

Reversal Theory and Personality: A Review

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Reversal theory is a new "mode-based" theory of motivation and personality which challenges some fundamental assumptions in these two fields and systematically develops an alternative account which emphasizes the complexity, changeability, and even inconsistency of much of behavior and experience. The present paper introduces some of the main concepts of the theory, including those of metamotivation, reversal, telic and paratelic modes, and telic dominance, and shows how the general approach involved can be characterized as "structural phenomenological." The experimental, psychometric, psychophysiological, and other types of research which have been generated by the theory are reviewed and shown to be generally supportive of it.

If there is any area of psychology which is not lacking in theories it is surely the area of personality: so why yet another theory? In the case of reversal theory, the most obvious answer must be that it provides a systematic way of looking at the essential changeability of human nature, the innate forces and structures which inevitably lead to inconsistency of one kind or another. In this it differs from most other theories of personality, since on the whole these tend to emphasize consistency and stability. This is not to deny that there may be many important types of personal stability, and indeed, reversal theory itself is concerned with consistent biases and predispositions underlying inconsistencies of behavior and experience. Nor is it to deny that there may be certain kinds of situational consistency, and this is also taken into account in the theory. But to concentrate on consistencies alone leads to a picture of human beings which is oversimple and unlife-like—and also unhelpful when it comes to explaining many of the seeming paradoxes of human life, and to helping people to solve their personal problems.

The aim of the present paper is to introduce the main lines of reversal theory and to document some of the research which has been generated

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by it. It will be appreciated that the theory cannot be described fully here and is more complex and detailed than might appear from this necessarily brief introduction.

The theory was originally developed by Apter and Smith, and first made public at a conference devoted to it in 1975. Since then it has attracted the interest of increasing numbers of psychological researchers and practitioners, and in 1983 a first international conference was held bringing together participants from a dozen countries.¹ A general text has also now been published, which presents the theory as a whole, entitled *The Experience of Motivation* (Apter, 1982a).

Let us look first at what reversal theory has to say about motivation and then look at the reversal theory approach to personality in the light of this.

THE THEORY OF PSYCHOLOGICAL REVERSALS

The full significance of reversal theory emerges most clearly if it is placed in the context of a historical movement toward greater complexity in theories of motivation.

It is probably true to say that a common assumption in the field of motivation during roughly the first half of this century was that the organism is always engaged in the attempt to reduce the level of some variable or another to as low a level as possible. This is typified by such major theories of motivation as psychoanalytic theory, drive-reduction theory, and the "hydraulic" theory of Lorenz. These theories, and others from this period, would all subscribe essentially to the graph shown at (a) in Fig. 1. Such theories were certainly consistent with common sense to the extent that they could be used to account for the way in which people behave so as to avoid unpleasant excitation or anxiety and to achieve such pleasant feelings as those of calmness or relaxation. But it became increasingly evident that they did not account adequately for the feeling of boredom or the observation that people (and animals) sometimes seem to seek out stimulation and challenge—although an attempt to come to terms with this within the traditional framework was made by certain theorists who spoke of a curiosity drive or a drive for exploration.

A more satisfactory way of accounting for boredom emerged in the second half of this century with the arrival of optimal arousal theory. Starting with Hebb (1955) it was argued that the optimal level of arousal

¹ International Symposium on Reversal Theory, organized under the auspices of the Welsh Branch of the British Psychological Society, and held at Gregynog Hall, University of Wales, 2–4 September 1983. The abstracts have been published in the *Bulletin of the British Psychological Society*, 37, February, 1984. Some of the papers from this symposium are to be published as M. J. Apter, D. Fontana, & S. Murgatroyd (Eds.), *Reversal theory: Applications and developments*.

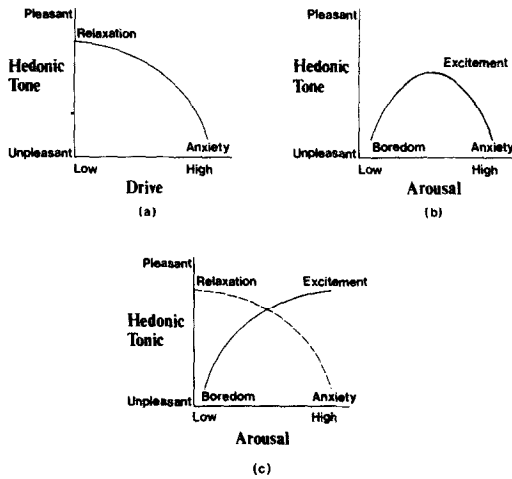


FIG. 1. The hypothetical curves in these three graphs are alternative ways of accounting for the relationship between the value of motivational variables and hedonic tone. The graph at (a) typifies such theories as drive-reduction theory, (b) represents optimal arousal theory, and (c) represents reversal theory.

(both in relation to hedonic tone and to performance) is somewhere in the middle of the arousal dimension. This being the case the organism will be expected to behave at certain times in such a way as to increase the value of this motivational variable up to its optimal level while at other times it will attempt to lower it to this same optimal level. The basic idea of optimal arousal theory, and all its variants, can be represented by the graph at (b) in Fig. 1. This is an improvement on the earlier theories because, among other things, it accounts more easily not only for unpleasant high arousal ("anxiety") but also for unpleasant low arousal ("boredom"). And it explains why the organism can seek reasonably high levels of arousal which are then experienced as pleasant and indeed "exciting." ("Excitement" has been placed on the curve at (b) just beyond the optimal level, this being the position in which Hebb placed it in the paper already cited.) Now, three arousal nouns—boredom, excitement, and anxiety—have been accounted for rather than only the two nouns of the earlier theories.

But there are still problems. For one thing "relaxation" (i.e., pleasant low arousal) now seems to have become lost from the picture, or has to be placed in a rather arbitrary position on the curve. For another, it could be argued that the position of excitement is also rather arbitrary. After all, it is hardly consistent with common sense to say that anxiety must always be higher in arousal than excitement. Clearly there can be mild anxiety at certain times and high excitement (even euphoria and

ecstasy) at others. And, in any case, by spreading these labels along a single curve it implies that these emotions always occur in a certain order as arousal increases or decreases. But clearly we do not always experience excitement before anxiety as arousal increases, and excitement after anxiety as it decreases.

What would appear to be needed, therefore, is a theory which accounts for *four* arousal nouns—*anxiety, excitement, boredom, and relaxation*—and which does *not* do so by placing them all at different points on a single curve. Another way of putting this is that experience within all four quadrants of the arousal/hedonic tone space must be accounted for: pleasant and unpleasant high arousal and pleasant and unpleasant low arousal.

Reversal theory accomplishes this by suggesting that there are *two* curves rather than one, each curve representing an opposite way in which the organism interprets arousal. In one case the optimal point is high on the arousal dimension, the feeling of arousal being increasingly pleasant as this high point is approached and reached. In the other case the optimal point is low on the dimension, the feeling of arousal being increasingly pleasant as this low point is approached and reached. This is represented in Fig. 1 at (c). This overcomes all the problems of optimal arousal theory: very low arousal can be pleasant or unpleasant (relaxation or boredom), very high arousal can be pleasant or unpleasant (excitement or anxiety); anxiety can be higher than excitement and vice versa, and boredom can be lower than relaxation and vice versa; and one does not have to go through excitement to reach anxiety, or anxiety to reach excitement.

Because there are two curves rather than one, another dimension of change has been introduced: that of sudden discontinuous switching from one curve to the other. Since these are opposite ways of interpreting arousal the switch can be regarded as constituting a *reversal*. This type of process is of such central importance in the explanations of the resulting theory that the word is incorporated in its title. Another term also needs to be introduced here. Since the curves represent two different states, and these states are not themselves particular motives but ways of interpreting some general aspect of motivation, they are called *metamotivational* states. In fact, of course, these states can be experienced in different particular ways (for example, one can experience the “arousal-avoidance” state as involving some degree of either anxiety or relaxation at a particular time) and are therefore better conceived as *modes* within which a limited range of outcomes is possible.

It will be noticed that another advantage now accrues to reversal theory: it posits a mechanism of sudden change which has the potential of explaining a number of experiential phenomena that would otherwise

remain enigmatic. For example, it provides an explanation of why people sometimes engage in dangerous sports like climbing or pot-holing or parachuting. Presumably what happens is that the danger produces a high level of arousal which is experienced in the arousal-avoidance mode as anxiety; then when the danger is mastered (e.g., the parachute opens) there is a reversal to the arousal-seeking mode so that the arousal is suddenly experienced as excitement. Since the arousal subsides relatively slowly, excitement may continue to be felt for a fairly prolonged period. For those who regularly partake in such activities it must be the case that, overall, the benefit of the excitement is felt to outweigh the cost of the anxiety which is experienced before the reversal. A converse example might be that of sexual dysfunction. What would appear to happen here is that, during a sexual encounter, one of the partners feels threatened by the situation and reverses into the arousal-avoidance mode in which the excitement due to the sexual stimulation is felt instead as anxiety; this subsequently inhibits sexual performance. In this interpretation it is not the anxiety which inhibits sexual excitement: rather it is the sexual arousal experienced in an inappropriate mode. Among other things this explanation accounts for why the sexually dysfunctional person often reports mounting excitement before the onset of anxiety and why it is that the greater the excitement the greater the subsequent anxiety and dysfunction appears to be (*viz.*, some of the cases in Kaplan, 1978).

The way in which reversal theory takes its place in the evolution of increasingly complex theories of motivation will now be appreciated. The first generation of theories were homeostatic, since a single preferred level was posited for motivational variables, "corrective action" being taken by the organism to lower the value of the relevant variable when this level was exceeded. The second generation was still homeostatic, since a single preferred level was still being posited, but now the organism was supposed to take "corrective action" when the value of this variable became either too high or too low: in other words, there were two possible directions for corrective action. The third generation represented by reversal theory substitutes the more complex notion of multistability—or, more specifically, bistability—for that of homeostasis (Apter, 1981a): there may be more than one preferred level and corrective action can be taken in either direction across the whole range of the variable concerned, the direction being determined by the choice of preferred level at a particular time. This evolution is summarized in Fig. 1 as a whole which also brings out the way in which reversal theory, represented in (c), incorporates within it the curves of both (a) and (b) while extending (b) into the top right quadrant of the graph.

The feeling of arousal is just one component of the total experience of motivation. Let us now consider another: the relationship between

means and ends. According to conventional wisdom the organism chooses a goal, or a goal is imposed on it, and appropriate behavior is then generated by the organism in the attempt to achieve this goal. In other words, the goal comes first and the activity is secondary: the animal is hungry and engages in appetitive food-seeking behavior, recognizes danger and takes evasive action, and so on. Reversal theory suggests, however, that this is only half the story and that often it is the case that the activity comes first and the goal is chosen to accord with the activity rather than vice versa. In this case the goal is merely an excuse for the activity, a way of organizing it, or simply an end point for it; in any case, the goal is not the real justification for the activity, which is the performance of the activity because it is enjoyable in itself. In the first case, which we may call "goal-oriented," the associated behavior and sensations may, of course, be enjoyed, and in the second "activity-oriented" case some pleasure may be derived from the achievement of goals: but in each of these cases this enjoyment is, as it were, a bonus.

Another way of putting all this is to say that if, in the goal-oriented state of mind, the activity appears not to be successful in leading to the goal, then another activity will be substituted for it, but the goal will remain the same. On the other hand if, in the activity-oriented state, it turns out that the goal is not likely to be achieved, then a new goal will be substituted rather than a different activity. For example, if I am walking to some destination and it turns out that I will not reach it in the time available, I can choose some other, faster, way of reaching the destination (e.g., I can get a taxi) or I can change the destination. The former implies that my orientation is to the goal and the latter that it is to the activity (i.e., I am simply enjoying taking a walk). If we may suppose that the whole phenomenal field (and not just the perceptual field) has a focus and a fringe, then in one case the goal is at the focus and alternative possible ways of reaching it are at the fringe; in the other case the activity is at the focus and the alternative possible goals it could lead to are at the fringe. This is represented diagrammatically in Fig. 2. Since, once again, these two modes do not represent particular motives, but rather ways of interpreting motives of all kinds, they are metamotivational rather than motivational. We have chosen to call the "goal-oriented" mode the telic mode (from the Greek "telos" meaning goal or end) and the "activity-oriented" mode the paratelic mode (implying that it is another mode which is "alongside" the first one). Again, since they are opposite ways of organizing or structuring some aspect of the phenomenal field the switch from one to the other can be thought of as a reversal. In this instance, the reversal is not unlike the figure-ground reversals which are so well known in the field of perception.

The overriding characteristic of the telic mode would appear to be its

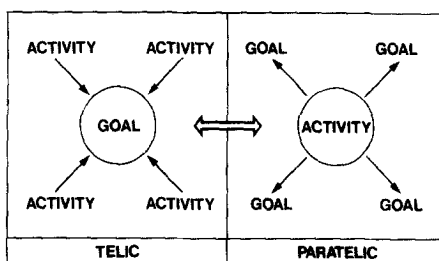


FIG. 2. A diagrammatic representation of the way in which the relationship between activities and goals is organized in the phenomenal field in the telic and paratelic modes, respectively.

seriousness: everything is monitored in terms of whether it helps the individual to reach some future goal. And often in this state of mind a whole structure of goals is perceived so that while current behavior assumes a certain significance in terms of its goal, so that goal in turn assumes significance in terms of yet other goals. The paratelic mode, by contrast, would appear to be characterized by its playfulness. If there are goals it does not necessarily matter too much if they are not achieved. And indeed, the whole situation may be "encapsulated" so that it does not connect up with the world of "real" and serious purposes (although within this "encapsulation" the individual may have fun in pursuing a goal with determination). The focal satisfactions and dissatisfactions in these two modes therefore tend to be rather different, telic pleasure deriving primarily from the achievement of, or feeling of movement toward, a goal, paratelic from the immediate and often physical pleasures of the moment. For these reasons the telic mode normally will be future directed and there will be a tendency for the individual to plan ahead as much as possible, while in the paratelic mode the orientation is more likely to be to the "here-and-now" and behavior is therefore likely to be more spontaneous.

This leads us to the next step of the argument in reversal theory, which is that the arousal-seeking and arousal-avoidance metamotivational modes are associated with the paratelic and telic modes, respectively, and that they can from some perspectives be seen as facets of these latter modes. After all, it is when one is interrupted or frustrated in the pursuit of a serious goal, or when the possible attainment of such a goal recedes, or when the goal itself becomes more important, that one is likely to experience anxiety. And the eventual achievement of such a goal is likely to produce a feeling of relief and relaxation. On the other hand, if one is concerned with the enjoyment of the moment then all those aspects of the situation which accentuate and intensify the experience and make one feel "alive" should feel good; foremost among these is likely to be the experience

of arousal. So in the activity-oriented state of mind the tendency will be to search for thrills and excitement and to avoid situations that will lead to boredom.

The factors which bring about or facilitate reversals between metamotivational modes would appear to be many and various, but they can be classified into three general classes. The first and broadest of these is that of those contingent events which have this effect. For example, a sudden physical danger may induce the telic mode if it is not already in operation, while the escape from such a danger may play a part in inducing the paratelic mode; social cues like frowning may facilitate the telic mode while cues like smiling and laughing may facilitate the paratelic; and some contexts, like a waiting room at the dentist's, will normally help to bring about a reversal into the telic mode whereas others, like the cinema, will normally help rather to bring the paratelic mode into operation. The second general category is that of frustrations of all kinds in achieving the satisfactions of the prevailing mode, so that if the frustration is strong enough it will eventually induce the opposite mode on its own or with the help of other factors. (For example, if one is unable to achieve a serious goal one may at a certain point switch to the paratelic mode and playfully fantasize goal achievement.) The third type of factor which is postulated is that of "satiation." By this is meant that there is an innate process which operates independently of contingent events in such a way as increasingly to facilitate reversal from the prevailing mode over time. In other words, it builds up in strength until it is strong enough, with other factors, to bring about a reversal; and eventually it will become strong enough to bring about a reversal on its own even in the absence of other factors. Having brought about the reversal and dissipated its strength, it will then start building up again in such a way as to help to induce a new reversal. In other words, what is being suggested is that there is an innate dynamic for change.

In this the relationship between telic and paratelic modes is seen as not unlike that between waking and sleeping: when one has been awake long enough one will eventually go to sleep despite other factors, and when one has been asleep long enough one will eventually wake up if one has not been woken up in the meantime by some occurrence. One thing which this third postulate does is to show quite clearly that reversal theory is not a theory of situational specificity: because of the process of satiation it is quite possible to confront a certain situation in the telic mode on one occasion and the paratelic mode on another, and indeed to reverse backward and forward from one mode to the other during the course of the same continuing activity. It will be realized from all this that reversal is conceived to be an involuntary process which occurs when the factors for change at the metamotivational level are, in com-

bination, stronger than the combined strength of the factors which oppose change.

These concepts, together with some novel concepts which cannot be discussed here, allow reversal theory to provide a coherent and unitary explanation for a wide range of apparently diverse and unrelated phenomena. These include, for example, esthetic experience (Apter, 1982b, 1984), sexual dysfunction and perversion (Apter & Smith, 1979a), different types of response to stress (Apter & Svebak, in press), antisocial behavior in childhood, adolescence, and old age (Apter, 1983), the generation of religious myths and rituals (Apter, 1982a, chap. 12, in press), and the enjoyment of humor. For example, it is argued that humor is a special form of paratelic high arousal which is also characterized by a number of other specifiable phenomenological properties (Apter & Smith, 1977; Apter, 1982a, chap. 8, 1982c).

Seen from a different perspective, reversal theory can be seen to be a theory of personality as well as motivation, and everything written above can be viewed in this light. Perhaps the most radical difference from other theories of personality is the notion that people will differ from each other not just at the motivational level—in terms of their typical needs and desires and the ways they attempt to satisfy these—but also at the deeper metamotivational level. In this respect it would be argued that to understand how a given individual functions it is necessary to know something about his or her metamotivational characteristics, as well as his or her motivational and behavioral tendencies, and how the former relate to the latter (Apter, 1979). Thus, two people may tend to behave in the same way in certain respects and pursue the same goals, but the metamotivational meaning of this behavior and these goals may be very different for them. Two children may be truant from school, but one may do so at times when he feels overwhelmingly threatened by school and the other at those times when he is bored with school. Two businessmen may play golf regularly and be highly competitive; but one may generally play for the excitement and the other as a serious way of increasing self-esteem. Maternal care may be assiduously provided by two women, but for one it may almost always be a chore while for the other it is usually a delight. In other words, whether goals be biologically or socially determined, they can have very different metamotivational meanings for different individuals at different times, and the personality of an individual is bound up with these meanings. Furthermore, it may be essential to know about these meanings if one is to intervene successfully in problem situations—for example, if one is counseling a child who is truanting.

There are a number of ways in which people can differ from each other at this metamotivational level. One of these is the innate bias or

tendency which they may have to be in one mode or the other. This is known in reversal theory as "dominance." Thus the telic dominant individual is the person who is more likely at a given time, other things being equal, to be doing something which he or she conceives to be serious and important, and more likely to be seeing the current activity in a long-term perspective, than the paratelic dominant individual. The latter is more likely, other things being equal, to be feeling and acting in a light-hearted, playful, and here-and-now oriented way. How far this is likely in each case will depend on the degree of telic or paratelic dominance involved. Another way of putting this is to say that the factors which tend to induce the paratelic mode have to be stronger in order to bring about such a reversal in the telic dominant than the paratelic dominant person, and vice versa for those factors which tend to induce the telic mode.

It will be appreciated that such dominance is not a trait in the conventionally accepted sense since telic dominant people will still be expected to spend certain periods in the paratelic mode, and may be just as playful when they are in this mode as paratelic dominant people; and paratelic dominant people will be expected to spend periods of time in the telic mode, and may be just as serious when they are in this mode as those who are telic dominant. At the same time, the telic and paratelic modes are also not simple situationally dependent states, and the notion of a "mode" in the reversal theory sense introduces a new term into the traditional, and increasingly sterile, state-versus-trait debate.

It will be noticed that the view expressed here implies an inherent inconsistency in human makeup. At one moment a person may crave excitement and at another avoid exactly those arousing situations which he was so keen to experience a short time before; at one time he may experience his job as an obligation and at a later time experience the very same job as a kind of game; at one time he or she may buy an expensive luxury on impulse, while at another agonize lengthily over the purchase of some necessity. In such ways people differ not only from each other but from themselves at different times (and even when confronted by the same situation).

The dominance of one metamotivational mode over its opposite is not, of course, the only metamotivational characteristic that will differentiate people. Another one is the ease, and therefore the frequency, with which people reverse in *either* direction (as distinct from the comparative ease with which they reverse in one direction rather than the other). This is mainly to do with the speed with which satiation builds up. Other characteristics may be supposed to include which particular contingent factors help to induce one mode or the other in a given individual and the types of strategies which he or she tends to use in each mode to attempt to

achieve the satisfaction appropriate to that particular mode, and how successful these strategies are. These, and other characteristics, are discussed in detail in Apter (1982a, chap. 10).

An analogy to all this would be a computer with a number of alternative programs for processing the same continuing data throughput. To understand the functioning of such a computer over time one would need to know not only something about the structure of each of the programs, but also about the factors determining program selection. In other words, at least two levels of analysis would be required. One general way of characterizing the reversal theory approach to personality, then, would be to say that it is "mode-based," the focus of interest being on discrete "ways of being" and in the dynamics of change between such modes over time. Since the modes identified in reversal theory are described in terms of certain structural features of the phenomenal field, the general approach may also be characterized as a form of "structural phenomenology" (Apter, 1979, 1981b).

RESEARCH GENERATED BY REVERSAL THEORY

Reversal theory is an integrative theory which brings previous research evidence from a number of different fields in psychology into a single conceptual framework. (Reference to some 170 research studies from such varied fields as social psychology, psychophysiology, animal learning, cognitive psychology, comparative psychology, psycholinguistics, perception and psychometrics will be found in Apter, 1982a.) However, the theory has also generated new research of its own and it is this which will be described here.

Metamotivational Modes in Everyday Life

One of the informal observations on which reversal theory is based, as noted in the previous section of this paper, is that very high and very low arousal can be pleasant, as well as intermediate levels. To test this, Apter (1976) asked 67 subjects to rate 50 varied everyday situations in terms of both degree of arousal and the hedonic tone associated with that level of arousal in each case (by means of two 7-point rating scales). Of the 11 situations which were judged by subjects on average to be highly pleasurable in felt arousal, 4 turned out to have a high average, 3 to have a moderate average, and 4 a low average on the arousal dimension. The pleasant highly arousing items were "arriving on holiday in a foreign country," "playing in an important game when the scores are level," "building up to an orgasm," and "reading a particularly tense chapter in a thriller." The pleasant items which were low in arousal were "Just before going to sleep," "having a bath," "relaxing after a hard day's work," and "just after eating a good meal." It was concluded

that these results were incompatible with optimal arousal theory, or earlier types of motivational theory, but fully consistent with reversal theory.

In order to document and investigate metamotivational modes and reversals between them in more detail in the actual course of everyday life, several studies were carried out by Walters, Apter, and Svebak (1982) in which subjects were asked to make color preference choices at regular intervals (usually quarter hourly) during their working day, some for as many as 8 days. The rationale for this was that different colors are arousing and dearousing to different extents and that the choice at a given time of an arousing color would indicate the arousal-seeking mode and the choice of a dearousing color would indicate the arousal-avoidance mode. Seven different colors were used, the hues being chosen by the experimenters at roughly equal intervals from across the color spectrum. Each individual subject was asked at the end of the period of study to rate how arousing or relaxing each of the colors had been, and the analysis of results was at all times in terms of each individual's personal judgments. However, there was in fact high consistency between subjects, with "warm" colors like red and yellow being generally rated as arousing and "cool" colors like blue and indigo generally being rated as relaxing.

The results from the first study, using 75 subjects, provided strong support for the reversal theory perspective. Fluctuations in choices were more obvious than stability, and choices tended to be toward one or the other end of the color/arousal dimension so that switches from one to the other could be regarded as reversals between contrasting levels of arousal preference. The neutral position for each subject (usually green) was chosen extremely rarely. The frequency distributions of color choices for each subject therefore were generally bimodal, as would be expected from reversal theory, rather than unimodal, as would be predicted by optimal arousal theory.

In a second study, 41 new subjects were asked to respond to a simple mood adjective check list on each occasion that they made their color preference choices. In this case, subjects were tested every quarter of an hour for 4 h. The same kind of pattern of reversal and bimodality in color preference was found as in the first study. The choice of adjectives showed that choice of an arousing color (as determined by the arousal value assigned to that color by the subject himself) tended to be associated at each choice point with either the word "bored" or the word "excited," while a dearousing color tended to be associated at each choice point with either the word "anxious" or the word "relaxed." This showed that the arousal value of the color was related to a *preference* rather than symbolizing the actuality at that time: i.e., an arousing color was

chosen even when the self-descriptive adjective was "bored" and a dearousing color even when the chosen adjective was "anxious." In other words the color choices were functional in helping to change arousal levels in desired directions rather than being merely symbolic of a current level of arousal; this was, of course, an assumption which the whole study depended on. This result also showed that subjects were consistent with themselves over time in the way in which they assigned arousal adjectives to colors.

Of even more interest was that dearousing colors were generally preferred when adjective choice indicated that the subject was "serious" rather than "playful," and "planning ahead" rather than "spontaneous." The reverse tended to be the case for each of these pairs when an arousing color was chosen. This supported the reversal theory contention that the search for low arousal tends to go with seriousness and a tendency to plan ahead (all these being denoted by the telic mode) while the search for high arousal tends to go with playfulness and a tendency to be spontaneous (all these being denoted by the paratelic mode).

One particular state of mind which occurs frequently in everyone's lives is the experience of humor. Wicker, Thorelli, Barron, and Willis (1981) asked their subjects to rate jokes on funniness and several other scales after rating their mood on the Nowlis-Green Mood Adjective Check List. One of the main conclusions drawn by these researchers, after a series of factor analyses and analyses of variance of their data, was that self-reported moods reflecting playfulness and pleasant high arousal were conducive to high funniness ratings of the jokes. They conclude that "our studies provided evidence for an association between humor and the combination of high arousal and paratelic state discussed by Apter and Smith (1977)" (p. 58).

Telic Dominance

In order to measure telic dominance, a 69-item inventory was compiled by a panel of five judges. Each item consisted of a choice between two alternatives which were seen to represent telic and paratelic preferences, respectively. A "not sure" option was also available for each item. Subjects were asked to make a general self-assessment in responding to the choices rather than to judge their current states, the relevant part of the instructions reading: "If you have an open choice, which of the following alternatives would you usually prefer, or which most nearly applies to you?"

The items were divided by the judges into three subscales. In line with the descriptions given in the previous section of this paper, these scales were defined as follows:

Serious-mindedness (which was seen as the defining characteristic of

the telic dominance dimension). The frequency with which an individual tends to be oriented toward goals which he or she sees as being important, rather than merely acting as endpoints for ongoing activities enjoyed in themselves.

Planning orientation. The frequency with which an individual tends to plan ahead and organize him or herself in the pursuit of goals rather than taking things as they come.

Arousal avoidance. The frequency with which an individual tends to avoid situations which generate high arousal rather than avoiding situations in which arousal is likely to be low.

The items were scored in a telic direction, a telic choice being scored as 1, a not-sure response as $\frac{1}{2}$, and a paratelic choice as 0.

Following item analysis, including the exclusion of items if they were ambiguous, did not discriminate adequately, or did not correlate at the 1% level with subscale and total score, a final version of the scale was arrived at consisting of 42 items divided into three subscales of 14 items each. This scale was referred to as the Telic Dominance scale (TDS). A high score on this scale corresponds with high telic dominance and a low score with high paratelic dominance. (It is of particular interest that significant correlations were found between the three subscales even before item analysis, thus supporting the contention of reversal theory that there is a tendency for these characteristics to go together.)

Here are examples of items from each of the subscales, the telic choice being given first in these examples: (1) serious-mindedness: "climbing a mountain to try to save someone," "climbing a mountain for pleasure," "not sure"; (2) planning orientation: "investing money in a long-term insurance/pension scheme," "buying an expensive car," "not sure"; (3) arousal avoidance: "staying in one job," "having many changes of job," "not sure."

Reliability of the TDS turned out to be high for periods from 6 h to 12 months. A number of validity studies also provided generally supportive evidence (Murgatroyd, Rushton, Apter, & Ray, 1978). Some of the main results of these studies can be summarized as follows:

1. A principal component factor analysis with varimax rotation produced three rotated factors closely resembling the three subscale descriptions.

2. A correlation significant at the 5% level was found between global ratings (by three judges) of telic dominance on the basis of subjects' responses to the "Who Am I?" test (Kuhn & McPartland, 1954) and their TDS scores.

3. Subjects' self ratings at regular periods during everyday life on how serious or playful they felt at the moment of rating and on how far they were seeking excitement or relaxation at the moment concerned (two 7-point scales were involved) were averaged over the period of time involved,

which was 1 week, and correlated with their scores on the serious-mindedness and anxiety avoidance subscales, respectively, to see if the general preferences expressed in the TDS reflected a preponderance of one mode over the other in real life. Correlations were found in the expected direction, being significant at the 1% level in the case of arousal avoidance and just missing significance at the 5% level in the case of serious-mindedness. (This data also, incidentally, showed the variability in self-ratings over time which would be expected on the basis of reversal theory).

4. No significant correlations were found between any of the subscales of the TDS and either extraversion or neuroticism as measured by the 12-item version of the Eysenck Personality Inventory (Eysenck, 1958).

5. Using the Stroop color-word interference task (Stroop, 1935) it was found that all subjects in this study were sensitized to unpleasant and emotive words, but that paratelic dominant subjects were significantly more sensitized than telic dominant subjects—presumably because the increased arousal would have been reinforcing to them.

One dimension that might seem at first sight to bear a certain resemblance to the telic-paratelic dimension is that of Type A/Type B behavior, since there is a sense in which both dimensions are about striving and purposefulness. To check that the Telic Dominance scale was not just another measure of this personality characteristic, Norwegian versions of the TDS and the Jenkins Activity Survey (Jenkins, Rosenman, & Friedman, 1967) were administered to a sample of 222 students at the University of Bergen. The results (Svebak & Apter, in press) showed that both scales were orthogonally related over the sample as a whole, as was the main factor extracted from the JAS in this study ("speed and impatience") in relation both to TDS total score and the score of each of the TDS subscales. This lack of relationship is perhaps not surprising when the two dimensions are looked at more closely, since Type A behavior is characterized by such features as impatience, competitiveness, and hostility whereas, as we have seen, telic dominance is characterized by serious-mindedness in its various aspects. Thus one can be impatient and competitive in either a serious or a playful state of mind; and one can be serious either in a way which involves the setting of exigent deadlines and the continual comparison of self with others, or in a more quiet and careful way. In the latter case, although the goals being pursued are seen as serious, there is little competitive element and planning ahead involves a long-term view which reduces the chance of fluster over short-term deadlines. So a telic dominant individual may or may not treat life like a race and the same is true of the person who is paratelic dominant.

Fontana (1981) argued on the basis of scale descriptions that obsessional traits should be related to high telic dominance whereas obsessional symptoms, in line with Freud's notion that the obsessional neurotic

displays various types of ambivalence, should show neither telic nor paratelic dominance. In other words, according to Fontana, the obsessional personality could be described as being characterized by inhibited reversal, being entrenched in a rigid, serious, and planning-oriented mode of being, while the obsessional neurotic displays an overfacilitation of reversal, oscillating between the telic and paratelic modes with neither mode dominant. To test this he administered the Sandler-Hazari Inventory (Sandler & Hazari, 1960), which measures both obsessional traits and obsessional symptoms, to a sample of 63 male and 21 female college lecturers, together with the Telic Dominance scale. His hypothesis was clearly supported: each of the subscales and the total TDS score correlated with obsessional traits at least at the 5% level (several correlations being at the .1% level), whereas none of the correlations between telic dominance and obsessional symptoms reached significance. He also, incidentally, found significant correlations between the TDS subscales, this again supporting the reversal theory proposition that the characteristics concerned are related to each other.

Martin (in press), using the TDS with a sample of 125 university students, found a negative relationship, as would be predicted from reversal theory, between telic dominance and each of four different measures of sense of humor. This showed that the more likely someone is to be in a paratelic state of mind, the more likely he or she is to see the funny side of things. He also looked at the relationship between telic dominance, a measure of prevailing mood which could be taken as an indication of hedonic tone (the POMS of McNair, Lorr, & Droppleman, 1971), and two measures of stress which could also be taken as indicators of average arousal levels over time (these were a life events checklist by Sandler & Lakey, 1982, and the Daily Hassles Scale by Kanner, Coyne, Schaefer, & Lazarus, 1981). His subjects in this case were 74 university students. As would be expected in terms of reversal theory, there was no significant overall correlation between the TDS and the mood scale or between the TDS and either of the measures of level of stress. Of even greater interest, however, was the fact that a multiple regression analysis showed that for telic dominant subjects there was a strong linear relationship between mood and stress such that the greater the stress the less pleasant the mood; for paratelic dominant subjects, on the other hand, the greater the stress the *more* pleasant the mood up to a certain point after which the direction of the relationship changed to conform to the telic dominant pattern (i.e., the relationship was curvilinear). In other words, for less serious levels of stress, the stress (and presumably concomitant arousal) was being enjoyed by paratelic dominant subjects. One explanation for what happened at higher levels of stress was that at these levels the telic mode was being induced even in the paratelic dominant subjects. Since

reversal theory is the only theory that would predict an initial *improvement* in mood (i.e., enhanced hedonic tone) with increased stress for certain subjects, this data may be taken as particularly supportive of reversal theory.

The scale has now been used in its English form in a number of countries and for a variety of purposes. It has also been translated into Norwegian, Swedish, French, and Spanish. Normative data exists for different occupations and age levels in the United Kingdom.

Psychophysiological Research

In a series of psychophysiological experiments, Svebak and his colleagues at the University of Bergen in Norway have explored the task-induced physiological characteristics of telic and paratelic dominant subjects. An extreme groups design has been used in most of this work involving a comparison of subjects who are high and low on telic dominance as measured by the serious-mindedness subscale of the TDS (Norwegian version), these being selected from a larger sample. It will be recalled that low telic dominance score on the TDS means high paratelic dominance and a group of low scorers on the telic dominance scale can therefore be thought of as constituting a "paratelic group."

In most of these experiments, subjects (university students) performed a continuous perceptual motor task for 2½ min, this consisting of a television car racing game in which a car on a screen, controlled by the subject's playstick, has to pass other cars without running into them. These other cars move more slowly and appear on the screen in random positions. In some experiments there was a "Threat" condition, the threat being of an aversive, but not painful, level of electric shock for an unspecified level of inadequate performance. In some other cases a fast version of the task was used to make it particularly difficult. A range of physiological variables were monitored before, during, and after the task.

Svebak's principle findings from one or more of this set of studies (reported in Svebak, 1982, 1983, in press; Svebak, Storfjell, and Dalen, 1982) can be summarized as follows:

Electromyographic activity. EMG activity from the forearm flexor of the passive arm (i.e., the arm not engaged in operating the playstick) showed a significant interaction between group and period of measurement over the 2½ min of the task. The effect of this was that there was an increasing buildup of muscular tension (i.e., a steep EMG gradient) in this task-irrelevant musculature during the course of the task for telic dominant, but not for paratelic dominant, subjects.

In the case of EMG activity in the forearm flexor of the active arm (i.e., the one operating the playstick), a significant interaction between group and scoring period for phasic EMG amplitudes was found for a

fast version (but not a normal speed version) of the task. This indicated that paratelic dominant subjects tended to increase and telic dominant subjects to decrease the force they invested in their operation of the playstick over the period of the task. In other words, in attempting to master what was, because of the speed, an impossibly difficult task, the two groups tended to use opposite strategies, the telic dominant subjects attempting precision and paratelic dominant subjects trying to overcome the problem through vigor. There was, incidentally, no significant difference in the success of these two groups and therefore of these two strategies as measured by the number of "crashes."

Cortical activity. An analysis of variance of EEG power-spectrum scores (parietal), derived before, during, and after the performance of the task, indicated a significant effect for groups, higher scores being shown by paratelic dominant subjects for the theta and beta bands and for both hemispheres. Scores for the alpha band showed the group difference during the "before" and "after" conditions only (the subject resting with closed eyes). In general, hemisphere effects in this research have proved to be relatively minor. Svebak (1982) argues, in line with current theory, that high amplitudes reflect a large cortical area in synchrony "driven" by a common source while small amplitudes reflect small areas in synchrony and that this suggests different modes of information processing as characteristic of paratelic and telic dominant subjects, respectively.

Skin conductance. An analysis of variance of skin conductance level (SCL) from two experiments disclosed a significant main effect of groups, due to high conductance in the telic dominant subjects. At the same time, scores failed to show any effect of the threat versus no-threat treatment.

Heart rate. In the no-threat condition no significant overall difference was found between telic and paratelic dominant subjects. But under conditions of threat an analysis of variance revealed a significantly greater heart rate acceleration in telic dominant subjects than in paratelic dominant subjects.

Respiration. Among the findings from analyses of variance of respiratory rate, inspiratory volume, and thoracic and abdominal amplitude was a significant main effect of dominance on thoracic amplitude, the deeper thoracic breathing being found in the telic dominant subjects, and a significant interaction between telic dominance and treatment on abdominal amplitude due to relatively high amplitudes (i.e., showing deep breathing) with the threat treatment versus low amplitudes (shallow breathing) without threat in the telic subjects.

The emphasis of this research has tended to be on telic and paratelic dominance rather than on telic and paratelic mode. However, in most

of the experiments a Telic State Measure (TSM) devised by Svebak and Apter has been used to identify subjects' modes during the experiment itself. This consists of four 6-point rating scales measuring, respectively, seriousness–playfulness, preference for planning ahead or spontaneity, preference for low or high arousal, and actual felt level of arousal. It was hoped that some telic dominant subjects might be in the paratelic mode during the experimental period and that the threat manipulation might induce the telic mode in a substantial number of paratelic subjects. However, on the whole the modes identified during the experiment by the TSM have tended to correspond with dominance with not enough cross-overs occurring for a separate analysis of mode to be feasible. In a sense this is not surprising since in most of this series of experiments so far subjects have been recruited at the two extremes of the telic–paratelic dominance dimension, and therefore they are, by definition, subjects who are particularly difficult to switch from one mode to the other. But the effect of this is that it is not yet clear how far the physiological characteristics identified are associated with dominance or with mode. Fortunately, crossovers have now been induced in other research in Svebak's laboratory and the results of this research will be published in due course. It is of interest in this respect that in a recent experiment in which subjects were drawn randomly from a larger sample rather than being selected so as to constitute extreme groups, the steep EMG gradients found in the passive musculature of extreme telic dominant subjects (as reported above) were in this case associated with subjects who were both in the telic mode and reported unpleasant hedonic tone in relation to their arousal, whether or not they were more or less telic dominant (Svebak, in press). In this experiment, incidentally, a perceptual–cognitive task was used which made no demand on motor performance, and the steep EMG gradient was found to apply to extensor as well as flexor muscles and to do so for both the right and left upper arm.

A number of implications emerge from the principal findings of the psychophysiological research which has been summarized here. First of all, the telic–paratelic dimension would appear to have a tangible "reality" over and above its status as phenomenological description or an explanatory construct. Second, and by the same token, the way is opened up for the use of physiological indices in future research involving this dimension. Third, the results have implications for future psychophysiological research on stress. Thus if heart rate acceleration is greater in telic than paratelic dominant subjects under conditions of threat, then this personality characteristic may play a part in the etiology of heart disease. In this respect the orthogonal relation of telic dominance to the Type A/B dimension noted earlier implies that telic dominance might be an additional psychological risk factor. Fourth, doubt is cast by this research on the use

of certain generally accepted physiological variables as uncomplicated measures of arousal or anxiety levels. Putting this more positively, the differential interaction of physiological variables used as arousal indices with the variable of telic dominance (or telic-paratelic mode) may help to throw light on the low correlations which have generally been found between different arousal measures in psychophysiology; the research reported here provides the possibility of a new framework emerging which would make sense of these previously confusing results.

Multimethod Validation

The general experimental methodology of Svebak and his colleagues, as described in the previous section of this paper, was extended by Svebak and Murgatroyd (in press) by interviews given to subjects immediately after they had taken part in the experiment, with the aim of finding out about their general life-styles. In particular, subjects were asked to describe in detail what they had done the day before the experiment, whether this was what they had planned to do, what the most exciting event of the day had been, and what had been the most surprising feature of the day. They were also asked to say of the day after the interview what they were planning to do, what might disrupt their plans, and what the most exciting event might turn out to be. The interviewer was "blind" to the TDS score and the recorded psychophysiological characteristics of each subject.

It will be recalled that subjects for these experiments were selected and assigned to groups on the basis of their scores on the serious-mindedness subscale of the TDS. The psychophysiological data was consistent with that reported in the previous section. As far as the interviewing was concerned, the interviewer's ranking of telic dominance, on the basis of his interviews, correlated at the 5% level with their actual scores on the serious-mindedness subscale of the TDS. Five judges familiar with the concept of telic dominance also independently ranked the subjects on the basis of the interview transcripts: interjudge reliability was satisfactory, as was the relationship of the judges' combined assessments to subject's scores on the serious-mindedness subscale, both rank correlations being significant at the 5% level.

Subjects' accounts in interview of the way in which they had spent their previous day, and intended to spend the next, showed enormous differences, and did so in exactly the ways that would be expected from the reversal theory descriptions of telic and paratelic dominance. Thus telic dominant subjects tended to plan their day carefully, keep to their plans as far as possible, and be upset by any kind of disruption. Even the possibility of disruption caused anxiety. They were reluctant to engage in playful activity without having some special rationale for it. And their

"excitements" (as distinct from their "satisfactions") tended to be extremely mundane (e.g., taking the dog for a walk). Paratelic dominant subjects by contrast were much more flexible, even where they had plans, and tended to take opportunities as they arose—especially if these were for immediate excitements, novelties, or gratifications of one kind or another. In this case longer term plans were shelved with alacrity. It was interesting that the way in which these subjects responded to the interviewer's questions also differed systematically, the telic dominant subject giving a more detailed and time-dependent account than the paratelic dominant subject, and providing more self-evaluation: "Whilst one provided a descriptive account with occasional evaluations, the other offered an evaluative account with occasional descriptions."

One of the most exciting features of this particular research is the way in which the different methods cohered together, each in a sense validating the other two, the three together building up a multifaceted picture of telic dominance. Thus the TDS was simultaneously validated by both hard psychophysiological and "soft" interview data; the physiological data was given psychological meaning in terms of both a personality inventory and the rich information deriving from interview about real behavior in everyday life; and the interview material was systematically tied in to both rigorous psychometric and experimental evidence. Each method made its own special contribution and the three together, through a kind of "triangulation" effect, provided stronger support to reversal theory concepts than could have been obtained from any single method or pair of methods alone. (Quite apart from the light which this piece of research throws on reversal theory it also argues strongly for more such combined-method studies in the field of personality in the future.)

REVERSAL THEORY IN THE WIDER CONTEXT

There is much more to reversal theory than it has been possible to present here. For one thing, three other pairs of metamotivational modes have been posited within the theory as a whole: the conformist and negativistic modes, the sympathy and mastery modes, and the allocentric and autocentric modes. For another, the theory is not just about reversal between metamotivational modes but also about reversal between opposite cognitive interpretations of the same identity—as well as those phenomenologically interesting situations in which such mutually exclusive cognitive interpretations are experienced simultaneously (this phenomenon being known within the theory as "cognitive synergy.") And there are other novel concepts too, such as the concept of "parapathic emotion." Although research on telic dominance and telic and paratelic modes has run ahead of research on these other topics, it would be a pity if reversal theory became reduced to "telic dominance" theory. Fortunately, research

projects are underway in relation to these other aspects of reversal theory and no doubt the balance will be redressed in due course.

It should also be emphasized that the theory has real practical implications, especially in the area of clinical psychology. To go into these would require another paper in itself, but the interested reader might like to refer to chapter 11 of Apter (1982a) wherein these implications are discussed in some detail, Apter and Smith (1979b) on family therapy from the reversal theory perspective, Svebak and Stoyva (1980) on the novel implications of the theory for the clinical application of biofeedback techniques, and Murgatroyd (1981) on the use of reversal theory as a way of structuring work in crisis counseling. As these papers will make clear, the major contribution of reversal theory in this area is to provide a general conceptual framework within which eclectic psychotherapy can be practiced systematically—and indeed, reversal theory is already being used in this way by a growing number of practitioners in the United Kingdom. In the process, case histories are beginning to be reported which add further to the evidence which bears on reversal theory (e.g., Blackmore and Murgatroyd, 1980; Seldon, 1980).

It is, of course, too early to tell how far reversal theory will establish itself in psychology and how far it will stand the test of time. It should be clear, though, that there are two levels at which it may turn out to have a contribution to make. At the first, or lower level, it can be seen as a particular theory of motivation and personality from which specific hypotheses may be drawn for empirical testing. At this level a certain amount of supportive evidence has already been adduced, as described earlier in this paper. But the future success of the theory will, of course, depend on the fruitfulness of its ideas for further research, the rigor with which these ideas can be expressed, the degree to which the data turns out to be supportive to the main lines of the theory, the potential of the theory to evolve and improve in the light of new data while remaining essentially “true to itself,” and its usefulness in applied situations.

At the second, or higher, level reversal theory can be regarded as illustrative of a new general approach to psychology and the question then becomes that of how influential this general approach will turn out to be. As we have seen, it may be described in various ways, such as “mode-based” or “structural phenomenological.” And it can be characterized as involving (1) a certain “feeling” for human nature which emphasizes its changeability and inconsistency, (2) a conviction that the best way to account systematically for this is in terms of alternative “modes of being,” and (3) a tendency to identify such modes in terms of phenomenological structure, working out from this phenomenological “pivot” into behavior in one direction and physiological (including neurophysiological) processes in the other. It goes without saying that one

cannot test such an approach directly in the way in which one can test a theory. Rather, it starts from a new set of assumptions and provides a whole new orientation to the subject. At this level success or failure depends on such imponderables as the intellectual attractiveness of the orientation and how convincing the insights which it can provide appear to be. It is perhaps at this level that reversal theory has the potential of making its most profound impact on psychology in general and the study of personality in particular.

REFERENCES

- Apter, M. J. (1976). Some data inconsistent with the optimal arousal theory of motivation. *Perceptual and Motor Skills*, **43**, 1209–1210.
- Apter, M. J. (1979). Human action and the theory of psychological reversals. In G. Underwood & R. Stevens (Eds.), *Aspects of consciousness, Vol. 1: Psychological issues*. New York/London: Academic Press.
- Apter, M. J. (1981a). On the concept of bistability. *International Journal of General Systems*, **6**, 225–232.
- Apter, M. J. (1981b). The possibility of a structural phenomenology: The case of reversal theory. *Journal of Phenomenological Psychology*, **12**(2), 173–187.
- Apter, M. J. (1982a). *The experience of motivation: The theory of psychological reversals*. New York/London: Academic Press.
- Apter, M. J. (1982b). Metaphor as synergy. In D. S. Miall (Ed.), *Metaphor: Problems and perspectives*. Sussex: Harvester Press.
- Apter, M. J. (1982c). Fawlt Towers: A reversal theory analysis of a popular television comedy series. *Journal of Popular Culture*, **16**(3), 128–138.
- Apter, M. J. (1983). Negativism and the sense of identity. In G. Breakwell (Ed.), *Threatened identities*. London: Wiley.
- Apter, M. J. (1984). Reversal theory, cognitive synergy and the arts. In W. R. Crozier & A. J. Chapman (Eds.), *Cognitive processes in the perception of art*. Amsterdam: North-Holland.
- Apter, M. J. (in press). Religious states of mind: A reversal theory interpretation. In L. B. Brown (Ed.), *Advances in the psychology of religion*. Oxford: Pergamon.
- Apter, M. J., & Smith, K. C. P. (1977). Humour and the theory of psychological reversals. In A. J. Chapman & H. C. Foot (Eds.), *It's a funny thing, humour*. Oxford: Pergamon.
- Apter, M. J., & Smith, K. C. P. (1979a). Sexual behaviour and the theory of psychological reversals. In M. Cook & G. Wilson (Eds.), *Love and attraction—An international conference*. Oxford: Pergamon.
- Apter, M. J., & Smith, K. C. P. (1979b). Psychological reversals: Some new perspectives on the family and family communication. *Family Therapy*, **6**(2), 89–100.
- Apter, M. J., & Svebak, S. (in press). Stress from the reversal theory perspective. In C. D. Spielberger & J. Strelau (Eds.), *Stress and anxiety* (Vol. 12). New York: Hemisphere/McGraw-Hill.
- Blackmore, M., & Murgatroyd, S. (1980). Anna: The disruptive infant. In S. Murgatroyd (Ed.), *Helping the troubled child: Interprofessional case studies*. London: Harper & Row.
- Eysenck, H. J. (1958). Short questionnaire for the measurement of two dimensions of personality. *Journal of Applied Psychology*, **42**, 14–17.
- Fontana, D. (1981). Obsessionality and reversal theory. *British Journal of Clinical Psychology*, **20**, 299–300.
- Hebb, D. O. (1955). Drives and the C. N. S. (Conceptual Nervous System). *Psychological Review*, **62**, 243–254.

- Jenkins, C. D., Rosenman, R. H., & Friedman, M. (1967). Development of an objective psychological test for the determination of the coronary-prone behaviour pattern in employed men. *Journal of Chronic Diseases*, 20, 371-379.
- Kanner, A. D., Coyne, J. C., Schaefer, C., & Lazarus, R. S. (1981). Comparison of two modes of stress measurement: Daily hassles and uplifts versus major life events. *Journal of Behavioral Medicine*, 4, 1-39.
- Kaplan, H. S. (1978). *The new sex therapy: Active treatment of sexual dysfunctions*. Harmondsworth: Penguin.
- Kuhn, M. H., & McPartland, T. S. (1954). An empirical investigation of self-attitudes. *American Sociological Review*, 19, 68-76.
- Martin, R. (In press). Telic dominance, moods and stress. In M. J. Apter, D. Fontana, & S. Murgatroyd (Eds.), *Reversal theory: Applications and Developments*. Cardiff: Univ. College Cardiff Press.
- McNair, D. M., Lorr, M., & Droppleman, L. F. (1971). *The profile of mood states*. San Diego, CA: EDITS.
- Murgatroyd, S. (1981). Reversal theory: A new perspective on crisis counselling. *British Journal of Guidance and Counselling*, 9(2), 180-193.
- Murgatroyd, S., Rushton, C., Apter, M., & Ray, C. (1978). The development of the Telic Dominance Scale. *Journal of Personality Assessment*, 42(5), 519-528.
- Sandler, I. N., & Lakey, B. (1982). Locus of control as a stress moderator: The role of control perceptions and social support. *American Journal of Community Psychology*, 10, 65-80.
- Sandler, J., & Hazari, A. (1960). The obsessional: On the classification of obsessional characteristics and symptoms. *British Journal of Medical Psychology*, 33, 113-122.
- Seldon, H. (1980). Patricia: A problem of adjustment. In S. Murgatroyd (Ed.), *Helping the troubled child: Interprofessional case studies*. London: Harper & Row.
- Stroop, J. R. (1935). Studies of interference in serial verbal reactions. *Journal of Experimental Psychology*, 18, 643-662.
- Svebak, S. (1982). *The significance of motivation for task-induced tonic physiological changes*. Unpublished doctoral dissertation, University of Bergen, Norway.
- Svebak, S. (1983). The effect of information load, emotional load and motivational state upon tonic physiological activation. In H. Ursin & R. Murison (Eds.), *Biological and psychological basis of psychosomatic disease: Advances in the biosciences* (Vol. 42). Oxford: Pergamon.
- Svebak, S. (in press). Psychophysiology and the paradoxes of felt arousal. In M. J. Apter, D. Fontana, & S. Murgatroyd (Eds.), *Reversal theory: Applications and developments*. Cardiff: Univer. College Cardiff Press.
- Svebak, S., & Apter, M. J. (in press). Type A behaviour and its relation to seriousmindedness (telic dominance). *Scandinavian Journal of Psychology*.
- Svebak, S., & Murgatroyd, S. (in press). Meta-motivational dominance: A multi-method validation of reversal theory constructs. *Journal of Personality and Social Psychology*.
- Svebak, S., Storfjell, O., & Dalen, K. (1982). The effect of a threatening context upon motivation and task-induced physiological changes. *British Journal of Psychology*, 73(4), 505-512.
- Svebak, S., & Stoyva, J. (1980). High arousal can be pleasant and exciting: The theory of psychological reversals. *Biofeedback and Self-Regulation*, 5(4), 439-444.
- Walters, J., Apter, M. J., & Svebak, S. (1982). Colour preference, arousal and the theory of psychological reversals. *Motivation and Emotion*, 6(3), 193-215.
- Wicker, F. W., Thorelli, I. M., Barron, W. L. III, & Willis, A. C. (1981). Studies of mood and humor appreciation. *Motivation and Emotion*, 5(1), 47-59.