or activity, upon which one is engaged. Described as P.F.F.)
Negative Functional Feeling. (The disagreeable feeling accom-

panying consciousness of the unsuccessful progress or want of progress of the work, occupation, or activity, upon which one is engaged. Described as N.F.F.)
Tender emotion (described also as Love).
Sorrow.
Impatience.
Depression.
Aesthetic Experience.

The record from which these terms are taken also contains occasional references to the nature of the occupation of the moment, such as work, games (tennis, billiards, etc.), walking, cycling, theatre, piano playing, conversation. Such references may be inserted in your record at discretion.

6. The general method of keeping the record will be made clear by the following example:

8.0.	Contentment. Pl. Sens. . . .	+1	30
8.45.	Cold. Depression	−1	45
9.15.	Anxiety	−1	30
10.0.	[Work]	0	45
10.10.	Anger	−2	10
10.30.	Anger (Slight irritation) . . .	−1	20
11.15.	P.F.F.	+1	45
12.0.	,, Interest	+1	45
1.0.	[Work]	0	60
2.0.	P.S.F. Elation	+2	60
2.30.	P.F.F.	+1	30
3.0.	N.S.F. Pain (Headache) . . .	−1	30
3.30.	Anger. Sorrow	−3	30
4.30.	Depression	−2	60
5.30.	Motor sensations +. Pain (Headache)	0	60
6.30.	[Walking.] Motor sens. +. Pain − .	+1	60
7.30.	Elation	+1	60
8.30.	Food. Elation	+2	60
10.30.	Elation. Interest	+2	120
10.45.	Shame	−2	15
11.30.	Contentment	+1	45
11.45.	Sexual Excitement	+3	15
12.0.	Contentment	+1	15

In the first line of this example the figure 8.0 in the first column on the left means that the entry on this line was made at 8 o'clock. The words in the second column describe the predominant emotional and

sensory content of consciousness during the period covered by the entry. The figure +1 in the third column describes the degree and nature of the feeling during the period (in terms of the scale indicated in paragraph 3); while the figure 30 in the last column indicates the duration of the period (in minutes), which, therefore, lasted from 7.30 to 8 o'clock.

The following example gives the record for a day on which the feelings experienced by the observer were much less intense:

8.15.	[Dressing, etc.]	0	30
9.0.	Food, etc.	+1	45
9.30.		0	30
11.30.	P.F.F., P.S.F.	+1	120
12.0.	P.F.F. +. Tiredness −	0	30
1.0.		0	60
1.15.	Elation	+2	15
3.0.	[Work]	0	105
3.45.	Boredom	−1	45
4.30.	,,	−1	45
5.0.	Food [Tea]	+1	30
7.0.		0	120
8.0.	Boredom	−1	60
9.0.	Food. Interest	+1	60
10.0.	[Reading]	0	60
10.30.	Pleasant Tiredness	+1	30

7. If possible, the record should cover a period of not less than thirty days (as far as possible consecutive). Records covering a longer period will, however, be welcomed. The period should, whenever possible, be typical of your normal working life; holidays, travels, periods of illness or of unusual stress, excitement or monotony should, therefore, be avoided.

You are requested to start each day's record on a fresh page.

8. Absolute frankness and the greatest possible accuracy are, of course, essential for the success of the investigation. It is preferable to make no record than to make one that suffers from any considerable number of needless inaccuracies. With a view to facilitating your task, you will not be asked to sign the record. The identity of the author of any particular record should thus remain unknown to the experimenter, to whom all completed records should be sent by post. The experimenter, further, pledges himself to use the data contained in your record for strictly scientific purposes only, nor will he publish your name in connection with this investigation, except

with your express permission. It is suggested that, if desired, printed characters might be used in the record, in order still further to preclude the possibility of identification.

9. You are requested to place on your record a statement of your sex and age and to answer the following questions:

(1) Do you consider that the total period covered by your record is (for you) a fairly normal one as regards the amount and relative proportion of pleasure and unpleasure?

If not, in what way is it abnormal?

(2) Do you consider that, on the whole, your life has (*a*) more pleasure, or (*b*) more unpleasure, or (*c*) about the same proportion of pleasure and unpleasure, as the average individual in this country?

(3) Are there any *special* circumstances tending to make your life happier or unhappier than the average. If so, how do they affect the period covered by your record?

You are also invited to make any further remarks which you think fit.

10. You are requested also to append to your record a list of definitions or descriptions of the principal terms occurring on your record, especially of those whose precise meaning may not be immediately obvious or whose meaning, as used by different persons, may not be quite the same. Thus you should endeavour to state as accurately as you can what you mean by such terms as Interest, Amusement, Contentment, Boredom, Worry, etc., should they occur in your record. If you do this, the scientific value of your record may be very considerably increased.

11. *In the event of your deciding to make a record, you are requested to make yourself throughly familiar with these instructions before you begin. This applies especially to paragraph* 3.

12. *In the event of your completing a record on the lines here suggested, the experimenter desires to thank you very heartily for your kind co-operation and for the time and trouble given to the work.*"

Observers

As already indicated, the work of making the records is apt to be extremely irksome. This is especially the case towards the end of the total period under observation; so that although a large number of subjects attempted the task, only nine subjects completed records that covered the predetermined minimum of thirty consecutive days, and that appeared in all other respects to be satisfactory. These nine subjects had all enjoyed some degree of psychological training, in

some cases a high degree. Five of them were known to me personally, while the four others were known intimately to certain friends and colleagues of mine, who were able to vouch for their aptitude and ability in psychological matters. In this connection my thanks are due especially to Dr. I. B. Saxby, Major L. C. Sargent, and Dr. J. W. Cox. The subjects ranged in age from 19 to 42, and included five women and four men; two of the women (nos. 5 and 8), and one of the men (no. 3) being married. In certain respects the subjects form a homogeneous and possibly unrepresentative group, since they were all working as students, or otherwise engaged to a large extent in occupations of an academic nature. They all carried out some days' preliminary observation before starting the record proper, in order that they might familiarise themselves with the method of recording.

With regard to the answers to the questions contained under paragraph 9 of the 'Instructions', subjects 5, 7, 8 and 9 considered that the periods covered by their records, were perhaps slightly more unpleasant than were their lives as a whole. Subject 4 thought hers was slightly more pleasant—chiefly because it included part of an enjoyable holiday. On the whole, however, the subjects seem to have been, in their own estimation at any rate, fairly successful in selecting periods which were characteristic of their normal working life.

To all nine subjects my thanks are due in quite an unusual degree. Their work was in some ways far more trying than that involved in the ordinary laboratory experiment, which, however difficult and strenuous while it lasts, leaves the subject free at its conclusion to divest his mind of the somewhat obsessive worries inseparable from the introspective 'set'. In the present case, this 'set' had to be maintained throughout all the waking moments of life (no attempt was made to extend the record to dream experiences) for a whole month or more, and applied to every kind of experience, not excluding those of the most intimate or unpleasant character—a task calculated to try the patience, sincerity, and enthusiasm of even the most gifted and diligent introspectors.

II.—Feelings

Data

The data obtained from the records may be conveniently considered under two heads, according as they bear (1) upon the relative

proportion of pleasure and unpleasure experienced, (2) upon the nature and relative proportions of the emotions and other mental states recorded. Confining ourselves here to (1), the first point to be considered is the way in which the amounts of pleasure and unpleasure are to be measured. In our present data the fundamental measure is in terms of *duration* (minutes), and any answer to the question of the relative predominance of pleasure or unpleasure will therefore be given primarily in terms of duration. In addition, the *intensity* of pleasure and unpleasure is recorded on a rough system of grading (+3 . . . −3). The measures for duration may be recorded separately for each grade of pleasure or unpleasure, or for the total of all degrees of pleasure and unpleasure, irrespective of intensity; or finally some composite measure allowing both for duration and intensity may be adopted. We shall employ all three of these possible methods of measurement in one connection or another.

Reliability of Results from Individual Observers

Turning now to the actual results as measured in these ways, an all-important preliminary question that may legitimately be asked is: Can we form any estimate as to the reliability of our measures as to how far these measures are consistent and really characteristic of the affective life of the individuals under consideration? In this connection, we have the statement of the observers to the effect that the periods covered by the records are fairly characteristic of their life as a whole. In addition, however, we may test the internal consistency of the records by comparing one part of each record with another part of the same record, just as two applications of a mental test to a given individual may be compared in order to arrive at an estimate of the 'reliability' of the test. For this purpose each subject's results were first calculated independently for the odd days—(1, 3, 5, etc.) and the even days (2, 4, 6, etc.) of the period over which the record extended. The comparison of the totals for the odd days with the totals for the even days revealed on the whole what appeared to be quite a satisfactory agreement. The characteristic features of each individual's record—as shown in the relative proportion of the total duration falling under each of the seven grades of feeling intensity (+3 . . . 0 . . . −3)—were for the most part quite evident in both sets of totals. This general impression was confirmed by the calculation of 'reliability coefficients', the odd totals being correlated with the even totals for all nine individuals.

These coefficients were as follows:

Reliability of		+3	values	= −0·03
,,	,,	−3	,,	= +0·45
,,	,,	+2	,,	= +0·96
,,	,,	−2	,,	= +0·90
,,	,,	+1	,,	= +0·90
,,	,,	−1	,,	= +0·83
,,	,, sum of all	+	,,	= +0·80
,,	,, sum of all	−	,,	= +0·77
,,	,,	0	,,	= +0·80

These figures indicate that, for all except the extreme values of pleasure and unpleasure, the period during which the record was kept (a minimum of thirty days) was long enough to obtain consistent and reliable results, results which appear to reveal pretty clearly the characteristics of the different individuals who acted as observers.

The variable errors affecting our results are thus not very serious. There remains, of course, the possibility of constant errors, the most serious of which would here consist in a constant tendency for certain subjects to allot relatively high or relatively low marks for the affective intensity of their experiences, or to be biased in favour of allotting + or − values. There is unfortunately no means of estimating or measuring the extent of these errors. We may, however, fairly assume that they are smaller than those involved in the older and rougher methods of which we have spoken.

Relative Proportions of Pleasure and Unpleasure

This being the case, we may with some confidence turn to the further examination of the records. The main problem in view in undertaking this investigation, concerned the relative proportion of pleasure and unpleasure in human life. Our records provide a quantitative answer to this problem so far as concerns that portion of the waking life of our nine observers as is covered by their reports; they further provide some data as to the proportion of pleasure and unpleasure to indifference, and the relative proportions of the different intensities of pleasure and unpleasure. The results that are of interest from this point of view are recorded in Table I. In this table the figures indicate percentages of the total time covered by the record in the case of each subject. (Thus 1·2 under heading +3 for subject 1, indicates that the total duration of all pleasures of +3 intensity amounted to 1·2 per cent of the total period covered by her

record, while the figure 62·2 immediately below and to the right [under the bracket] indicates that the total duration of all pleasures of whatsoever intensity amounted to 62·2 per cent of this total period.)

The figures for the various subjects are therefore strictly comparable with one another.

TABLE I. Relative proportion of the different degrees of feeling intensity (expressed in percentages of the total duration of the observations for each subject). [Any discrepancies are due to the the fact that each value is here recorded to the first place of decimals only.]

Subject	*Sex*	*Age*	*Duration of observation (in days)*	+3	+2	+1	0	−1	−2	−3
1	F	22	30	1·2	5·3	55·7	15·0	20·2	2·3	0·3
					62·2				22·8	
2	M	19	30	1·0	6·6	37·8	44·2	9·7	0·6	0
					45·4				10·3	
3	M	33	30	1·0	9·4	43·6	19·0	24·7	2·0	0·2
					54·0				26·9	
4	F	33	60	1·5	14·2	41·7	36·1	5·6	0·9	0
					57·4				6·6	
5	F	27	30	0·8	11·8	24·3	41·0	17·3	4·4	0·4
					36·9				22·1	
6	M	26	30	2·9	17·6	33·8	17·2	20·7	6·9	0·8
					54·3				28·5	
7	F	26	30	0	2·9	44·0	31·5	16·4	14·8	0·5
					46·8				21·7	
8	F	42	30	0·7	16·0	30·3	28·7	12·9	9·8	1·6
					47·0				24·3	
9	M	19	30	0·8	9·7	36·1	17·0	30·2	6·1	0·1
					46·5				36·4	
Average				1·1	10·4	38·6	27·8	17·5	4·2	0·4
					50·1				22·2	

An inspection of the table reveals several facts of interest. In the first place, the figures for every subject show a very distinct pre-

dominance of pleasure over unpleasure, so far as total duration is concerned. If we may be permitted to generalise from these results, we may therefore say that *pleasure occupies a very considerably larger proportion of human life than does unpleasure.* This preponderance of pleasure over unpleasure is observable not only as regards total durations of pleasure and unpleasure but also, to a large extent, as regards the separate intensities also. For all subjects the figures for +1 exceed those for −1; for eight out of the nine subjects those for +2 exceed those for −2, and for seven out of the nine those for +3 exceed those for −3.

In the second place the figures show that in the case of every subject, the total duration of the more intense pleasures and unpleasures is much smaller than that of the less intense feelings. This is, of course, in accordance with what a general impression of everyday experience would lead us to expect. The very small percentages that occur under the heading of +3 and −3 are doubtless responsible for the low reliability coefficients obtained for the figures under these heads, to which we above referred.

In the third place, again in accordance with what a general impression of human life would make us anticipate, the results obtained from the various subjects differ appreciably from one another in several respects. The most important and interesting of these differences lies in the relative proportion of pleasure and unpleasure; though all subjects have a preponderance of pleasure over unpleasure, in some subjects this preponderance is much greater than in others. In one extreme instance (subject no. 4), the duration of pleasure is between eight and nine times as great as that of unpleasure; at the other extreme it is only 1·27 times as great (subject no. 9). On the average it is 2·26 times as great.

Still another interesting difference concerns what might be termed the general tendency to affectivity as revealed (*a*) in the very different percentages occurring under 0,[1] (*b*) in the appreciably different proportions of the higher values of pleasure and unpleasure that are recorded by the various observers. If we neglect the relatively large middle values of +1, 0 and −1 and find the sum of the four remain-

[1] It is possible however that these differences are to some extent due to individual differences in introspective ability, and in the care with which the records were compiled. Introspective studies such as those of Wohlgemuth leave little doubt that small degrees of pleasure and unpleasure are nearly always observable if the introspector is sufficiently skilled and the conditions of introspection sufficiently favourable. A relatively small difference in introspective ability between two observers might therefore result in a given experience of very low affective value being recorded as +1 or −1 by one observer, and as 0 by the other.

ing values for the more intense degrees of feeling, it appears that those individuals who most often experience extremes of affect (no. 6 and no. 8) have a percentage of intense feeling which is between three and four times as great as that of the individual (no. 2) who least often experiences these extremes (28·2 and 28·1 per cent as compared with 8·2 per cent).

If we keep separate the sums of the high pleasure values (+3 and +2) and the sums of the high unpleasure values (−3 and −2), we find that the individual with the highest value for intense pleasures (no. 6) has a percentage which is seven times as great as that of the individual (no. 7) with the lowest value (20·5 per cent as compared with 2·9 per cent); while on the side of unpleasure, the individual with the highest value (no. 8) has a percentage which is nineteen times as great as that of the individual (no. 2) with the lowest value (11·4 per cent as compared with 0·6 per cent).

It is interesting to observe that the values for intense pleasure (the sum of the values for +3 and +2) correlate positively with the values for intense unpleasure (the sum of the values for −3 and −2) to the extent of +0·45 (P.E. 0·19). This fact suggests (in view of the very high probable error it is of course insufficient to prove) that there is some general tendency for those who frequently experience high degrees of pleasure to experience frequently high degrees of unpleasure also. Such a tendency would be in harmony with the popular view often expressed or implied in the quotation of Goethe's words:

'Himmelhoch jauchzend,
Zum Tode betrübt,'

with thoughts inevitably suggested by the facts of manic-depressive insanity, with the statistical evidence brought forward by Burt[1] with regard to the existence of a factor of 'general emotionality' among normal individuals, and perhaps also with Webb's evidence[2] regarding a general factor of the 'persistence of motives' ('W').

[1] C. Burt, 'General and Specific Factors underlying the Primary Emotions', *British Association Reports*, 1915, and later communications.

[2] E. Webb, 'Character and Intelligence', *Brit. J. Psychol. Mon. Suppl.*, vol. i. It is generally considered probable that Burt and Webb's general factors are really one and the same factor studied from different points of view. The existence of this factor (though variously named) has now been independently corroborated by quite a number of other investigations. Thus R. B. Cattell (who calls it 'C') enumerates thirteen such researches (*Description and Measurement of Personality*, 1946).

Algedonic Measures

Returning to the main subject of our enquiry concerning the relative proportions of pleasure and unpleasure, and keeping in view the individual differences that are manifest in this respect, it would seem very desirable to possess some single expression of the general tendency towards happiness and unhappiness that is revealed in the figures for any given subject. A convenient measure of this kind is afforded by dividing the total percentage of unpleasure by the total percentage of pleasure

$$\text{(e.g. in the case of subject 1 } \frac{22{\cdot}8}{62{\cdot}2} = 0{\cdot}37\text{).}$$

We thus obtain a fraction which is indicative of the general liability for pleasure to be counterbalanced by unpleasure. The higher the fraction, the greater the tendency for pleasure to be counterbalanced by unpleasure. This fraction, which I have ventured to call the 'simple algedonic ratio', is given for each subject in the second column of Table II.

TABLE II. Measures of the relative amounts of Pleasure and Unpleasure, i.e. 'Algedonic Measures' (columns 2–8), and of the Variability of Feeling (columns 9 and 10).

1	2	3	4	5	6	7	8	9	10
Subject	*Simple algedonic ratio*	*Algedonic ratio weighted according to intensity*	*Algedonic ratio weighted according to square of intensity*	*Simple algedonic difference*	*Algedonic difference weighted according to intensity*	*Algedonic difference weighted according to square of intensity*	*Algedonic average*	*M.V.*	σ
1	0·37	0·37	0·36	39·4	44·2	55·6	+0·44	0·85	1·07
2	0·23	0·20	0·17	35·1	43·1	61·1	+0·43	0·69	0·88
3	0·50	0·45	0·38	27·1	36·1	45·7	+0·36	0·92	1·05
4	0·12	0·12	0·09	50·8	64·2	102·8	+0·67	0·72	0·87
5	0·60	0·54	0·49	14·8	23·0	40·2	+0·23	0·84	1·05
6	0·53	0·49	0·43	25·8	40·8	73·9	+0·41	1·11	1·30
7	0·46	0·56	0·73	25·1	2·3	−24·5	+0·22	0·79	0·89
8	0·52	0·58	0·66	22·7	27·1	34·1	+0·27	1·03	1·26
9	0·78	0·74	0·68	10·1	15·2	26·6	+0·15	0·67	1·17
Average	0·46	0·45	0·44	27·9	32·9	46·2	+0·35	0·85	1·06

Another measure is afforded by the *difference* between the total

percentage of pleasure and the total percentage of unpleasure (e.g. in the case of subject 1, 62·2 − 22·8 = 39·4). Here, owing to the preponderance of pleasure over unpleasure, the higher the figure the greater is the predominance of pleasure. This measure may be called the 'simple algedonic difference' and is given for each subject in the fifth column of Table II.

Both these measures are expressive merely of the relative *durations* of pleasant and unpleasant states and take no account of the *intensity* of the pleasure or unpleasure. It may, however, reasonably be contended that a measure of the relative proportion of pleasure and unpleasure in an individual's life, to be adequate, should take account of intensity as well as of duration. The above measures can be easily modified so as to meet this requirement by weighting the higher degrees of pleasure and unpleasure, before carrying out the process of division or subtraction respectively. There then arises, however, the important and difficult question as to the degree of the weighting. Are pleasures of +2 intensity twice as desirable as those of +1 intensity? Just how much more undisirable are pains of −3 intensity than pains of only −1 intensity? It is difficult to find any certain ground for deciding questions of this kind. We have therefore employed two different systems of weighting, each of which permits the calculation of a further algedonic ratio or algedonic difference. According to the first of these systems the values for +2 and −2 are multiplied by 2 and those for +3 and −3 by 3 before being included in the total + or − values respectively. We thus obtain the 'algedonic ratio (or algedonic difference) weighted according to intensity' given in the third and sixth columns of Table II. According to the second system the values for +2 and −2 are multiplied by 4 and those for +3 and −3 by 9. We thus obtain the 'algedonic ratio (or difference) weighted according to the square of the intensity' given in the fourth and seventh columns of Table II.

With seven out of our nine subjects (all except nos. 7 and 8) there is a decrease in the size of the algedonic ratio (i.e. an increase in the pleasure value) as we pass from the 'simple algedonic ratio' through the 'algedonic ratio weighted according to intensity' to the 'algedonic ratio weighted according to the square of the intensity'. With the two remaining subjects (nos. 7 and 8) the change is in the opposite direction. In the case of the corresponding 'algedonic differences' there is a steady increase in the size of the differences with all subjects except no. 7. Thus, on the whole, the more we weight the extreme values, the more does pleasure predominate over unpleasure. This shows that the *relative* predominance of pleasure tends in most of our subjects to be slightly greater at the more intense degrees of feeling,

than at the less intense degrees; a conclusion of some interest, if it should prove to be at all generally true.[1]

Another method of arriving at a single expression of the relation of pleasure to unpleasure in an individual's life, is to take the average of the percentage values as distributed between the seven different grades of intensity (see Table I). This method takes account of the 'indifferent' periods (0 in table) as well as those of pleasure and unpleasure, which alone affect the above-mentioned algedonic ratios and algedonic differences. Since the total duration of the pleasant periods is in every instance greater than the total duration of the unpleasant periods, the average will always be on the + side, and is, in point of fact, in every case somewhere between +1 and 0. The actual values are recorded in the eighth column of Table II.

All seven algedonic measures (three ratios, three differences and one average) correlate, as is to be expected, rather highly with one another. The actual extent of these correlations may not be without interest and is indicated in Table III.

TABLE III. Intercorrelations of the 'Algedonic Measures' recorded in Table II

	Simple algedonic ratio	*Algedonic ratio weighted according to intensity*	*Algedonic ratio weighted according to square of intensity*	*Simple algedonic difference*	*Algedonic difference weighted according to intensity*	*Algedonic difference weighted according to square of intensity*	*Algedonic average*
Simple algedonic ratio	—	0·81	0·70	0·90	0·68	0·51	0·76
Algedonic ratio weighted according to intensity	0·81	—	0·97	0·94	0·88	0·85	0·92
Algedonic ratio weighted according to square of intensity	0·70	0·97	—	0·86	0·95	0·90	0·93
Simple algedonic difference	0·90	0·94	0·86	—	0·88	0·76	0·93
Algedonic difference weighted according to intensity	0·68	0·88	0·95	0·88	—	0·92	0·98
Algedonic difference weighted according to square of intensity	0·51	0·85	0·90	0·76	0·92	—	0·90
Algedonic average	0·76	0·92	0·93	0·93	0·98	0·90	—

[1] The *absolute* predominance of pleasure is, however, it should be noted, distinctly greater at the lower than at the higher intensities, as is immediately obvious from a glance at Table I.

Each of these methods of calculation reveals the presence of the very considerable individual differences to which we drew attention in dealing with the percentages of + and − values in themselves. These differences are more strikingly apparent however in the case of the 'ratios' and 'differences' than in the case of the 'average'. Thus as measured by the 'simple algedonic ratio' and the 'algedonic ratio weighted according to intensity' the happiest of our nine subjects (no. 4) is more than six times as happy as the unhappiest subject (no. 9 according to these methods); as measured by the 'algedonic ratio weighted according to the square of the intensity' she is more than eight times as happy as the unhappiest subject (no. 7 according to this method). These contrasts are even more marked in the case of the weighted 'algedonic differences'.

Measures of the Variability in Feeling and their relation to the Algedonic Measures

The data we have collected and summarised in Table I afford information not only with regard to the relative proportion of pleasure and unpleasure but also with regard to the tendency to variability in feeling tone in the case of each subject. Here, as elsewhere, there is no necessary connection between central tendency and variability. Two subjects, for instance, might both conceivably have an average of +1; but in the case of one of these the feeling tone might vary so slightly that all recorded experiences would fall without exception into the +1 group, whereas in the case of the other the feeling tone might vary enormously from one entry to another, so that there would be a relatively large number of entries under each of the seven groups from +3 to −3. The percentages recorded in Table I afford some rough means of estimating this tendency to variation without further calculation. They show that there is considerable difference between the nine subjects as regards their tendency to variation, but that this difference is less striking than that as regards the relative preponderance of pleasure over unpleasure.

The most satisfactory methods of obtaining measures of the tendency to variability in feeling consist in calculating the mean variation (M.V.) and standard deviation (σ) from the 'algedonic measures'. These two measures are recorded in the last two columns of Table II.

Having obtained measures both of algedonic tendency and of variability, it is natural to ask whether there is evidence of any relationship between these two. Is there, for instance, any tendency

for the more happy subjects to experience greater or less fluctuation in feeling tone than the less happy subjects? Such questions should be answerable by working out correlations between the algedonic measures and the measures of variability. Unfortunately, owing to the very small number of subjects who took part in this investigation, the probable errors of the correlation coefficients obtained must necessarily be so high as to make it impossible to come to any very definite conclusion. The results are, however, I venture to think, sufficiently suggestive to be worth a brief consideration.

The following are the correlations between the measures concerned (a positive correlation indicating a positive correspondence between a *high* degree of variability and a *high* predominance of pleasure and so on):

	M.V.	σ
Simple algedonic ratio	−0·18	−0·73
Algedonic ratio weighted according to intensity	+0·10	−0·62
Algedonic ratio weighted according to square of intensity	+0·18	−0·47
Simple algedonic difference	+0·03	−0·53
Algedonic difference weighted according to intensity	+0·20	−0·27
Algedonic difference weighted according to square of intensity	+0·11	−0·34
Algedonic average	+0·42	−0·33

Only three of these correlations (those underlined) are greater than three times their probable error. These, it will be observed, are all negative. Further, it will be seen that the correlations with σ tend to be negative, while those with M.V. tend to be slightly positive. Now M.V. differs from σ in that it is comparatively little affected by extreme values. Extreme values, on the other hand, play a relatively important part in σ, owing to the process of squaring involved in the computation of this last measure. That this difference between the measures is really of some significance in the present case is suggested by the fact that if we correlate the subjects' σ with their tendency to experience intense feeling (as measured by the sum of the values for +3, +2, −3 and −2 in Table I) we obtain a coefficient of + 0·72, whereas the corresponding correlation in the case of M.V. is only +0·50. In view then of the fact that, in the above list of correlations between measures of variability and algedonic measures, the correlations with σ are all negative and include three—the only three—that are statistically significant, there appears to be an

indication of a negative correspondence between the tendency to predominance of pleasure and the tendency to frequent occurrence of the higher degrees of feeling.

This indication is supported by a consideration of certain other correlations. Thus if we correlate σ with the total percentage of unpleasure (as recorded in the figures under the brackets on the right-hand side of Table I) we obtain a coefficient of +0·83, whereas the correlation between σ and the total percentage of pleasure is +0·10.

Again, if we take the sum of the percentages for +3 and +2 (which we may regard as a measure of the tendency to experience 'intense pleasure') and correlate this value with our algedonic measures, we find that the resulting coefficients are not distinctly positive, as we should expect on *a priori* grounds (since the algedonic measures are of course to some extent dependent on the +3 and +2 values). The actual coefficients are as follows:

'Intense pleasure' and simple algedonic ratio	−0·37
,, ,, ,, algedonic ratio weighted according to intensity	−0·12
,, ,, ,, algedonic ratio weighted according to square of intensity	+0·09
,, ,, ,, simple algedonic difference	−0·18
,, ,, ,, algedonic difference weighted according to intensity	+0·16
,, ,, ,, algedonic difference weighted according to square of intensity	+0·39
,, ,, ,, algedonic average	+0·10

The corresponding measure for 'intense unpleasure' (the sum of the values for −3 and −2) gives, however, as we might expect, rather high negative correlations with the algedonic measures:

'Intense unpleasure' and simple algedonic ratio	−0·75
,, ,, ,, algedonic ratio weighted according to intensity	−0·83
,, ,, ,, algedonic ratio weighted according to square of intensity	−0·79
,, ,, ,, simple algedonic difference	−0·70
,, ,, ,, algedonic difference weighted according to intensity	−0·57
,, ,, ,, algedonic difference weighted according to square of intensity	−0·50
,, ,, ,, algedonic average	−0·59

Finally, we may note that the correlation between 'intense pleasure' and the percentage for +1 is −0·75, whereas the correla-

tion between 'intense unpleasure' and the percentage for −1 is +0·37. These two last results show that what a subject gains in the way of the more intense pleasures, tends to be more than counterbalanced by a loss in the less intense pleasures of longer duration, whereas there is no corresponding process of counterbalancing on the unpleasant side.

We may thus conclude that such evidence as may be drawn from our (admittedly insufficient) data points to the existence of an inverse correspondence between the tendency to experience intense feelings and the tendency to be generally happy. If confirmed, this result is of considerable general interest for the psychology of affection, and it may be hoped that further evidence bearing on this point may soon be forthcoming, since such evidence may be obtained by methods far less laborious than those employed in the present research, which aimed primarily at determining the relative proportion of pleasure and unpleasure, not at investigating the relation between pleasure and variability of feeling. We may note, however, that our provisional conclusion is in conformity with the results obtained by Webb in the research to which we have already referred. In the course of his extensive investigation into various character qualities, he found an inverse relationship between the 'general tendency to be cheerful (as opposed to being depressed and low spirited)' and a 'tendency to quick oscillation between cheerfulness and depression (as opposed to permanence of mood)'; the actual correlation coefficient being −·27 (P.E. 0·054), which rose to −0·38 when corrected for unreliability.[1]

III.—Emotions

General Considerations on Method and Data

So far we have treated the records of our nine subjects exclusively from the point of view of pleasure and unpleasure. We now turn to consider the further descriptions of the mental states recorded. This portion of our records is, in all probability, somewhat less reliable than that portion which deals with the feelings in the narrow sense, and this for two principal reasons. In the first place the main object of the present research concerned the quantitative aspects of pleasure

[1] E. Webb, op. cit., p. 13 and Tables IV and VI. Webb also found a correlation of −0·79 (corrected) between 'occasional liability to extreme depression' and 'cheerfulness' and of +0·75 between 'extreme depression' and 'quick oscillation'. Unfortunately he has no estimates of 'liability to extreme cheerfulness' such as are afforded by our present data.

and unpleasure, rather than the delicate qualitative analysis of pleasant and unpleasant states, and the 'Instructions' given to our subjects were therefore formed with a view primarily to the collection of data with regard to the former aspects of mental processes and only secondarily with a view to the observation of the latter aspects. The second and more important reason lies in the nature of the material itself. Both observation and description are very often easier in the case of pleasure and unpleasure than in the case of emotions, moods, etc. In the case of the former, there are only two states to identify, and there is little or no difficulty with regard to the words used to denote these states. (The word 'unpleasure' was used instead of 'pain' in order to avoid the ambiguity of the latter word.)

In the case of the other affective aspects of consciousness, there are a great variety of experiences which may have to be identified and described, experiences with regard to which there is, as yet, even among psychologists, no generally accepted system of classification or terminology. It would, of course, have been possible to adopt some definite scheme of classification and terminology for the purposes of this research. This would probably be the most satisfactory procedure in any similar investigation dealing solely or primarily with the qualitative analysis of the affective mental states. But in the present case it seemed (rightly or wrongly) undesirable to complicate the already very difficult and strenuous task which the subjects were asked to undertake, by insisting on the rigid use of certain classifications and certain terms, and on the employment of these terms in one very definite sense only. It was feared that, much superior as this latter course would undoubtedly have been from the point of view of scientific method, insistence on these further details might have led to the breakdown of the whole undertaking, through failure to enlist the co-operation of sufficient subjects. Bearing in mind the small number of records actually carried through to a satisfactory conclusion, it seems quite possible that this fear was not without foundation.

With a view, however, to producing some degree of uniformity in the records of different subjects, and at the same time of affording some fairly clear indication of the kind of record that was desired, there was included in the 'Instructions' a list of all the terms found in the preliminary records made by the present writer and his friends, together with two sample records showing some of these terms actually in use. There can be little doubt that—for good or for evil—this list and the accompanying records had a high suggestive in-

fluence in determining the choice of the subjects' descriptive terminology.[1]

There is too, in all probability, another factor which has helped to produce a greater uniformity than would otherwise have been the case. Among the psychological treatises dealing with the affective and conative aspects of the mind, there is one which, since its first appearance several years previous to the beginning of the present work, has exercised a paramount influence on the English students of psychology; that is McDougall's *Introduction to Social Psychology*, a book which was certainly quite familiar to all my subjects, and which probably had influenced to a very large extent their thinking on those aspects of the mind with which they were here concerned. Indeed, from subsequent conversation with two of the subjects themselves and with one of the friends who was familiar with some of the other subjects who were unknown to me personally, I learnt very definitely that in several cases at any rate, the use of terms was copied from or modelled on that of McDougall. When, in addition, we bear in mind the fact that a reference to this book was actually contained in the 'Instructions' (in connection with the terms 'positive' and 'negative self-feeling'), we seem justified in supposing both that the general familiarity of McDougall's book has exercised a tendency towards uniformity in the choice of terms occurring in our records, and that as a general rule terms are used in the sense in which they are employed by McDougall.

Although no attempt was made to insist on the employment of a uniform terminology, all the later copies of the 'Instructions' that were given out contained a request to append definitions of the principal terms occurring in the record. Unfortunately only the last three (nos. 7, 8, 9) of the nine subjects appear to have worked from such copies of the 'Instructions', but, so far as they go, the definitions showed a sufficient degree of uniformity in the use of the principal terms, a few cases of employment of a generally known term in an unusual sense being confined to mental states that were of relatively short duration or of rare occurrence.

While freely admitting therefore that the results concerning the nature of the affective states experienced by our observers, leave much to be desired from the point of view of scientific accuracy, we

[1] This is pretty clearly indicated for instance by the fact that the otherwise little used terms 'positive functional feeling' and 'negative functional feeling' were very extensively employed in the subjects' records.

It will be noted that these terms (together with 'positive' and 'negative self-feeling') were—because of their general unfamiliarity and contrary to the practice in other cases—provided with a rough definition.

may, I think, pass on to the treatment and consideration of these results with somewhat greater confidence than, owing to the rough method employed, we might at first have been inclined to entertain.

Treatment of Data

The quantitative treatment of this portion of our data was a somewhat lengthy and laborious piece of work (there being altogether nearly 10,000 entries—many of them complex in nature—to be dealt with). Nor is it easy to devise a satisfactory method of evaluation. After a good deal of preliminary consideration and experimentation, the system described below was finally adopted. In this description (and in our subsequent considerations concerning the results themselves) the word 'emotion' will, for the sake of brevity, be used to denote any entry in a record that was definitely descriptive of an affective mental state or cognitive state closely associated with an affect; the term 'feeling value' will be used to denote the intensity of feeling recorded (on the scale $+3 \ldots -3$) for any given period; and the term 'duration value' the duration (in minutes) of a period. (Since the 'feeling values' and the 'duration values' were the only regularly recurring quantitative data provided by our records, any quantitative treatment of the 'emotions' had of course to be based upon these data.) The term 'emotion value' will be used to indicate the quantitative value ultimately allotted to an 'emotion' in accordance with the system of marking to be described.

In reading the description of the system for marking the 'emotions', it will be well to bear in mind the general form of the records, as indicated in the examples given in the 'Instructions', contained in Section I.

SYSTEM OF MARKING 'EMOTIONS'

A. *Feeling Values of* $+1$ *or* -1.

1. When there is only one emotion entered for a period, the exact amount of the duration value is credited to this emotion. E.g. the entry

Contentment 60, $+1$

(this entry meaning that 'Contentment' was experienced for a period of 60 minutes, during which the feeling tone was of $+1$ intensity) would be marked

Contentment 60

(i.e. Contentment was credited with an emotion value of 60).

2. When two or more emotions of the same sign are entered for

the same period, the duration value of the period is divided equally between them. E.g. the entry

Joy
Pleasant Sensations } 60, +1

would be marked

Joy 30
Pleasant Sensations 30.

(An exception to this rule was made in a few cases when the record indicated that one emotion predominated, in which case, a certain additional allowance—varying from case to case according to the nature of the indication—was made to the predominant emotion, the allowance of the other being proportionately reduced.)

3. When two emotions of opposite sign were entered for the same period, the emotion which was of the same sign as that of the feeling value of the period was credited with twice the duration-value of the period; the one of opposite sign being credited with the exact amount of the duration period. E.g. the entry

Joy +
Unpleasant Sensations − } 60, +1

would be marked

Joy 120
Unpleasant Sensations 60.

[This was of course based on the theory—right or wrong—that the feeling value actually recorded was a result of the algebraic summation of the feelings associated with the concomitant pleasant and unpleasant emotions.]

4. When, in an entry containing emotions of opposite sign, there occurred more than one emotion of the same sign, the total value that would be allotted to a single emotion of that sign according to rule 3 was equally divided between the emotions of that sign (in accordance with the principle of Rule 2). E.g. the entry

Interest +
Joy +
Pleasant Sensations + } 60, +1
Embarrassment −
Worry −

would be marked

Interest 40
Joy 40
Pleasant Sensations 40
Embarrassment 30
Worry 30

B. *Feeling values of* +3, −3, +2 *and* −2.

5. When all the emotions entered for a given period are of the same sign, the values allotted to the emotions under rule 1 or 2 (whichever may apply) are doubled in the case of periods of +2 or −2 feeling values, and trebled in the case of +3 or −3 feeling values. E.g. the entry

Joy +
Pleasant Sensations + } 60, +2

would be marked

Joy 60
Pleasant Sensations 60.

6. In all cases of the occurrence of emotions of opposite sign, the values allotted under rule 3 or 4 (whichever may apply) to the emotions of the same sign as that of the feeling value of the period are doubled in the case of +2 or −2 feeling values, and trebled in the case of +3 or −3 feeling values. (The values of the emotions of opposite sign to that of the feeling value of the period being the same as that allotted under rule 3 or 4.) E.g. the entry

Interest +
Joy +
Pleasant Sensations + } 60, +2
Embarrassment −
Worry −

would be marked

Interest 80
Joy 80
Pleasant Sensations 80
Embarrassment 30
Worry 30.

C. *Feeling Values of* 0.

7. No marks are given to a single emotion entered for a period with a feeling value of 0. E.g. the entry

Anticipation 60, 0

would be marked

Anticipation 0.

[As a matter of fact single emotions were very rarely recorded in connection with such periods, such single entries as occurred referring usually to occupations rather than to mental states.]

8. When two emotions of opposite sign are entered for a period with a feeling value of 0, each emotion was allotted a value equal to the full duration value of the period. E.g. the entry

Interest +
Unpleasant Sensations − } 60, 0

would be marked

Interest 60
Unpleasant Sensations 60.

[The assumption here being the same as that noted in connection with rule 3.]

9. When in an entry containing emotions of opposite sign, there occurred more than one emotion of the same sign, the total duration value of the period was divided equally between the emotions of similar sign. E.g. the entry

Interest +
Pleasant Sensations + } 60, 0
Depression −

would be marked

Interest 30
Pleasant Sensations 30
Depression 60

Such was the system of evaluation employed in dealing with the results. Very little was attempted in the way of *classification*. The general rule has been to employ the actual categories and terms used by the subjects themselves in their records, except in a few cases, where for special reasons this seemed undesirable. The two chief instances in which this occurred concerned:

(1) *Sensations*. A very considerable number of different kinds of sensory experience are mentioned in the course of the records. To have included them all would have greatly extended the size of our lists and tables without any proportionate gain, for the emotion-values coming under each individual heading would usually have been far too small to afford any information of general interest. The different subjects varied also a good deal with regard to the degree of detail with which they analysed their sensations. I have therefore thought it best to abandon any attempt at detailed sensory analysis, and have classified all sensory experience under the two main heads of 'Pleasant' and 'Unpleasant Sensations'. The only exception to this rule concerned the pleasures of the table (classified as 'Food') since these concern experiences recurring regularly in the lives of all our subjects, and referred to in every one of the records, so that individual differences in the hedonic value of these pleasures (as calculated from the records) may with some reason be regarded as springing to some extent from corresponding differences in mental make-up.

(2) *Fear and Anger.* A considerable number of terms are used to express different nuances and degrees of these emotions. The use of these terms obviously varied from one subject to another, and judging from the internal evidence of the records, did not always appear to be quite consistent even with the same subject. It appeared a matter of extreme difficulty to make anything approaching an accurate qualitative analysis of the entries in the records; the major quantitative distinctions, on the other hand, could find expression through the recorded feeling values. I have therefore, here also, grouped together the various entries under two main heads, entitled 'Anxiety and Worry', and 'Anger, Irritation and Annoyance', respectively.

Reliability of Results from Individual Observers

We may now, at length, pass to the consideration of our results as thus evaluated and classified. As in the case of the data concerning pleasure and unpleasure, the first question to be asked must necessarily concern the 'reliability' of our findings. What degree of consistency is shown by each subject as regards the relative part played by the different emotions he records? To answer this question, the emotion values for each subject were again, as in the case of the feeling values, at first divided into two groups, those for the odd days and those for the even days being calculated separately. Table IV gives the 'reliability coefficients' obtained by computing the correlations between the two groups for each subject, the pleasant and unpleasant emotions being here, as elsewhere, kept distinct.

TABLE IV. Reliability coefficients of 'emotions'

Subject	*Pleasant emotions*	*Unpleasant emotions*
1	0·79	0·83
2	0·85	0·84
3	0·99	0·98
4	0·90	0·83
5	0·93	0·70
6	0·94	0·80
7	0·88	0·97
8	0·35	0·39
9	0·90	0·93

It will be seen that with eight out of the nine subjects, the reliability coefficients are quite satisfactory. In the case of subject no. 8 the period of observation appears to have been too short to obtain any very reliable information with regard to the relative importance of the different emotions. Except in the case of this subject, how-

ever, we may conclude that our results are not seriously vitiated by random errors.

Congruity of the Results from Different Observers

Having examined the internal consistency of the records, we may next ask the question: How far do the records of the different subjects correspond with one another? To what extent do the different subjects agree as to the relative importance of the different emotions? This question can best be answered by comparing the emotion values for each emotion, as obtained from the record of each subject,[1] each individual record being correlated with every other. We thus obtain the results recorded in Table V.

TABLE V. Intercorrelations of the emotion values for different subjects

Pleasant Emotions

Subject	1	2	3	4	5	6	7	8	9
1	—	0·92	0·71	0·83	0·51	0·81	0·18	0·57	0·78
2	—	—	0·77	0·90	0·64	0·88	0·32	0·42	0·68
3	—	—	—	0·69	0·82	0·85	0·34	0·67	0·69
4	—	—	—	—	0·52	0·80	0·50	0·50	0·76
5	—	—	—	—	—	0·67	0·27	0·58	0·57
6	—	—	—	—	—	—	0·31	0·67	0·72
7	—	—	—	—	—	—	—	0·34	0·20
8	—	—	—	—	—	—	—	—	0·71
9	—	—	—	—	—	—	—	—	—

Average = 0·61.

All correlations of 0·41 and over are > 3 times the P.E.

Unpleasant Emotions

Subject	1	2	3	4	5	6	7	8	9
1	—	0·90	0·66	0·68	0·59	0·67	0·49	0·46	0·78
2	—	—	0·70	0·73	0·85	0·78	0·52	0·56	0·86
3	—	—	—	0·88	0·62	0·64	0·31	0·31	0·64
4	—	—	—	—	0·71	0·63	0·29	0·42	0·68
5	—	—	—	—	—	0·69	0·40	0·51	0·70
6	—	—	—	—	—	—	0·32	0·45	0·73
7	—	—	—	—	—	—	—	0·07	0·53
8	—	—	—	—	—	—	—	—	0·47
9	—	—	—	—	—	—	—	—	—

Average = 0·59

All correlations of 0·36 and over are > 3 times the P.E.

The fairly high positive correlations here shown indicate that there is a large amount of agreement as to the relative importance of the different emotions. Thus on the whole an emotion which plays an important part in the affective life of one subject, plays an important

[1] As indicated below, Tables VI and VII.

part also in the life of another. We must remember however that, as remarked in Section I of this chapter, the subjects represent to some extent a selected population, in that they were all occupied to a considerable extent in studies of an academic nature. It is quite possible that, had our subjects been chosen from a wider field, the correspondence in their records would have been less marked. The individual correlation coefficients in Table V are of course indicative (that is in so far as they are not seriously vitiated by the unreliability of the emotion values themselves, as will be the case for those of subject no. 8) of the degree of emotional congruity between the two subjects concerned. Thus there is a very high degree of correspondence between the emotional lives of no. 1 and no. 2; they belong (if we may generalise from what are, after all, comparatively short periods of observation) to an emotionally similar type. They both differ however (in the case of pleasant emotions very markedly) from no. 7. These figures however do not, of course, enable us to say wherein such similarities or differences may consist. Before we can obtain any insight into questions of this sort we must be in possession of the full data for each subject. These are presented in Tables VI and VII.

The actual values allotted to the emotions are not given in these tables, since they are not strictly comparable from one subject to another, being affected not only by the different total durations of the periods of observation, but also by sundry factors connected with our method of evaluation. Instead of recording the actual emotion values I have, therefore, in the case of each emotion, tabulated the results in the form of percentages of the subject's total emotion values. The figures in the first nine columns represent the percentages of the total emotion values as distributed among the various emotions by the nine subjects. Thus in Table VI, column 1, the figure 13·05 per cent under the heading of Interest means that in the case of subject 1 the sum of the emotion values allotted to Interest amounted to 13·05 per cent of the total emotion values of that subject.

The remaining columns (10–14) summarise in various ways the results from the individual subjects. Column 10 shows the average of the percentages for each emotion as calculated from the results of those subjects who record the emotion. Column 11 shows the same average as calculated from the results of all the subjects, irrespective of whether they record the emotion or not. In order to obtain the results recorded in column 12, the total emotion values (not percentages) from all subjects were pooled and the percentages for each

TABLE VI

Nature of experience ('*Emotion*')	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	Subject									*Av. % where present*	*Av. % (for all subjects)*	*% of total values*	*Av. rank*	*M.V. of av. rank*
	1 %	2 %	3 %	4 %	5 %	6 %	7 %	8 %	9 %					
PLEASANT														
Interest	13·05	15·03	16·59	15·50	12·73	1·81	35·50	29·42	3·11	15·86	15·86	15·37	2·77	1·59
Joy and Elation	4·75	4·81	17·25	0·09	12·13	32·39	—	4·76	17·72	11·73	10·44	10·90	6·28	4·21
Contentment	4·03	6·73	8·36	2·82	27·90	8·28	0·66	8·46	18·84	9·56	9·56	8·81	4·11	2·57
Pleasant Sensations	16·19	9·27	3·51	28·11	5·47	2·52	1·11	1·75	0·68	7·62	7·62	8·74	5·33	2·30
'Positive Functional Feeling'	18·19	12·88	8·94	11·07	—	5·41	0·94	2·28	3·64	7·94	7·04	7·09	5·17	3·26
Food	2·06	13·55	5·16	13·07	1·11	5·22	8·04	1·22	0·72	5·57	5·58	5·66	5·44	2·49
Amusement	6·19	2·20	0·23	5·81	—	1·53	1·12	2·28	3·62	2·87	2·58	2·88	7·89	2·72
'Positive Self Feeling'	2·06	4·56	0·94	0·83	2·65	6·52	0·74	0·25	0·28	2·11	2·11	1·92	8·11	2·10
Aesthetic Experience	0·64	2·27	—	6·83	—	—	0·07	—	—	2·45	1·10	1·43	13·72	3·59
Tender Emotion	0·36	0·36	2·84	1·29	0·19	—	1·64	—	—	1·11	0·74	0·79	11·83	3·74
Excitement	2·12	1·00	—	—	—	—	—	—	3·59	2·24	0·75	0·72	14·06	4·26
Sex	—	—	4·38	—	2·97	—	—	—	—	3·67	0·82	0·71	14·00	5·22
Rest	—	—	—	—	—	—	3·52	1·72	—	2·62	0·58	0·55	14·72	3·88
Anticipation	0·73	3·73	—	0·43	—	1·27	0·28	—	—	1·29	0·72	0·54	13·11	3·43
Exercise	—	—	—	—	—	—	3·69	—	—	3·69	0·42	0·36	15·67	2·81
Recreation	—	—	—	—	—	—	3·09	—	—	3·09	0·34	0·30	15·89	2·41
Relief	0·13	—	—	—	0·19	—	0·52	0·78	0·97	0·52	0·29	0·29	13·50	3·45
Companionship and Society	—	—	—	—	—	—	0·03	2·28	—	1·15	0·26	0·27	15·67	2·48
Surprise	0·35	0·53	—	0·35	—	0·99	—	—	—	0·55	0·25	0·26	14·72	2·86
Hope	—	—	—	—	—	—	0·49	—	0·11	0·30	0·07	0·06	16·11	1·85
Reverie	0·13	—	—	0·13	—	—	—	—	—	0·13	0·03	0·04	17·00	1·00
Admiration	—	—	—	—	—	—	—	0·16	—	0·16	0·02	0·02	16·89	1·35

Table showing:
In *Columns* 1 *to* 9 percentages of total 'emotion values' as distributed among the various emotions by the nine subjects.
In *Column* 10 the average of these percentages for all those subjects who record the emotion concerned.
In *Column* 11 the average of these percentages for all nine subjects.
In *Column* 12 the percentages of the total 'emotion values' for all the subjects (differing from Column 11 in that the 'emotion values' are pooled before the percentages are calculated).
In *Column* 13 the average rank of each emotion as calculated from the ranks of the 'emotion values' in the case of each subject.
In *Column* 14 the mean variation of the averages in Column 13.

TABLE VII

Nature of experience (*'Emotion'*)	1	2	3	4	5	6	7	8	9	10	11	12	13	24
	Subject													
	1 %	2 %	3 %	4 %	5 %	6 %	7 %	8 %	9 %	*Av. % where present*	*Av. % (for all subjects)*	*% of total values*	*Av. rank*	*M.V. of av. rank*
UNPLEASANT														
Unpleasant Sensations	1·33	2·18	5·05	3·75	16·27	6·54	0·39	10·35	7·27	5·91	5·91	5·74	3·67	3·11
Anxiety and Worry	4·59	2·73	2·63	1·99	4·44	0·24	1·56	2·06	23·93	4·80	4·80	5·10	5·22	3·14
Anger, Irritation and Annoyance	4·39·	7·39	3·82	1·66	5·15	5·98	4·74	5·23	7·52	5·11	5·11	4·79	3·00	1·11
Fatigue	5·34	1·80	—	—	1·11	3·15	10·76	5·58	4·03	4·54	3·54	3·37	7·22	5·23
Boredom	5·53	2·67	2·32	2·48	2·70	1·24	5·06	1·76	0·76	2·73	2·73	2·57	4·67	2·52
Depression	1·53	1·33	4·22	0·53	1·05	0·40	2·43	9·48	—	2·62	2·34	2·28	7·67	3·41
'Negative Functional Feeling'	2·89	1·66	4·75	0·95	—	1·54	4·99	—	1·86	2·66	2·07	2·04	8·17	2·93
'Negative Self Feeling'	0·90	0·40	1·98	0·48	1·48	2·92	2·15	1·52	0·12	1·33	1·33	1·34	7·61	1·41
Discontent	0·09	0·72	1·28	0·07	1·48	5·22	—	—	—	1·47	0·98	1·03	12·89	5·11
Sorrow	0·86	0·33	2·88	0·29	—	2·75	—	0·92	0·09	1·16	0·90	0·99	11·28	3·77
Disappointment	1·03	1·87	—	0·13	0·89	1·39	0·43	2·01	1·06	1·10	0·98	0·77	9·94	3·05
Conflict and Indecision	—	—	—	0·32	—	1·23	0·11	3·05	—	1·18	0·52	0·59	14·78	4·54
Embarrassment	—	—	1·50	0·14	—	1·20	0·81	—	0·08	0·75	0·41	0·45	14·44	4·49
Impatience	0·26	—	1·37	0·88	—	0·09	—	0·03	—	0·53	0·29	0·35	14·56	4·72
'Tired Feeling'	—	—	—	—	—	—	1·97	—	—	1·97	0·22	0·19	17·78	2·39
Restlessness	—	—	—	—	—	—	—	1·57	—	1·57	0·17	0·18	17·89	2·20
Hurry	—	—	—	—	—	—	1·60	—	—	1·60	0·18	0·16	17·89	2·20
'Fed up'	—	—	—	—	—	—	0·87	—	—	0·87	0·10	0·08	18·11	1·85
Disgust	0·09	—	—	—	—	0·26	—	0·11	—	0·15	0·05	0·06	17·39	2·15
Self-reproach	—	—	—	—	—	—	0·46	—	—	0·46	0·05	0·05	18·33	1·56
Excitement	—	—	—	—	—	—	—	0·45	—	0·45	0·05	0·05	18·33	1·56
Surprise	0·19	—	—	—	—	—	0·13	—	—	0·16	0·04	0·03	17·78	1·90
Jealousy	—	—	—	—	—	—	0·08	0·17	—	0·12	0·03	0·03	18·06	1·16
Distress	—	—	—	—	—	—	—	0·22	—	0·22	0·02	0·03	18·44	1·41
Pity	—	—	—	—	—	—	—	0·13	—	0·13	0·01	0·02	18·67	1·19

The values shown in this Table correspond to those of Table VI.

emotion then calculated. The results therefore represent the percentages of the total emotion values obtained from all our data. Thus the figure 15·37 under the heading of Interest means that in the pooled results from the nine subjects Interest accounted for 15·37 per cent of the total emotion values. In order to obtain the results recorded in column 13, the emotions were first ranked in order of their emotion values for each subject. Column 13 itself gives the averages of these ranks. In certain respects these average ranks may be a safer guide to the general relative importance of the different emotions than are the average percentages of the previous column, inasmuch as they are not affected by the variation in the total emotion values from subject to subject. Column 14 gives the mean variations of the average ranks recorded in column 13.

Results Considered with reference to the Individual Observer

The data presented in Tables VI and VII can be considered either from the point of view of a given subject (vertically as regards the first nine columns) or from that of a given emotion (horizontally). Let us first adopt the former point of view, as linking on directly to the considerations aroused in connection with Table V. We must, of course, confine ourselves here to noting a very few outstanding characteristics; further details can be obtained from a study of the tables.

In *Subject* 1 emotions directly or indirectly connected with action seem to be prominent. With regard to pleasant emotions, Positive Functional Feeling ranks highest, followed fairly closely by Pleasant Sensations. Exitement is unusually high, while on the negative side, Boredom and Fatigue make exceptionally high scores, these perhaps being in a measure complementary to the Positive Functional Feeling and Excitement, in the nature of a relapse after the high degree of pleasure in action.

As already remarked, the results for *Subject* 2 are very similar to those for *Subject* 1. The just-noticed tendency to the connection of emotion with action is however perhaps rather less marked with Subject 2. Thus Interest and Positive Functional Feeling have changed places, while the more passive pleasures connected with Food rank very high. There is also less Fatigue and Boredom, though there is considerable liability to Anger.

Subject 3 is remarkable on the positive side for the high place of Joy, and for the relatively large entry for Sex. This latter term seems to have been taken by this subject and by others in a rather narrow sense as being definitely connected with sexual pleasure of a

sensory kind. Had it been taken in a wider sense it would probably have appeared more frequently elsewhere. Accompanying Sex, Tender Emotion has also an unusually high value with this subject. On the negative side he has unusually high scores for Sorrow and Depression and ranks very high for Negative Functional Feeling.

Subject 4 is of interest as being easily the happiest of all the subjects. Table VI should help to inform us wherein her exceptional happiness consists. By far the largest value on the positive side is that for Pleasant Sensations. This is perhaps to some extent due to the fact, already noted, that part of the observation period occurred during a holiday; in this holiday she seems to have indulged very freely in muscular exercise of a pleasant kind. A remark made by the subject is however worth quoting in this connection. '. . . Excellent health,' she writes, 'tends to increase the amount of pleasure I experience, and makes pain very rare, and severe pain almost unknown.' It is perhaps in conformity with this and with the taking of considerable muscular exercise, that the other sensory category of Food also ranks very high. In connection with the subject's general high predominance of positive emotion values, the following remark may also be quoted: 'I believe that I have also an unusual degree of the capacity for ignoring unpleasant memories or prospects and for living in the present moment or in pleasurable anticipations'.

In *Subject* 5 there is perhaps a predominance of the more passive pleasures. Thus Contentment is high, while Positive Functional Feeling is not mentioned. Discontent however is high, and is perhaps in a way complementary to Contentment. From certain outside evidence that was furnished it appears that this subject has a vigorous and capable personality (Interest too, it will be observed, is high), so that a possible predominance of certain relatively passive pleasures must not be taken necessarily to imply deficiency in the conative aspect of mentality. Sex seems to be taken in the same sense as with Subject 3 (it should be noted that the subject is a young married woman). Unpleasant Sensations (connected, it would appear, with a troublesome bodily complaint) rank exceptionally high, while Anxiety and Anger (these two being to some extent dependent on certain family difficulties) are also important.

With *Subject* 6, Joy, Contentment and Positive Self-Feeling are all high. Interest, however, occupies a lower place than is usual with our subjects. On the negative side Depression is low and Worry very low, but Discontent is high, and it is possible that the term is often used by this subject to denote states of mind which would be called Depression or Worry by most other subjects.

The record of *Subject* 7 is a little unusual. It contains a greater number of terms than any other, and perhaps to some extent because of this, correlates in general somewhat less highly with the other records than these do with each other (see Table V). One or two of the terms are employed in a rather unusual sense. Thus 'Tired Feeling' is said to be 'not genuine fatigue, though favoured by this. . . . Partly hate and discontent, accompanied by Negative Self-Feeling and Negative Functional Feeling'; for this reason, its values have not been included under Fatigue. Tender Emotion is high with this subject, while Positive Functional Feeling and Pleasant Sensations are low. The reason for the last-named fact is perhaps connected with the employment of the important categories Recreation, Rest, and Exercise, the entries to which might possibly otherwise have largely been placed under the heading of Sensations. On the Negative side an outstanding feature is the high value of Fatigue, which is doubtless connected both with the fact that the subject was working for an approaching examination during the period of observation, and with a generally neurasthenic disposition, to which the subject confesses in her accompanying remarks. In spite of this however she is a person of unusual intellectual ability, and 'Interest' receives more marks than with any other subject.

Subject 8 also suffers considerably from Fatigue, as well as from mental conflict associated in some degree with neurosis. Depression also is unusually high, while on the positive side a characteristic feature is the category of Companionship. Pleasure from a corresponding source, when it occurs with other subjects, would appear to be classed elsewhere, especially under Interest and Amusement. The subject is a married woman and the absence of a definite sex category may be connected with the fact that her 'marriage is not a happy one'.

Subject 9 is of interest as the one whose record shows the greatest proportion of unpleasure. The chief item on the negative side is that of Anxiety and Worry which is very high. Anger, Unpleasant Sensations and Fatigue also contribute to produce a high negative total. On the positive side there is a lack of counterbalancing Pleasant Sensations, though Contentment, Joy and Amusement are high. For this subject also, the observation period was one of rather abnormally hard work'.

Results Considered with reference to the Emotions

We may now, in conclusion, briefly consider Tables VI and VII from the point of view of the individual 'emotions'; for this purpose we must study the tables horizontally and refer especially to the last

five columns. Columns 10–13 afford measures of the general importance of the various emotions in the whole set of nine records (the order of emotions in the table corresponds to that of the percentage in column 12). That Interest has such a large predominance among the pleasant emotions may possibly be due in part to the fact that all our subjects were to a greater or less extent engaged in study, and Interest in the sense here used seems as a rule to denote the pleasant aspect of the normal process of study, i.e. the positive feeling tone of that activity which constituted the regular work of our subjects. It is possible, on the other hand, that the particular occupation of our subjects has after all at most only slightly increased the values allotted to Interest. It may be that in any career an important part of the pleasures of life are directly connected with the normal exercise of the intellectual functions, with the ordinary process of attention to the task in hand or to the sights and sounds around us. If, in any future observations of this kind, the observers are selected from a wider field, it may be possible to throw further light upon this question.

There is little to astonish us in the position of Joy and Contentment. As understood by our subjects they represent the typical forms of active and passive pleasure respectively. The former tends to accompany activities, whether of mind or body. It differs from Interest in having a characteristically high feeling tone (often +2 and sometimes +3, whereas Interest has seldom more than +1), and in being less restricted to, and bound up with, the process of cognition. Contentment tends to accompany the relatively passive enjoyment of a situation without desire for change or active intervention; it is closely associated with rest, repose and recovery from fatigue.

The high place occupied by Sensation, both on the positive and on the negative side, is a matter of some interest and importance. It has often been urged that the vague sensory background afforded by coenaesthesis exercises a powerful, though for the most part indirect, influence upon our affective life. Our present results can hardly be expected either to confirm or to refute this view; for our relatively rough methods must inevitably pass by many of the finer and more subtle influences of coenaesthesis that would perhaps be revealed by more delicate laboratory observations. But our data do undoubtedly show that sensory pleasures and unpleasures of a relatively forcible and easily introspectible kind are in themselves directly responsible for a great many—in our present records nearly 15 per cent—of our feeling values.

As already mentioned, the items classified under the head of Sensations are fairly numerous. On the positive side the sensations connected with the muscles seem to be among the most important sources of sensory pleasure. It is just possible that the fact of our subjects being engaged largely in more or less sedentary occupations may be of significance here; the pleasures of using the muscles for a walk, for instance, may be greater with one who is compelled to sit still when at work than for one whose work itself involves considerable locomotor activities; but this is no more than conjecture. On the negative side various minor aches and pains are very prominent; headache, neuralgia, etc., together with muscular and visceral discomforts being relatively frequent. All this points to the great importance of bodily health and fitness both as a source of agreeable feeling and as a means of avoiding pain. The above-quoted words of the exceptionally happy subject 4 are worth remembering in this connection.

'Positive' and 'Negative Functional Feelings' represent pleasures and unpleasures that are intimately connected with all forms of complex purposive activity; they are immediately determined by the apparent success or failure of these activities, and seem to represent the consciousness of those conditions which, according to Aristotle and many others who have followed him, are the essential determinants of pleasure and unpleasure. It is not surprising therefore that they occupy fairly important positions in the affective scale. It is probable that these feelings are considerably affected in certain abnormal (e.g. alcoholic) conditions and in certain forms of mental disease (mania, melancholia, etc.), though our present data afford no information on these points.

Very similar considerations apply to 'Positive' and 'Negative Self-Feeling'. On the whole, it is perhaps astonishing that the members of this latter pair do not take higher places in the affective scale than that which they actually occupy. In the case of these two, and in that of Sex, we are made to realise that the conscious affective values, as they appear in our records, do not necessarily correspond to the value of the corresponding psychic factors for purposes of conation. Indeed there is reason to believe that such correspondence is in many cases very small.[1] Some appended remarks of one of our

[1] There is, therefore, not necessarily any antagonism between our results and the views of such writers as Adler and Freud concerning the conative importance of self or sex respectively. With regard to Freud we must also remember that the term Sex is used by him in a very wide sense and by our observers—as already noted—in a distinctly narrow sense.

subjects are perhaps very significant in this respect: 'I find that two mental states—those connected with the ambitions, desires and estimations centred around myself and those connected with sexual desire and sexual attraction—tend so often to affect consciousness either acutely for brief periods or for longer periods as a sort of undercurrent, that I have been quite unable to do them justice in my record'. We are here again brought face to face with the inevitable deficiencies of our method.

It is not surprising that 'Food' should occupy an important place. It is true that civilisation, by its insistence on dinner-table etiquette and by substituting the use of special instruments for the more natural, simple and satisfying manipulative activities (cf. the pleasure of eating a piece of pastry or a chicken bone with a knife and fork and with the hands respectively), has in some ways undoubtedly diminished the pleasures of feeding. But it has made amends for these sacrifices by the provision of ample, regular and daintily prepared meals, selected from a varying *menu* which includes delicacies from almost every part of the inhabited world, so that the process of eating may well remain one of the most constant sources of pleasure to those possessed of some degree of wealth, sound health and good digestion.

It is not always quite clear exactly what kind of experiences have been included under 'Amusement'. One of our subjects defines it as 'the pleasures felt by the appreciation of a joke or funny action, word or thought', another as 'the pleasures connected with experiences of an entertaining or humorous nature'. It seems to be frequently associated with attendance at social gatherings of an hilarious kind, and with visits to the theatre—especially to the lighter kind of theatrical entertainment—or the cinema. Doubtless pleasure from such sources does tend to be a fairly regular feature of the affective life of many town dwellers.[1]

On the side of unpleasure, Anxiety and Worry occupy the most important position after that of unpleasant Sensations. Apprehension as to what is to come is the great price that man has to pay for his power of foreseeing the course of future events and adapting his conduct so as to influence them favourably. It is probable however that to a certain extent, here perhaps more than anywhere else, affect—when above a certain intensity—tends to be correlated not positively but negatively with action; there is some evidence to show that it is just in so far as, owing to external obstacles or internal

[1] It is probable that in a similar research conducted at the present day the figures under this head might be considerably increased owing to the influence of radio and television.

inhibitions, our subjects were unable to react adequately to impending danger, that they experienced the more intense or more prolonged periods of anxiety. This, we may note in passing, is quite in harmony with the tendencies of much recent psychological theory.

Anger, in its varying degrees, is also revealed as a potent source of unpleasure; the most frequent occasions for anger are—quite in harmony with psychological doctrine—various kinds of interference with actual or desired activities. The friend who keeps one waiting for an appointment when there are important things to be done, a person who makes a request at a moment when one is preoccupied with other matters, the servant or employee who has not done the work that she was supposed to do, the collaborator who has been guilty of a foolish mistake or misunderstanding; these—to take four actually occurring examples—seem to be the kind of checks to activity that tend most frequently to engender irritation in everyday life. Underneath these relatively ephemeral disturbances it is however often possible to detect the influence—direct or indirect—of deep-seated and permanent antagonisms (frequently resembling those to which psycho-analysis has drawn attention), which may have a profound and widespread effect on the whole affective life of the individual.

With regard to Fatigue, the comments which we have already made in connection with Sensation, are to some extent applicable. The fatigue here recorded is however primarily mental fatigue and would seem to be due either to hard study or to neurasthenia.

The figure for Boredom will perhaps be found unexpectedly high. It is probable that the minds of cultured persons accustomed to considerable intellectual exercise are particularly liable to experience boredom when circumstances are such as to present no suitable material to which the thoughts can be applied. Boredom may thus in a sense be complementary to Interest.

Depression and Sorrow may also perhaps be regarded as complementary to the active pleasurable states of Joy or Elation, while Discontent is perhaps similarly complementary to the passive pleasure of Contentment.

In the last column of Table VI is recorded the mean variation of the average rank of the emotions; a measure, that is, of the degree of variability of an emotion from one subject to another. When the M.V. is high, it indicates either that the mental state in question really plays a part of very varying importance in the lives of our different subjects, or that the term is not always employed by the subjects in the same sense. In either case we must, of course, be

particularly cautious in making any inferences with regard to the general significance of this mental state for human pleasure or unpleasure. We may note however that Interest, which ranks such an easy first for emotion values shows only a small degree of individual variation. Unpleasant Sensations, however, which head the list on the negative side, have a moderately high variability (this is what we should expect if our above considerations concerning health, etc., are correct). So also have Anxiety and Worry, though the M.V. for the Anger group is surprisingly small. The highest variations of all are those for Sex and Discontent.

IV.—Summary

Nine subjects kept a detailed record of their affective life for thirty consecutive days or more, entering in this record the intensity of the feelings that were experienced, and the qualitative nature of the chief affective mental states.

The results show in every case a predominance of pleasure over unpleasure, the degree of this predominance varying however considerably from one subject to another.

There is some evidence to suggest that those who tend to experience most the extreme degrees of feeling are on the whole less happy than those whose feelings are usually less intense.

As a result of the observations, it has been possible to draw up a table representing the relative importance of various mental states in the affective life of our subjects. The six most important states on the side of pleasure are described as follows (the order indicating their relative importance): Interest, Joy, Contentment, Pleasant Sensations, 'Positive Functional Feeling', Food. The corresponding states on the side of unpleasure are: Unpleasant Sensations, Anxiety and Worry, Anger (and Irritation), Fatigue, Boredom and Depression.

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