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Change or homeostasis? A systems theory approach to depression

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Looking at the onset of depressive states in linear terms, there is often a problem of distinguishing cause and effect: did the adverse life-events cause the depression, or did the depression cause the adverse life-events? If we abandon linear thinking and look at depression in systemic terms, the problem of cause and effect disappears, but it is replaced by another problem: is the patient/environment system characterized by homeostasis or change? Some depressed patients seem to be spiralling down towards disaster. Others seem to be stuck in a rut. In systems terms, can depression be at the same time an agent of change and an agent of stasis (or even homeostasis)? The paradox can be resolved if we postulate that the function of depression is to reconcile the individual to an involuntarily subordinate social role; depression which reconciles to a pre-existing subordinate position has static properties; depression which mediates a switch to a subordinate position from a previously dominant position has properties of systemic change.

In formulating a depressive state, it is sometimes difficult to unravel cause and effect. Is this man depressed because he lost his job, or did he lose his job because he was depressed? Is this woman depressed because her husband left her, or did her husband leave her because she was depressed and therefore unrewarding? Some of the causation of depression can be attributed to life-events (Paykel, 1978) or social factors (Brown, 1989), but the larger part of the causation remains unaccountable for in these terms.

One way out of this difficulty is to adopt a systemic epistemology, in which linear relations of cause and effect are less important than interactive processes. Attempts to apply systems theory to psychiatry have been sporadic (Gray & Rizzo, 1969; Marmor, 1983; Senay, 1973; Wender, 1968) except for systemic family therapy which is explicitly based on systems theory (Hoffman, 1981). Outcomes such as depression are seen as the end-points of positive feedback processes (Feldman, 1976), in which small random deviations from a steady state are amplified progressively until the system changes and an 'event' or a 'condition' is said to occur. Alternatively, random and other deviations from the steady state may be damped by buffering or by negative feedback, so that an outcome in the form of a change in the system is avoided (Gray & Rizzo, 1969).

A basic tenet of the systemic approach to affective disorders is that mood is maintained, raised or lowered by the communicational exchanges in a dyad or group.

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It is assumed that 'rewarding' communications raise mood and 'punishing' communications lower mood, but mood may also be lowered by communications which define the recipient as dependent in a previously symmetrical relationship. For instance, Feldman (1976) mentions two ways in which a husband was lowering the mood of his wife; he was undermining her self-image in implying that she was lazy, and he was being overprotective when she behaved in a depressed way. In both these cases the husband was defining the wife's position as dependent: in one case she was like a bad child needing reprimanding, in the other she was like a sick child needing nurturance. Both behaviours on the part of the husband led the wife to make cognitive evaluations of increasing personal helplessness, or inability to exercise control in avoiding a negative outcome, and this is seen as the fundamental evaluation which induces both depressed mood and the clinically depressed state.

Positive feedback loops in depression

Beck (1974) was probably the first to make a specific formulation of the importance of positive feedback loops in the genesis of depression. Describing the reciprocal interaction of the depressive's negative ideation and the mood of sadness and apathy, he says, 'Since the chain reaction feeds upon itself, the depression goes into a downward spiral'. Subsequent observers have commented on the occurrence of positive feedback at several levels; not only the intrapsychic domain which was Beck's concern, but also at the level of mind–body interaction, and in terms of the interaction of the individual with his social and inanimate environment.

At the intrapsychic level, depressed people have a negative view of the world, themselves and the future which is in turn depressing (Beck, 1976; Teasdale, 1985). They selectively recall unfavourable events from the past. They tend to attribute aversive life-events to internal, stable, global causes; and they attribute success to external, unstable or specific causes. They blame themselves when things go wrong, but they do not take the credit when things go right. Thus the attributional style which results from the depression leads to more depression (Brewin, 1988). Along similar lines, Pyszczynski & Greenberg (1987) found that depressed patients focused on themselves after a negative outcome but avoided self-focus after a positive outcome, so intensifying failure and minimizing success.

At the musculo-skeletal level, depression may be associated with loss of poise and disorders of both posture and gait, of which the subjective experience may be depressing and which may lead to aversive reactions from others. There may also be pain, which is not only depressing in itself but may also give rise to ideas of serious malfunction and disease. There may be a sense of exhaustion, and easy fatiguability of muscles, leading to beliefs about chronic viral infection. In general, the body does not seem to be working well in depression, and this reduces the patient's confidence in their ability to ward off aversive environmental events.

At the executive level, the loss of energy associated with depression leads to failure to carry out tasks and thus to the accumulation of unfinished business such as unanswered (and even unopened) letters; so that increasing evidence of incompetence and failure surround the depressed person and cannot but have a further depressing effect. Moreover, neglect of self-care leads to a deterioration of skin, hair and clothes so that to look in the mirror is a depressing experience.

Even when tasks are carried out, they may be done badly in depression. A mother is unable to give constructive attention to her children but rather screams at them or even hits them, and so feels herself to be a bad mother; and being unable to respond sexually to her husband she feels herself to be a bad wife; and these experiences of failure deepen her depressed mood. Maruyama (1963) pointed out the possibility of 'mutual amplification ... between loss of self-confidence and poor performance in a neurotic person'.

At the social level, depression leads to isolation which for most people is depressing. If depressed people avoided those who make them feel bad, such as enemies, the depression might serve a homeostatic function in this respect; but, on the contrary, they avoid friends and relatives who would, if they were permitted, cheer them up. Even if relatives are not avoided, the interaction may not be therapeutic: '... patients may use depressive symptoms to elicit sympathy and care from their families, which in turn reinforces the maladaptive behaviour and establishes a vicious circle' (Veiel & Kuhner, 1990).

Klerman (1974) investigated the 'communication of distress' function of depression, postulating that it served as a cry for help which mobilized social resources. However, after studying a group of 40 depressed women and a matched control group he came to the conclusion that the depression had alienated the women not only from friends and relatives but even from their husbands and children. Coyne (1988) points out that 'marital difficulties may precipitate a depressive episode, yet depression may also trigger or potentiate marital problems'. Henderson (1974) put forward the idea that depression was a form of care-eliciting behaviour, particularly when it was associated with attempted suicide. While this may be true over the short term, it is the general experience that others avoid depressed people and do not give them care. They may justify this neglect by categorizing them as lazy, inadequate or rude. As the old saying goes, 'Laugh, and the world laughs with you; weep, and you weep alone'. In more behavioural terms, 'Depressed people are usually not reinforcing to be with and consequently are often tactfully avoided' (McLean, 1976, p. 313).

At the therapeutic level, depressed people try to get themselves out of the trough, even without the added stimulus from friends to 'pull yourself together' or to 'snap out of it'. These efforts fail, and this failure enhances the depression, 'when people attempt to cheer up someone who is sad they may turn a temporary state of sadness into a prolonged state of depression' (Weeks & L'Abate, 1982). The over-protectiveness of the carer mentioned above (Feldman, 1976) comes into this category.

Criticism of a person because of their depressive symptoms is an additional positive feedback loop. The criticism makes them more depressed, which increases the symptoms, which increases the criticism, and so on. A number of symptoms may be targets for attack, particularly in the case of a depressed spouse. A husband may get angry because the house isn't cleaned properly. Some husbands get angry at lack of sexual response, others at weight loss or gain. Wives get angry with the husband who doesn't do jobs around the house, or leaves them half done. Coyne (1988) reports a study in which the spouses of depressed patients 'accepted a strong biological component to the patients' disturbance but ... were nonetheless quite angry at them for being symptomatic'.

Some authors have commented on very gradual positive feedback processes acting over the life-span, particularly during the competitive stages of childhood and adolescence. Sloman (1979) suggested that depression was part of a deviation-amplifying system which, by making the subject progressively less competitive, converted small differences in fitness into large differences in social and reproductive functioning. Smith (1983) wrote:

> People who think they are competent and that the world is adequately responsive are likely to cope actively, and their efforts therefore have a good chance of increasing their actual skill and competence – and as good a chance as social realities allow of resulting in a record of success. Conversely, people who regard themselves as incompetent and the world as unresponsive to their efforts are likely to withdraw from coping. Not investing the required effort, they are unlikely to develop new skills; as a result they tend to fall still farther behind in competence, yielding a predictable record of failure. We are dealing, thus, with benign and vicious circles or, to put it differently, with self-fulfilling prophecies. 'To him who hath shall be given; from him who hath not shall be taken away even that which he hath' – 'Matthew's Law' as Robert Merton has called it.
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> At the extreme of the vicious circle is the state of 'learned helplessness' that Seligman has shown to be implicated in depressive states.

In summary, many authors have commented on the occurrence of positive feedback loops in depression, such that a lowering of mood causes changes in the environment which in turn cause a further lowering of mood.

Depression associated with homeostasis

In view of the above considerations we might expect every depressed patient to be accelerating towards disaster, but in practice the majority of depressed patients, certainly most of those seen in the out-patient clinic, seem to be very chronic and appear to the clinician to be 'stuck' rather than in a state of change. A man is depressed in his job, but he lacks the initiative to apply for another job; he is nervous about the interview situation, and he dreads the rejection of being turned down. As with a job, so with a marriage. A common presentation in the out-patient clinic is the woman who is married to an uncaring tyrant; her life is one of drudgery and service to a man who will give her no pleasure and denies her the opportunity of seeking pleasure elsewhere. These women are 'stuck' in their marriages, and the depression makes it impossible for them to leave. They lack the energy and initiative to set up on their own, they lack the interest to look for an alternative partner and the depression makes them unattractive to any man who might come along. Gilbert (in press) has pointed out that this constitutes a form of entrapment, which may function in a similar way to helplessness (Seligman, 1975).

The theorist who has most clearly made the case for depression as an agent of stasis, if not of homeostasis, is Costello (1976), who sees the function of depression as maintaining the *status quo*. If mood is pervasive, depression lowers all incentives equally, so that a failing incentive is less likely to be replaced by another.

In the family therapy literature, depression and low self-esteem are seen as factors blocking systemic change (Hoffman, 1981), partly by reducing problem-solving ability (L'Abate, 1976) and partly by replacing unstable symmetrical relationships with stable 'one-up/one-down' relationships in which the one-down position is

associated with depressed mood (Haley, 1963). Feldman (1976), in addition to recognizing the positive feedback loops mentioned earlier, also recognizes that depressive symptoms may have a homeostatic function: 'From an interpersonal systems point of view, the depressive symptoms are an important aspect of a homeostatic process that is functioning all too well. It is only when the system can be moved *away* from the existing homeostasis and toward a process of morphogenesis that the depressive symptoms lose their system-maintenance function and begin to change.'

Can negative feedback loops be identified?

Can we identify a negative feedback system maintaining homeostasis of mood? Let us use the analogy of body temperature, which is homeostatically maintained at a certain setting by negative feedback such as sweating if the temperature rises and shivering if the temperature falls. If mood is the equivalent of temperature, what are the equivalents of sweating and shivering? The most likely candidates are aversive and rewarding stimuli, since these are known to lower and raise mood respectively. Where do these stimuli come from? The most likely sources are the people in the individual's immediate environment. If we are dealing with stimuli from people, we can talk about signals rather than stimuli, and postulate 'putting-down' signals for lowering mood, and 'boosting' signals for raising mood.

When is then being regulated is not actual mood but 'apparent mood', or the mood of the individual as it appears to those around her/him. Of the various manifestations of mood, it is the degree of social control exercised by the individual which most affects fellow group members; how much does she/he allow others to control her/his actions, and how much does she/he attempt to control the actions of others? We must assume that the social group allocates to each member an 'exercise of control' setting which is the level of control exercised by that individual with which the group feels comfortable, based, probably, on that individual's prestige in the group. If the individual appears to exercise too little control, the group increases its boosting signals and reduces its putting-down signals to that individual. If the individual appears to exercise too much control, she/he is perceived as 'too big for his boots' and the group stops boosting that individual and starts putting her/him down.

For simplicity, let us switch from the group to the dyad, and to that particular dyad in which there is a one-up and a one-down member (Haley, 1963), such as a marital partnership in which the husband is one-up on the wife. The one-up member defines the relationship, including the 'exercise of control' setting of the one-down member. The husband then boosts his wife, or puts her down, so as to keep her apparent exercise of control identical to the 'exercise of control' setting which he has allocated to her. This setting is ideally such as to ensure that the wife's mood is high enough to carry out her duties, but not sufficiently high to threaten his one-upness (it is our clinical experience that such fine tuning requires more social skill than many spouses possess).

What seems more likely, from what we know clinically, is that the 'one-up' husband (or wife) tries to keep his spouse's exercise of control a *constant amount below his own* exercise of control. What is maintained homeostatically is not the absolute

level of control but the difference in control between husband and wife, what might be called the 'control gap'.

More generally, the 'one-up' spouse maintains a gap on what Birtchnell (1987) has called the 'vertical dimension' which describes a number of correlated variables such as mood, rank, self-esteem, self-confidence, dominance, and, in the last resort, the capacity to define the relationship rather than accept the definition provided by the other. Colloquially, we might say he tries to maintain a constant level of 'one-upness'; more technically he tries to maintain a constant vertical gap setting between what he feels to be his own position on the vertical dimension and what he perceives his wife's to be. Provided the husband feels securely in control and requires only a small vertical gap between himself and his wife, the wife's mood will be maintained within the normal range, and any tendency on her part to get depressed will be counteracted by the husband; but if his mood is low or he requires a large gap, he may need to maintain his wife's mood within the depressive range, and any efforts to raise it (for instance, in therapy) will be countered, and 'the non-depressed spouse will unconsciously attempt to produce a relapse in the service of his own defensive mechanism' (Weeks & L'Abate, 1982); the 'defensive mechanism' is the vertical gap which ensures his control over the relationship.

The 'vertical gap' model has the advantage of embracing the phenomena of redirected aggression; if the husband's mood is lowered after receiving punishment from his boss at work, he restores the vertical gap at home by putting his wife down (or omitting to boost her). The feedback loop is probably below conscious awareness; even though he may be aware that he is putting his wife down, he does not understand why he is doing it; and many signals intended as boosting signals are received as putting-down signals, especially in the case of 'constructive' criticism (McLean, 1976).

This model is the only homeostatic model I can find which could account for the static properties of many depressions. It is clearly oversimplistic, speculative and based on unsystematic clinical observation. I have presented it to show that it is possible to match the obvious positive feedback loops governing mood with at least a possible negative feedback system, suggesting that the static depressions may represent true homeostasis rather than just buffering or other mechanisms for preventing change (Hogan, 1980). It is noteworthy that the mood of one individual is determined by a 'setting' controlled by another. Returning to the analogy of body temperature, it is as if a nurse were keeping her patient's temperature at a constant amount below her own, sponging him when the difference became too small, piling on blankets when it became too great.

A resolution of the paradox suggested from the perspective of function

Some depressions seem to be characterized by change in the patient/environment system, others by homeostasis. Does this mean there are two types of depression, or can one depressive episode have both change and homeostatic functions, either at the same time or consecutively? Are there different levels of function, as in the case of temperature control; where, for example, a change in the activity of sweat glands can mediate homeostasis of body temperature; or, as Feldman (1976) points out in the

case of mood, change in the individual may subserve homeostasis in the dyadic relationship?

One possible solution can be discerned if we develop Haley's idea, mentioned above, that depression is associated with the one-down position in an important relationship. If we go a little further and say that the function of depression is to accommodate the individual to a one-down position which cannot be avoided, then we can see that this accommodation may in some cases be concerned with homeostasis and at other times with change. If the individual was formerly in the one-down position, all that is required is that he or she should be accommodated to remain in that position in spite of whatever new circumstances might be tending to promote change. If, on the other hand, the individual was formerly in the one-up position in the relationship, there must be change in the form of a reversal of dominance in the relationship. In that case we might expect the depression to show 'change' characteristics while the reversal was taking place, and then possibly to stabilize into a homeostatic depression if further accommodation to the one-down position were required.

This solution accounts for the similarities of all depressions, in that they all have the same function of accommodation to an involuntary one-down position; and it accounts for some of the differences between depressions, in that there are two different starting-off points: the one-up position and the one-down position. This will be considered further in the section on the classification of depression. The mental state of depressed patients tends to be characterized by what Gilbert (1989, in press) has called 'involuntary subordinate self perception', and might have been specifically designed by evolution for the purpose of accommodating them to the subordinate role, and other features such as apathy, hopelessness and anxiety might have been designed to inhibit any attempts to escape from it and gain or regain the one-up position.

The end-point and secondary changes

In the last section I suggested that the end-point of a 'change' depression (in distinction to a 'homeostatic' depression) is a reversal of dominance in the relationship. One of the concomitants of this changed status is passivity and compliance on the part of the newly subordinate and depressed individual. This may or may not lead to secondary change in matters which were in conflict.

Let us take a move of house as an example of secondary change. We can recognize at least three ways in which it could relate to the primary change in the relationship. First, it could be a symbol that the dominance has been reversed; this may well be the case if the possible move of house has been a major issue for some time. Secondly, it could be one of several changes consequent on the reversal of dominance, as the newly dominant spouse gets their own way on a number of issues in which they formerly had to submit. Thirdly, it could be part of the depressive snowball, as the losing spouse gives way and in so doing abandons an important part of their power base, such as supportive parents who live nearby.

The fact that the move of house represents a 'change' of location is incidental, depending on the fact that the newly dominant spouse wants to change; if he or she

wanted to stay put, the plans for change would be abandoned. The primary change is not the move of house, but *who decides* whether or not they move house. The same applies to other secondary changes, such as whether or not the wife works.

Objections to the hypothesis

Why are some subordinates not depressed?

Depression is only one of a number of mechanisms for facilitating subordination during the course of dyadic interaction. Therefore all subordinate individuals are not depressed. Children tend to be subordinate to their parents without the need for depression, and in general if there is a great difference in size or age or skill between two individuals, one may automatically adopt a subordinate role without any suggestion of depression; in fact, there may be joyous surrender to one whom the subordinate individual respects or even adulates. Depression is likely to be a 'safety net' mechanism to ensure asymmetry when other methods of negotiation have failed. It is likely to occur when rank is contested, or when extra demands are made on the subordinate member – demands which in the absence of depression might incite them to rebellion.

Why does depression occur after loss?

The dyadic interaction of agonistic behaviour is the main vertebrate mechanism for inducing social asymmetry, but in human beings it has been superseded to a large extent by other forms of social competition. In human social life, asymmetry is often imposed on members of a dyad from outside, in two rather different ways. Dominant rank may depend on a patron who favours one member at the expense of the other, so that rank reversal may occur if a patron is lost. This may lead to a 'change' depression in the member who loses rank; whereas if the subordinate member loses a patron the subordinate rank would be intensified and a 'static' depression could be expected. Also, as Gilbert (1989) has pointed out, instead of displaying their power to each other in an attempt to intimidate the other, two rivals may present themselves as attractive to the group as a whole in an attempt to solicit approbation, which may lead to differences of prestige and self-esteem. Possibly this evolutionarily new form of social competition has been built on the mechanisms of dyadic agonistic behaviour, so that a change depression may occur in someone who loses the approbation of the group, whereas a static depression occurs in someone who has never had the approbation of the group. In human social life, subordination is induced by agonistic behaviour only in settings in which society has neither the will nor the power to intervene, such as the street-corner gang, the school playground and the nuclear family; therefore it is only in these settings that we are likely to see depression resulting directly from dyadic interaction.

Which relationship?

To the suggestion that the function of depression is concerned with the issue of being one-down in *the* relationship, it might be argued that human beings have many relationships, so how do we know which one is liable to generate the kind of dyadic

interaction which might lead to depression? Clinically, we find that a depressed person is usually having problems with one relationship, and it may be a spouse, a parent, a child, a sibling, an employer, or some other person who is important to the patient.

Over hundreds of millions of years of our evolution, we probably lived in groups with a fairly linear dominance hierarchy, like present-day baboons and macaques (Barkow, 1975) in which all dyadic relationships are complementary in terms of power. In these monkey societies there are only two relationships that are likely to be contested, one with whoever ranks below and the other with whoever ranks above. If there is difficulty with the monkey who ranks below, this becomes the priority relationship, and that with the monkey above is likely to be put 'on hold' (in the form of submission) while the first is being sorted out. Therefore our minds have evolved to 'take on' only one rival at a time. One result of this is that the appraisal of likelihood of goal attainment in monkey society becomes aligned with self–other comparison, because the attainment of goals is dependent on the approval of the higher ranking monkey, or on usurping his dominance, which itself may be the major life goal.

Implications for the classification of depression

How does this hypothesis relate to the idea of two types of depression? The depression of a one-up person becoming a one-down person is likely to be more severe than that of a one-down person remaining one-down, and onlookers are more likely to comment on change in behaviour or attitude, but since the objective of the depression is the same in the two cases (adjustment to the one-down position) one would expect the depressions to be quite similar. This fits with the distinction between 'neurotic' and 'psychotic' depression (Price, 1969). The difference between the two depressions is a difference in starting-point rather than of content.

Beck's (1976) negative cognitive triad (about the self, the world and the future) is appropriate to both types of depression, in that such thinking disposes the sufferer to accept whatever has been imposed on him without attempting rebellion. But a negative view of the past is appropriate to a change depression, in which thinking should take such forms as 'my former rank was inappropriate' and 'my former successes were all a sham', with which, indeed, the clinician is familiar in his psychotically depressed patients. Such thinking need not occur in the static depressives because they may not see themselves as having had any previous success or high rank to form the subject of cognitive distortion.

Possibly the view of neurotic and psychotic depressions as having homeostatic and change functions, respectively, may help researchers to separate the two clinically. For instance, rating scales attempting to separate the two depressions might well concentrate on the statements of informants, who notice a change from previous personality in patients with psychotic depression, but concerning patients with neurotic depression tend towards the view that 'he is much the same as he always has been, only rather more so'.

Concerning truly 'endogenous' depressions, which start for no reason, last a variable time and remit spontaneously, we should ask why they seem immune from

the development of the chain reactions, snowballing and vicious cycles described by Beck (1974).

Implications for research

Evolutionary hypotheses are not directly testable, and so it is important for them to be heuristic and to provide a novel conceptual scheme from which refutable hypotheses can be generated. This applies to the idea that depression evolved because it served the function of enabling our ancestors to adopt subordinate social roles. The possible homology between human depression and animal defeat reactions offers some promising animal models (Henry, 1982; Leshner, 1983; McGuire, 1988; Price, 1989; Sapolsky, 1989). In human beings, the hypothesis orients us to the psychology of complementary relationships. Bateson (1972), Hinde (1979), Sluzki & Beavin (1977) and the 'interpersonal' psychologists (Orford, 1986) have given serious consideration to the topic, but more research is needed. We need to develop measuring instruments which will give reliable measures of consistent asymmetry in relationships, so far not achieved (Gray-Little & Burks, 1983).

With instruments to measure complementarily and the expression of both boosting and putting-down signals between the members of a dyad, we would be in a position to make predictions from the theory: for instance that, in complementary marriages, the onset of depression in the one-up partner (but not in the one-down partner) would be associated with an increase in aversive signalling (expressed hostility) to the spouse. A preliminary study gave some evidence for this (Price, 1988) but a far more rigorous study is required. Previous work on the expression of hostility in depression has not taken account of complementarity between the patient and the object of the hostility, and it is possible that the neglect of this variable has been responsible for the conflicting findings which have resulted from such studies (Riley, Treiber & Woods, 1989).

Relation to other theories

The 'change' depressions postulated here are consistent with the 'disengagement from incentives' theory of depression put forward by Klinger (1975) and by Hamburg, Hamburg & Barchas (1975), in that they function to disengage the patient from a desirable social role which is no longer tenable. The difference is that Klinger's theory postulates a switch to an alternative goal *within the depressed individual*, whereas the present theory postulates a transfer of goal-forming initiative to the newly dominant individual, so that the switch to an alternative goal occurs not within the depressed individual but *within the social group or dyad.*

The 'static' depressions are consistent with the learned helplessness theory of depression put forward by Seligman (1975), in that they discourage the patient from resisting the aversive stimulation which may pass down a social hierarchy, and thus serve the function of maintaining the stability of the complementary relationships which constitute a social hierarchy. We can also attempt to integrate this phylogenetic view with interpersonal psychology. Birtchnell (1987) has called the vertical dimension of the interpersonal circle directiveness/receptiveness or upperness/lowerness. According to our theory, a 'change' depression serves the function of moving an individual down the vertical dimension from upperness to lowerness; a

'static' depression serves to maintain an individual in a position of lowerness. The horizontal dimension of closeness/distance is clearly uncorrelated with these functions, as one can have one's place usurped as readily by a stranger as by one's brother. However, at least one other dimension is required to fit the model with reality, as we know that states of lowerness may be either welcome or unwelcome, and this dimension is important for the affective states of the actors concerned. A position of lowerness may be adopted willingly, even joyfully, when the position of upperness is occupied by someone who is respected or loved, and from whom security and praise may be forthcoming; this position of lowerness is complementary to the 'idealized other' of Kohut or the 'hero archetype' of Jung (Gilbert, in press). On the other hand, if the upper individual is resented rather than respected, the lower person has been coerced into lowerness and is likely to be tempted to rebellion; it is in preventing this rebellion that depression serves its function.

This variation between joyful and resentful lowerness is, I think, best expressed by Chance's (1988) concept of hedonic and agonic modes, because in the hedonic mode status relationships are not an issue whereas in the agonic mode the actors are oriented towards contesting status relationships with agonistic behaviour. In describing relationships, we may think of upperness/lowerness (or, more correctly, symmetry/complementarity) and closeness/distance as trait variables whereas hedonic/agonic is a state variable which reflects the degree to which the actors are currently satisfied with the existing status relationships. Although some loving or hero-worshipping relationships may be very stable over long periods, others may switch rapidly from hedonic to agonic and back again in processes of disassuagement (Heard & Lake, 1986) and reconciliation (de Waal, 1989), and this is typically seen in marital relationships. There are two exit routes from agonic lowerness (depression): one climbs towards upperness (or symmetry), the other is a switch to hedonic lowerness (implying that the lowerness and its implications are accepted).

Conclusions

The theoretical arguments presented here support the long-held view that there are two distinct types of human depression. One type serves a static function; namely, to maintain the one-down member of a relationship in that position in spite of motivation to become one-up and in spite of demanding and provocative behaviour by the one-up member. The other type serves a change function; namely, to facilitate the change of the one-up member in a relationship into the one-down position, in spite of motivation to remain one-up. To some extent, both types of depression serve the same function; namely, to accommodate the one-down member of a relationship to what is likely to be an uncomfortable and unrewarding social role. They differ in their point of origin, in that one is helping the actor to remain where he has been, whereas the other is helping him to change from his former one-up position. Therefore, depressive thinking about the present and future should be common to both types of depression, but depressive thinking about the past, in so far as it is unrealistic, should only occur in the depressions which mediate change.

This hypothesis is consistent with ethologically based theories which see depression as an evolved mechanism concerned with the maintenance of asymmetry in relationships. The capacity to live harmoniously in equal, symmetrical, reciprocal

relationships with others is rare among vertebrates. In almost all species, two same-sexed adults sharing a territory develop an asymmetrical relationship, whereby one is dominant and the other subordinate. The subordinate animal needs to lead a life of considerable inhibition in many activities, such as feeding, mating, exploration and freedom of movement; in fact, it needs to have a different mentality or behavioural style from the dominant animal. We could call this the involuntary subordinate mentality. Because animal social life depends for its success on the development and maintenance of a subordinate mentality in a considerable proportion of any population, it is likely that several mechanisms have evolved for inducing subordination. It has been suggested by a number of writers that human depression is a manifestation of one of these subordination-inducing mechanisms (Gardner, 1982, 1988; Gilbert, 1989, in press; Hartung, 1987; Price, 1967; Price & Sloman, 1987; Sloman, Gardner & Price, 1989). The depression is part of a system of dyadic interaction which ensures the development and maintenance of asymmetry.

Regarding prophylaxis and therapy, depression is seen as a primitive, involuntary means of resolving interpersonal conflict. The necessity for it can be avoided if negotiation can produce a compromise solution based on reciprocity and interpersonal equality; or, if yielding by one party is unavoidable, voluntary yielding can replace the involuntary yielding of depression. In this sense, the experience of depression contains the seeds of its own resolution by inducing a state of 'giving in and giving up'. The therapist can facilitate this process by assisting the patient to give up unequal struggles, unrealizable goals and unachievable aspirations.

Human social life is very different from the social organization in which depressive states are likely to have evolved. The social hierarchies based on intimidation have given way largely to status systems based on the display of attractiveness and the voluntary conferral of power. Even beyond this, for many people the experience of winning or losing has become an inner symbolic one, detached from the realities of the social situation they are in. As Longfellow said:

> Not in the clamour of the crowded street,
> Not in the shouts and plaudits of the throng,
> But in ourselves, are triumph and defeat.

However, nature is a tinkerer rather than an engineer, and it is likely that the mechanisms subserving these advanced forms of triumph and defeat have been built on to the foundations of the old ones, so that they may still trigger affective states which were functional in relation to the primitive hierarchies. And these primitive hierarchies may even now be discerned in places where cultural influences are not pronounced, such as street gangs, school playgrounds and the matrimonial home. In these situations we can actually see depression facilitating reversal of rank or the maintenance of low rank, and in such cases the systemic properties of change and homeostasis are of functional importance.

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References

Barkow, J. H. (1975). Prestige and culture: A biosocial interpretation. *Current Anthropology*, **16**, 553–572.

Bateson, G. (1972). *Steps to an Ecology of Mind*. New York: Ballantine Books.

Beck, A. T. (1974). The development of depression: A cognitive model. In R. J. Friedman & M. M. Katz (Eds), *The Psychology of Depression*, pp. 3–27. Washington, DC: Winston.

Beck, A. T. (1976). *Cognitive Therapy and the Emotional Disorders*. New York: International Universities Press.

Birtchnell, J. (1987). Attachment–detachment, directiveness–receptiveness: A system for classifying interpersonal attitudes and behaviour. *British Journal of Medical Psychology*, **60**, 17–27.

Brewin, C. R. (1988). *Cognitive Foundations of Clinical Psychology*. Hove: Erlbaum.

Brown, G. W. (1989). Depression: A radical social perspective. In K. R. Herbst & E. S. Paykel (Eds), *Depression: An Integrative Approach*, pp. 21–44. Oxford: Heinemann.

Chance, M. R. A. (1988). Introduction. In M. R. A. Chance (Ed.), *Social Fabrics of the Mind*, pp. 1–35. Hove: Erlbaum.

Costello, C. G. (1976). *Anxiety and Depression: The Adaptive Emotions*. Montreal: McGill–Queen's University Press.

Coyne, J. C. (1988). Strategic therapy. In J. F. Clarkin, G. L. Haas & I. D. Glick (Eds), *Affective Disorders and the Family*, pp. 89–113. New York: Guilford Press.

de Waal, F. (1989). *Peacemaking Among Primates*. Cambridge, MA: Harvard University Press.

Feldman, L. B. (1976). Depression and marital interaction. *Family Process*, **15**, 389–396.

Gardner, R. J. Jr (1982). Mechanisms in major depressive disorder: An evolutionary model. *Archives of General Psychiatry*, **39**, 1436–1441.

Gardner, R. J. Jr (1988). Psychiatric syndromes as infrastructure for intraspecific communication. In M. R. A. Chance (Ed.), *Social Fabrics of the Mind*, pp. 197–225. Hove: Erlbaum.

Gilbert, P. (1989). *Human Nature and Suffering*. Hove: Erlbaum.

Gilbert, P. (in press). *Depression: Types, Concepts and Theories: An Evolutionary Synthesis on the Themes of Power and Belonging*. Hove: Erlbaum.

Gray, W. & Rizzo, N. D. (1969). History and development of general systems theory. In W. Gray, F. J. Duhl & N. D. Rizzo (Eds), *General Systems Theory and Psychiatry*, pp. 7–31. Boston: Little, Brown & Co.

Gray-Little, B. & Burks, N. (1983). Power and satisfaction in marriage: A review and critique. *Psychological Bulletin*, **93**, 513–538.

Haley, J. (1963). Marriage therapy. *Archives of General Psychiatry*, **8**, 213–234.

Hamburg, D. A., Hamburg, B. A. & Barchas, J. D. (1975). Anger and depression in the perspective of behavioral biology. In L. Levi (Ed.), *Emotions: Their Parameters and Measurement*, pp. 235–278. New York: Raven Press.

Hartung, J. (1987). Deceiving down: Conjectures on the management of subordinate status. In J. Lockard & D. Pulhus (Eds), *Self-deceit: An Adaptive Strategy*, pp. 170–185. Englewood Cliffs, NJ: Prentice-Hall.

Heard, D. H. & Lake, B. (1986). The attachment dynamic in adult life. *British Journal of Psychiatry*, **149**, 430–438.

Henderson, A. S. (1974). Care-eliciting behavior in man. *Journal of Nervous and Mental Diseases*, **159**, 172–181.

Henry, J. P. (1982). The relation of social to biological processes in disease. *Social Science and Medicine*, **16**, 369–380.

Hinde, R. A. (1979). *Towards Understanding Relationships*. London: Academic.

Hoffmann, L. (1981). *The Foundations of Family Therapy*. New York: Basic Books.

Hogan, J. A. (1980). Homeostasis and behavior. In F. M. Toates & T. R. Halliday (Eds), *Analysis of Motivational Processes*, pp. 3–21. London: Academic Press.

Klerman, G. L. (1974). Depression and adaptation. In R. J. Friedman & M. M. Katz (Eds), *The Psychiatry of Depression*, pp. 127–145. Washington, DC: Winston.

Klinger, E. (1975). Consequences of commitment to and disengagement from incentives. *Psychological Review*, **82**, 1–25.

L'Abate, L. (1976). *Understanding and Helping the Individual in the Family*. New York: Grune & Stratton.

Leshner, A. I. (1983). The hormonal responses to competition and their behavioral significance. In B. B. Svare (Ed.), *Hormones and Aggressive Behavior*, pp. 393–404. New York: Plenum Press.

McGuire, M. T. (1988). On the possibility of ethological explanations of psychiatric disorders. *Acta Psychiatrica Scandinavica*, **77**, Supplement 341, 7–22.

McLean, P. D. (1976). Depression as a specific response to stress. In I. G. Sarason & C. D. Spielberger (Eds), *Stress and Anxiety*, pp. 297–323. New York: Wiley.

Marmor, J. (1983). Systems thinking in psychiatry: Some theoretical and clinical implications. *American Journal of Psychiatry*, **140**, 833–838.

Maruyama, M. (1963). The second cybernetics: Deviation-amplifying mutual causal processes. *American Scientist*, **51**, 164–179.

Orford, J. (1986). The rules of interpersonal complementarity: Does hostility beget hostility and dominance, submission? *Psychological Review*, **93**, 365–377.

Paykel, E. S. (1978). Contribution of life events to the causation of psychiatric illness. *Psychological Medicine*, **8**, 245–253.

Price, J. S. (1967). Hypothesis: The dominance hierarchy and the evolution of mental illness. *Lancet*, ii, 243–246.

Price, J. S. (1969). Neurotic and endogenous depression: A phylogenetic view. *British Journal of Psychiatry*, **114**, 119–120.

Price, J. S. (1988). Alternative channels for negotiating asymmetry in social relationships. In M. R. A. Chance (Ed.), *Social Fabrics of the Mind*, pp. 157–195. Hove: Erlbaum.

Price, J. S. (1989). The effect of social stress on the behaviour and physiology of monkeys. In K. Davison & A. Kerr (Eds), *Contemporary Themes in Psychiatry*, pp. 459–466. London: Gaskell.

Price, J. S. & Sloman, L. (1987). Depression as yielding behavior: An animal model based on Schjelderup-Ebbe's pecking order. *Ethology and Sociobiology*, **8**, 85–98 (Supplement).

Pyszczynski, T. & Greenberg, J. (1987). Depression, self-focused attention and self-regulatory perseveration. In C. R. Snyder & C. E. Ford (Eds), *Coping with Negative Life Events*, pp. 105–129. New York: Plenum.

Riley, W. T., Treiber, F. A. & Woods, M. G. (1989). Anger and hostility in depression. *Journal of Nervous and Mental Disease*, **177**, 668–674.

Sapolsky, R. M. (1989). Hypercortisolism among socially subordinate wild baboons originates at the CNS level. *Archives of General Psychiatry*, **46**, 1047–1051.

Seligman, M. E. P. (1975). *Helplessness*. San Francisco: Freeman.

Senay, E. C. (1973). General systems theory and depression. In P. J. Scott & E. C. Senay (Eds), *Separation and Depression*, pp. 237–245. Washington, DC: American Association for the Advancement of Science.

Sloman, L. (1979). The adaptive role of maladaptive neurosis. *Biological Psychiatry*, **14**, 961–972.

Sloman, L., Gardner, R. & Price, J. S. (1989). Biology of family systems and mood disorders. *Family Process*, **28**, 387–398.

Sluzki, C. E. & Beavin, J. (1977). Symmetry and complementarity: An operational definition and a typology of dryads. In P. Watzlawick & J. H. Weakland (Eds), *The Interactional View*, pp. 71–87. New York: Norton.

Smith, M. B. (1983). Hope and despair: Keys to the socio-psychodynamics of youth. *American Journal of Orthopsychiatry*, **53**, 388–399.

Teasdale, J. D. (1985). Psychological treatments for depression: How do they work? *Behaviour Research and Therapy*, **23**, 157–165.

Veiel, H. O. F. & Kuhner, C. (1990). Relatives and depressive relapse: The critical period after discharge from in-patient treatment. *Psychological Medicine*, **20**, 977–984.

Weeks, G. R. & L'Abate, L. (1982). *Paradoxical Psychotherapy*. New York: Brunner/Mazel.

Wender, P. H. (1968). Vicious and virtuous circles: The role of deviation amplifying feedback in the origin and perpetuation of behavior. *Psychiatry*, **31**, 309–324.

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