

The Effect of Emotion on Memory and Perception:

An information processing investigation of certain psychodynamic concepts using the Headed Records model.

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ABSTRACT

This thesis investigates the way in which emotion affects memory and perception. The aim is to gain a better understanding and give a more accurate psychoanalytic account of certain clinical phenomena (particularly in borderline patients), characteristic modes of information processing which underlie these phenomena and the effects of emotion on those forms of information-processing.

The Headed Records model of memory is described and used to give an information-processing account of the mechanisms by which information is selected, stored in and retrieved from memory and made available to consciousness.

The effect of emotion on each stage of the Headed Records retrieval cycle is explored and illustrated with clinical examples. Core psychodynamic theories (classical Freudian, contemporary psychoanalytic, Kleinian, Jungian) are then examined in the light of this Headed Records account of the effect of emotion on memory. Clinical phenomena, classically described in terms of repression, splitting, complexes and dissociation are also analysed by examining the effect of emotion at key points in the retrieval cycle. The areas of inconsistency between the psychodynamic concepts and a Headed Records account of these phenomena are explored and discussed.

Psychodynamic theories concerning the effects of psychotherapy are analysed in terms of the Headed Records model and the information-processing account which the latter offers for change. The psychodynamic concept of 'internal objects' is analysed in terms of the mental representations which form the content of certain Headed Records. The formation of 'internal working model' Records is described and the part that these may play in bringing about change in analysis.

The clinical phenomena found in borderline patients are described and the Headed Records model is used to give an information-processing account of the ways in which these clinical phenomena may arise and the mechanisms by which they may be modified in analysis.

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Chapter One.

Introduction

The limits of our models are the limits of our world'. (Johnson-Laird 1991).

The purpose of this thesis is to investigate and compare psychodynamic and cognitive science models of the effect of emotion on memory; Memory consists of both content and process; the functioning of memory requires information which is available for storage and retrieval and also computation or processing mechanisms which encode, store and retrieve that information. Memory can be described as the sum total of:-

-all mental representations, in whatever form:- the store of information which is available for computation.

- all the processing involved in the encoding, storage and retrieval of information (mental representations).

Any study of the effect of emotion on memory needs to include all these aspects of memory. Memory does not function as one unitary system but has many subsystems processing information in a variety of ways and in this sense can be described as modular, in that the information in one subsystem is stored independently of information in a different subsystem. In other cases memory can be described as dissociated, meaning that some information within a particular subsystem (e.g. episodic memory) may require different conditions for its retrieval from other information in the same subsystem. A question, which gradually emerges in this thesis, is whether there really is such a thing as modularity, whether information really is kept in separate memory compartments. An alternative explanation for the apparent modularity of memory is that there are no separate subsystems for memory storage but only differing retrieval conditions, determining the form in which information is retrieved.

The particular aspects of an event which are encoded in memory depend on the pattern of attention to that event and the processing involved in identifying or classifying those aspects to which attention has been paid. So, to some extent, the effect of emotion on attention will be relevant to this investigation. This means that the concept of attention has to be clarified and in this thesis I make a clear distinction between attention and the

concept of conscious awareness. Following Stephen Pinker's analysis of the various meanings of the concept of conscious awareness, I would suggest that the psychodynamic concept of conscious awareness is most simply equated with self-awareness, or 'reflecting back on one's own mode of understanding' (Pinker 1997, p134). This usually corresponds to the ability to give a verbal account of the information of which one is conscious.

On the other hand, attention does not require self-awareness; information may be processed entirely outside consciousness and attention may be defined as the access to information which is available for processing. Several questions then arise; is attention a separate central mechanism which, like a spotlight, focuses on an information-processing sequence? Or is attention embedded in the information-processing sequence itself, so that it lies in the detail of the processes of selection, storage and retrieval of information? The ways in which emotion may alter the focus of attention (and therefore the subsequent storage and retrieval of information) need to be clarified in information-processing terms.

The role of emotion in determining which memories can become conscious is an aspect of dissociation which needs investigation. Memories may be retrieved but may still not be available to conscious awareness; this may be a reflection of the way the information is stored, for example as a pattern of meaning rather than a specific memory of an event, or it may be the case that there are mechanisms which divert conscious awareness away from anxiety-arousing memories even when they have been retrieved.

The concept of a divided mind therefore forms a crucial part of this examination of the effect of emotion on memory and includes:-

- the idea of dissociation, that groups of mental representations may be stored and retrieved separately from each other.

- the idea that conscious attention may be paid to one group of mental representations but not to another group.

- the idea of modularity, that there are several systems for processing information which function independently of each other.

I will start by describing psychodynamic and cognitive science models for the ways in which emotion may contribute to mental dissociation.

Psychodynamic models for the role emotion plays in bringing about dissociation in the mind

From the earliest days of psychoanalytic theory, one of its fundamental principles has been the proposition that the mind contains many different functional subunits, each processing different kinds of information. Freud developed the concept of repression, which acquired a variety of meanings as he developed his theories, but initially he described repression as “a question of things which the patient wished to forget, and therefore intentionally repressed from his conscious thought and inhibited and suppressed”. This is the first use of the term ‘repressed’ by Freud (with Breuer) in its psychoanalytic sense (Freud 1893, footnote p10) and was initially conceived as a form of voluntary dissociation from consciousness of memories and associated emotions (affects) that were threatening to the individual's standards and ideals. Later, in the topographical model, repression was seen more as a censoring device keeping the 'Preconscious' and the 'Unconscious' systems and contents apart (Freud 1900).

Freud finally developed the theory of a division into ego, superego and id, structural units in the mind, each fulfilling separate tasks (Freud 1923). The ego is seen as ‘that part of the id which has been modified by the direct influence of the external world..... the ego has the task of bringing the influence of the external world to bear upon the id and its tendencies, and endeavours to substitute the reality principle for the pleasure principle which reigns supreme in the id’ (Freud 1923, p25)

The id was seen as 'the reservoir of the instinctual drives and wishes, particularly childhood sexual and aggressive drives, as well as of repressed contents held back by the ego (Freud, 1923, p46). The superego is the organized psychic representative of the parental authority figures of childhood, distorted in particular by the child's early phantasies.

Melanie Klein extended the notion of dissociated consciousness with her concepts of splitting; splitting describes dissociated states of mind which Klein considered to arise directly from the operation of instinctual drives, a concept of biologically-based forms of energy which originated with Freud but which Klein developed. Libido was sexual energy

which was directed towards differing objects during psychosexual development, whilst the 'death instinct' was thought to be a drive towards destructiveness (Klein,1933). She thought that these give rise directly to 'unconscious phantasies of an extreme and polarised nature so that a small infant experiences the world and the objects of most interest in it in a partial and polarised way; the mother's breast would be experienced as totally good when it satisfied hunger and totally bad when it frustrated the infant by its absence. The infant would apparently be unaware that the good and bad breast were the same physical object and Klein described these as 'part-objects' (Hinshelwood,1989, p375). I have only outlined these complex theoretical concepts here in order to describe the kind of dissociation postulated by Kleinian theory.

Jung also elaborated a model of dissociated mental processes but emphatically rejected Freud's concept of instinctual drives as the source of such dissociations. Jung described unconscious complexes, emotionally loaded unconscious images and associations, all of which are dissociated from conscious awareness because they would otherwise threaten the individual's sense of integrated wholeness and identity. Complexes are envisaged as a collection of images and ideas, clustered around a core derived from one or more 'archetypes' (see page 21, below) and characterised by a common emotional tone (Samuels, Shorter, Plaut, 1986, p34)). These dissociated pockets of unconscious anxieties, expectations and attitudes can, under some circumstances, dominate an individual from time to time, so that he or she behaves in ways which seem out of character. Complexes are understood as arising from the combination of intrapsychic factors and environmental influences; all external events which have a psychological effect on an individual are environmental influences which may therefore contribute to the content of a complex. Trauma of any kind is an extreme event which has a profound psychological impact and so may play a significant role in such dissociated states of mind.

These are very brief summaries of some psychodynamic ideas about dissociated states of mind and the part that emotion plays in bringing about these dissociations, ideas which will be investigated in more detail in later sections of this thesis.

Scientific evaluation of these differing models of the mind has been fraught with difficulty and such attempts as have been made have focussed on treatment effectiveness in comparison with other treatment models for mental illness, since psychoanalysis has always been a clinical therapy as well as a theoretical model.

However, most psychoanalysts and analytical psychologists regard analysis as primarily a process of discovery and integration, in which the individual gradually becomes conscious of mental contents of which he or she had previously been unaware, through techniques such as free association, exploration of dream imagery and above all through the exploration of the transference. Jung was quite specific that the purpose of analysis is to integrate dissociated unconscious states, by means of the analytic process which allows a person's sense of identity to enlarge to encompass the threatening unconscious material, a process which he named individuation. Jung defined individuation as the 'process by which a person becomes a psychological 'in-dividual', that is, a separate, indivisible unity or 'whole' He made clear that the concept of 'whole' must 'necessarily include not only consciousness but the illimitable field of unconscious occurrences as well'(Jung,1959 paras 489-524).

Cognitive science and dissociation

Cognitive scientists also investigate apparent divisions in the human mind, including that between conscious and unconscious information-processing. Whilst psychodynamic theory aims to demonstrate the fact that so much of what human beings consider to be consciously determined behaviour is actually a consequence of unconscious motivations and anxieties, cognitive scientists increasingly recognise the importance of the interaction between conscious and unconscious information-processing. In 'Consciousness in Contemporary Science', Marcel rejects the idea that consciousness is merely an epiphenomenon of information-processing saying 'The present contention is that human behaviour is different given that we are conscious than it would be were we not conscious: consciousness makes a difference. Several ways can be suggested in which phenomenal experience has consequences for our behaviour, makes it what it is. If any of

them are valid, reference to consciousness is necessary for an adequate explanation of human behaviour'. (Marcel, 1988, p139)

Although Marcel and others acknowledge the causal role of consciousness in information-processing, cognitive research also provides evidence that recent experiences can influence performance and behaviour in the absence of conscious recollection of those experiences. This would allow for cognitive formation and processing of mental representations as a process separate, or dissociated, from conscious awareness. Non-conscious awareness is postulated by Marcel as a result of experiments with visual masking; subjects were presented with a polysemous word, to study the effect on the processing of a subsequent word related to one of its meanings. When the word PALM was masked it facilitated processing of the word TREE, irrespective of what preceded it. He concluded that under these conditions, when a person has no awareness of a stimulus and cannot distinguish its presence from its absence, that stimulus can still be shown to have affected the processing of other stimuli . There are similar findings with investigations of people with 'blind-sight', suggesting strongly that representations can be experienced and processed without consciousness (Marcel 1988, p136-137).

Recent investigation of patients who have been anaesthetised shows that they may process auditory information during adequate anaesthesia; the presence of implicit memory for events which occurred during anaesthesia is shown by a change in test performance, attributable to information acquired, but without having direct recollection of the event (Sebel, 1995)

Schacter has extended the investigation of dissociation of conscious from non-conscious processing beyond the question of perceptual priming, showing that complex conceptual and semantic knowledge can be processed without conscious awareness (Schacter 1996, p189). He has used the term implicit memory for this kind of processing in which memory for conceptual information can be demonstrated on testing without any conscious recollection by the subject of that information.

Unfortunately, the term 'implicit' memory is used with a variety of meanings by different authors; the terms 'implicit' and 'unconscious' are sometimes used interchangeably even by writers such as Schacter, who sometimes refers to perceptual

priming as a manifestation of implicit memory rather than reserving the term for the storage of conceptual and semantic information in a format which is inaccessible to consciousness. Perceptual priming effects could be a manifestation of short-term storage in the 'visuo-spatial sketch pad' of working memory (Baddeley and Hitch 1974); they may not relate to any processing in long-term memory, either explicit or implicit.

In this thesis I confine the term 'implicit' to refer to conceptual and semantic information which is stored in a format which is not accessible to consciousness; Records which contain this type of information are referred to as 'internal working model' Records (see Chapter 2).

These particular examples of dissociated consciousness reflect the fact that memory consists of different subsystems which process and store information in different ways and emotion does not necessarily play any significant role in these dissociative phenomena. However, other patterns of dissociation in memory do reflect the influence of emotion in keeping anxiety-arousing mental contents or representations out of conscious awareness, for example the effect that trauma and its associated powerful emotions have on memory. Brewin et al have described two types of mental representations to account for many of the clinical phenomena associated with post-traumatic stress disorder (Brewin et al 1996). They suggest that in traumatic conditions, intense emotion alters the way in which mental representations are formed, so that situationally accessible memories or representations are formed, encoded and stored separately from verbally accessible memories. Verbally accessible memories are representations of a person's conscious experience of a trauma and these can "in principle be deliberately retrieved from the store of autobiographical experiences". Situationally accessible memories (SAMs) cannot be deliberately accessed but are accessed automatically when the person is in a context in which the physical features or meaning are similar to those of the traumatic situation. SAMs tend to be highly detailed, repetitive memories (flashbacks) that are accompanied by emotional and physiological changes experienced during the trauma.

State dependent retrieval is a more general manifestation of a similar kind of division in the mind which is relevant to an investigation of the effect of emotion on

memory. For example memories of an event are more likely to be retrieved in the same state of mind as that which existed when the event occurred, such as a particular mood or a state of intoxication (Bower, 1981, Eich 1980, Ucross, 1989).

All these are illustrations of the ways in which the mind can be divided, in the sense that some mental representations are stored separately from others, or in the sense that the circumstances of retrieval may differ for different groups of mental representations.

Integrating psychodynamic and cognitive science models of mental functioning.

There does seem to be a developing interest in integrating the models of mental functioning offered by cognitive science and psychodynamic psychology. In 'The Adapted Mind', Nesse and Lloyd argue that 'The sharpening focus of psychological research on the information-processing mechanisms that regulate human behaviour may give new importance to psychodynamic psychology. Although psychodynamic theory has proven difficult to test, and is based, in part, on outmoded biology, some psychodynamic traits may turn out to closely match functional subunits of the mind that are currently being sought by cognitive and evolutionary psychology.' They also state that 'the concepts used by psychoanalysis -repression, defences, intrapsychic conflict, childhood sexuality and transference - may not turn out to be the best categories for scientific research, but they are currently the best available at this level of mental organisation' (Nesse and Lloyd 1992, p 620).

A first step towards integrating psychodynamic theory and cognitive science would be to explore the models used within particular psychodynamic theories and see to what extent they relate to the ideas about information-processing used in cognitive science and current research evidence about the developmental capacities of the human mind. Psychodynamic theories can only be accurate if their elements correspond to the actual cognitive capacities of the human, both in infancy and adulthood and also if they accurately reflect the developmental mechanisms out of which the complexity of the human psyche and its representations arise.

Many psychoanalysts argue that such compatibility is unimportant for psychoanalytic theories because they are metaphors and for such analysts the only important consideration is the influence of theoretical models on clinical practice. Such an analyst will continue to use a theoretical model if it continues to provide meaningful and useful explanations for the analyst and, through the analyst's interpretations, for the patient. If such a consistent model is also accompanied by therapeutic improvement, the analyst may continue to use the model without needing to investigate its compatibility with the cognitive capacities and developmental mechanisms demonstrated by empirical research.

Such analysts seem to assume that the psychoanalytic method of investigation can itself produce an accurate scientific model of the human mind and that information from more objective sources of investigation is superfluous; they would argue that the psychoanalytic method provides the only access to unconscious contents, but fail to see that their own preconceptions determine the way in which such unconscious material is interpreted. They do not appreciate that the clinical material which they understand in terms of one theoretical model might be interpreted in terms of a completely different conceptual framework, one which offers a more accurate account of human mental functioning because it is supported by good quality experimental evidence.

I will give a few examples of analysts who suggest that the analytic setting can be relied upon to provide an accurate model of the patient's unconscious mental processes. Donald Meltzer describes the analyst's use of transference interpretation:

“On the basis of validated hypotheses about the here-and -now transference and using his inference from the compulsion to repeat, the analyst may construct the development of the unconscious object relations of the patient. From a wide experience of individual patients he may then generalize and propose a theory of development which he believes to be biologically founded on the deep levels of the psyche and not fundamentally different in varying races, or circumstances of life” (Meltzer 1973,p12.)

Hannah Segal writes:-

“A full interpretation of an unconscious phantasy involves all its aspects. It has to be traced to its original instinctual source, so that the impulses underlying the phantasy are laid bare” She continues;

“ These deeper layers must be taken into consideration if we are to understand the analysand’s anxieties and the structure of his internal world, the basis of which is laid in early infancy” (Segal 1986)

Another psychoanalyst strongly argues that “ It has been shown above how in clinical context, in accordance with the rules of induction, a conclusion may be drawn retrospectively about an interpretation from success in treatment” and that “ only analytical interpretation can lead to the patient’s correct insight into the unconscious pathogens of his psychoneurosis” (Kerz-Kuhling 1996)

Andre Green has recently written: “Observation cannot tell us anything about intrapsychic processes that truly characterize the subject’s experience” and that the analytic setting “ provides an opportunity to observe and participate in a unique form of mental functioning, which is the only way through which the analytic state of mind can be experienced, integrated and tested, year after year, day after day, hour after hour” (Green 2001, p71-2)

On the other hand, an alternative model based on attachment theory relies to a much greater extent on experimental evidence; this research uses the Strange Situation and the Adult Attachment Interview to provide evidence for unconscious ‘working models’, which store information in a generalised and abstract ‘implicit’ form about repeated patterns of experience, including experience of interpersonal relationships (Goldberg, Muir and Kerr 1995)). This model is ‘Vygotskian’, in that there is no presupposition of innate complex cognition (as Klein proposes) but instead a recognition that a complex mental representational world develops out of the interaction between innate developmental mechanisms and cumulative experiences of events in the external world (Vygotsky 1978, p90).

The intensely inter-personal nature of psychoanalytic work and the profound emotional dependence upon the analyst which the analysand develops results in a great

vulnerability during the analysis for the analysand's sense of self, a vulnerability which is so much greater for those analysands whose sense of psychological self is already fragile. Fonagy proposed that patients who do not have an awareness of themselves as having minds rely on the therapist's reflective capacity to support and maintain their identities (Fonagy, 1991); my own view is that this places a great responsibility on an analyst to offer to the patient a model of his or her psyche which is in keeping with the available evidence from cognitive science about the information-processing capacities of the human mind; I suggest, for example, that an analyst whose interpretations of the patient's communications always arise from an instinctual drive model deprives the patient of an opportunity to gain a deep understanding of the way in which past trauma may have been 'internalised' and so contributed to the patient's representational world.

Similarly, it is essential for analysts to understand that mental contents may be unavailable to conscious recall without repression being the mechanism involved; I investigate this in detail for example, in the Headed Records model (see Chapter 2), a Description is formed which must match the Heading of a Record in order for that Record to be retrieved and so potentially be available to conscious awareness. This is quite different from repression; however repression is conceptualised, it always includes the idea that emotion plays a key role in keeping certain mental contents out of conscious awareness, but emotion may play no part at all in the matching process which I have just described. An analyst who insists that everything that is unavailable to consciousness must be emotionally repressed would be wrong theoretically ; the clinical situation could also be confusing and persecutory to the patient if the analyst's interpretations imply that the patient's failure to remember is rooted in emotional resistance when the real reason is a failure of the retrieval process.

The dangers posed by a therapist of any theoretical orientation who has scientifically unsound models of mental functioning are most strikingly illustrated in relation to the controversial questions of false and recovered memory. Some therapists seem unaware of the complexity of memory processes, particularly the fact that memory is always a mixture of reconstruction and reproduction; they may put considerable pressure on their patients to 'recover' memories of past sexual abuse, without realising

that the constant focus on finding such material may lead the patient to imagine such events and perhaps eventually to come to believe that these imaginative representations are accurate representations of real past events. Other therapists may be unaware that memories can be forgotten for long periods of time and then recovered and may cause their patients distress if they fail to believe them. An information-processing analysis can clarify the nature of this kind of forgetting (see the discussion of repression in Chapter 4).

These examples are given to illustrate my argument that therapists can mislead and confuse their patients in the clinical situation if they work with scientifically unsound models and theories about mental functioning.

Since a central part of psychoanalytic work involves the most detailed exploration of the effect of emotion on the storage and retrieval of information, a comparison of psychoanalytic concepts of mental representations with the models offered by cognitive science and developmental psychology would seem to form an important part of this thesis. However, such a study is fraught with difficulty because within both psychodynamic theory and cognitive science there are multiple definitions and theories concerning the nature of mental representations and the way they have arisen.

One of the questions which arises out of this diversity is whether cognitive science and psychodynamic theory refer to the same entities when describing mental representations; Greenberg and Mitchell argue that the objects of academic psychology are quite different from the objects of psychoanalysis, in that the former are simply entities existing in time and space, whereas in psychoanalysis the word 'object' sometimes refers to the target of a drive and sometimes to the internal images and residues of relations with real important people in an individual's life, which have been internalized and come to shape subsequent attitudes and perceptions (Greenberg and Mitchell, 1983, p13). However since Greenberg and Mitchell's work was published, a great deal more research has been done by cognitive scientists on the ways in which experiences and perceptions are taken in and stored in memory, which is one crucial part of the process of forming mental representations. Marcel offers a clear summary of a much more complex concept of mental representations in cognitive science, a concept which does not seem significantly different from some psychoanalytic definitions of

internal objects; he says that ‘we happen to lead the lives we do lead, of a relatively organized kind, by reference to a representation of our environment, of our relation to it, of our past, and of our present moment-to-moment self-state. Without access to such representations we would be much more dependent on our immediate circumstances and much more rigid.’ (Marcel, 1988 p141). Although the content of mental representations has a different focus in psychodynamic theory and in cognitive science, in that psychodynamic theory is primarily about representations of people and of emotional relationships to the exclusion of representations of physical objects, this distinction is not always preserved.

I do not, therefore, think that Perlow draws valid conclusions in stating that psychoanalytic and cognitive science concepts of mental representations lie in vastly different domains and that psychoanalysis has little use for the format or process of representation, whilst cognitive science does not concern itself with the contents of representations in different individuals; for example, the long- established concept of schemas proposed by Bartlett of ‘an active organization of past reactions, or of past experiences, which must always be supposed to be operating in any well-adapted organic response’ clearly acknowledges the central role of the individual’s unique experience in shaping mental representations (Bartlett 1932 p201, Perlow 1985).

On the other hand, psychodynamic theory does not concern itself solely with content, but has always drawn up complex models to explain the process of formation of representations, particularly in infancy; the focus on the formation of representations started with Freud who postulated that there is a progression through oral, anal and genital stages, each of which determines the focus of the infant’s attention and so powerfully influences the nature of the mental representations formed (Freud 1905, p125-245). Mélanie Klein developed the concept of part-objects and their integration in the depressive position into whole objects. She suggested that, in the early months of an infant’s life, ‘phantasies’ of an extreme polarised nature arise directly as a consequence of the operation of the ‘life; and ‘death’ instincts (Klein 1932, p132).

Jung formulated the idea of archetypes which he sometimes described as unconscious structures with innate mental content and sometimes as psychological

orientating mechanisms with no innate mental content (Jung 1953 p 68, Jung). Fordham later developed Jung's ideas about the formation of mental representations with the concept of the formation of mental representations through a cycle of deintegration (the activation of innate mechanisms, or archetypes, by an environmental stimulus) and reintegration (the formation of representations of the information, organised by the innate mechanism) (Fordham,1985).

The difficulty about the respective domains of the two disciplines, psychodynamic theory and cognitive science, seems to me to arise out of the fact that the psychodynamic approach is a clinical therapy as well as a theory; as a therapy, the focus is often explicitly on the content of the mental representations and the analyst's theories about the processes which underpin that content usually remain implicit in the therapeutic relationship. However, I return to a point I have made earlier which is that if the analyst's assumptions about the processes and format of mental representations is wrong, then his or her understanding of the content of the representations may be impaired.

Johnson-Laird makes a point which goes to the heart of the issue in discussing the term 'mental model' which refers to the content of a mental representation; he points out that although mental models may differ markedly in their content, there is no evidence that they differ in representational format or in the processes that construct and manipulate them (Johnson-Laird, 1991, p484). In that case, there is no reason to assume that mental representations of self-other relationships, which are the concern of psychodynamic theory, differ in format or formation from any other even though their content is fairly specific and different from that of the mental representations which are usually the focus of study in cognitive science.

An evolutionary perspective on mental processes

There is a further theoretical principle which underpins this thesis and which needs to be made explicit, because it forms an important part of the argument in relation to the validity of the various models under examination; this principle is that, like bodily structures and processes which have evolved by means of the operation of natural

selection on genetic variation, mental structures and processes have capacities and functions which reflect their efficiency in ensuring the survival of genes by means of:-

1. The survival of an individual member of the species.
2. Reproduction to provide children who carry and pass on the genes.

In the psychodynamic exploration of the human mind, psychoanalysts and analytical psychologists have tried to root their models in contemporary biological knowledge. Nesse and Lloyd argue that the enduring vitality of Freud's work may arise from his attempts to explain the adaptive significance of mental phenomena and that, although he made errors common at the time such as believing that ontogeny recapitulates phylogeny, that learned behaviour can be inherited and that group selection is the central mechanism of evolutionary change, few other theorists of his time tried to understand the functions of high-level mental structures in such an explicitly biological way (Nesse and Lloyd 1992, p602). One of Freud's early colleagues, Otto Fenichel wrote 'The instinctual needs are the raw material formed by the social influences; and it is the task of a psychoanalytic sociology to study the details of this shaping. Different 'biological constitutions' contain manifold possibilities; yet they are not realities but potentialities. It is experience, that is the cultural conditions, that transform potentialities into realities, that shapes the real mental structure of man by forcing his instinctual demands into certain directions, by favouring some of them and blocking others, and even by turning parts of them against the rest' (Fenichel, 1946 p588.) Although this remark arose out of a model of the mind rooted in drive theory which does not adequately describe the relational and attachment aspects of human instinct, it does reflect the fact that Freud and his early followers recognised that psychoanalysis needed to be firmly rooted in sound biological principles.

Jung, the founder of analytical psychology, was also absolutely clear about the fundamental importance of biology to an understanding of the human psyche. He recognised that mental structures have arisen by evolutionary processes and that the whole functioning of the mind is genetically determined and thus species specific, and in that sense common to us all; this was the basis for his concept of the collective unconscious and of archetypes which he regarded as the mental representation of instinct.

Jung said that ‘ it is a mistake to suppose that the psyche of the newborn child is a *tabula rasa* in the sense that there is absolutely nothing in it. Insofar as the child is born with a differentiated brain that is predetermined by heredity and therefore individualised, it meets sensory stimuli coming from outside not with *any* aptitudes but with *specific* ones...These aptitudes can be shown to be inherited instincts and preformed patterns, the latter being the *a priori* and formal conditions of apperception that are based on instinct’ (Jung ,1959 para 136). Jung has been widely misunderstood, not least by Konrad Lorenz himself who thought that Jung was arguing for a theory of inherited ideas, but Jung was quite clear about this ; ‘The term archetype is not meant to denote an inherited idea, but rather an inherited mode of psychic functioning, corresponding to the inborn way in which the chick emerges from the egg, the bird builds its nest, a certain kind of wasp stings the motor ganglion of the caterpillar, and eels find their way to the Bermudas. In other words it is a ‘pattern of behaviour’ (Jung, 1977, p518) and: ‘Again and again I encounter the mistaken notion that an archetype is determined in regard to its content, in other words that it is a kind of unconscious idea..... archetypes are not determined as regards their content, but only as regards their form and then only to a very limited degree (Jung 1959, para155). Jolande Jacobi amplifies this, pointing out that archetypes have no material existence, but ‘must first be endowed with solidity and clarity, clothed as it were by the conscious mind, before they can appear as ‘material reality’, as an ‘image’, and in a manner of speaking, be ‘born’. Even when we encounter them within us (as in dreams, for example), the archetypes, as soon as we become consciously aware of them, partake of the outside world, for from it they have drawn the matter in which they are clothed’ (Jacobi, 1959 p 52)

Whilst such writers have acknowledged the importance of biology, their understanding of biological theory is now rather out-dated; even Anthony Stevens who has related Jungian theory to Tinbergen’s work and Bowlby’s attachment theory published his book ‘Archetype- a natural history of the Self’ in 1982. and, apart from a brief reference in his latest book, ‘Private Myths. Dreams and Dreaming’, does not discuss cognitive science and recent developments in research on information processing or developmental psychology (Stevens 1982, 1995). This kind of research plays a key role

in updating biological theory, for example, the work of John Morton and Mark Johnson on face recognition in small babies. A series of experiments provides evidence for an innate mechanism in small infants, which they called Conspec, which orientates the infant's attention towards human faces, so ensuring that faces get considerably more attention than other naturally occurring stimuli and enabling the infant to recognise the general structure of faces (Johnson and Morton 1991 p87.). Any psychodynamic model which postulates innate mechanisms, such as Jungian theory with its concept of archetypes, has to take experimental evidence of the kind provided by Johnson and Morton into account and may need to be modified or even abandoned if it is shown to be incompatible with such research evidence.

Psychoanalysts have gone much further in incorporating the research findings from developmental psychology and cognitive science into their theoretical models (Shapiro and Emde 1995). Attachment theory has played an increasingly important role in such studies and makes an essential contribution to our understanding of the distortions of mental representations of key people in a child's early life; attachment theory arose largely out of Bowlby's recognition that psychological and psychoanalytic theories must be compatible with contemporary evolutionary and ethological science (Bowlby 1988, P5. Goldberg, Muir and Kerr 1995, p62)

Although the central focus of this thesis is an investigation of the effect of emotion on memory, the broader context of this investigation involves an assumption that different levels of explanation of psychological processing must be compatible with each other. The levels of explanation which are most relevant to this study are:-

- 1) Psychodynamic. The clinical level of explanation.

- 2) Information processing ----- attachment theory
(cognitive science) (developmental studies)
Both principally involve observation under experimental conditions.

3) Ethology (evolutionary mechanisms). Theoretical explanation concerning the biological mechanisms which underpin the clinical and experimental phenomena of levels 1. and 2.

I have placed information-processing and attachment theory on the same level because attachment theory is an account of the information-processing of particular kinds of mental representations, namely those concerned with emotional relationships with key attachment figures.

An explanation of the effect of emotion on memory must take into account all these levels of explanation; to give an example, there is considerable research evidence which, though not definitive, does suggest that infants of the age of six months and under simply do not have the cognitive capacity for the kind of elaborate mental imagery which Klein proposed, which she considered to arise directly from instinctual drive (Stern 1985, p254-255). She described this as unconscious phantasy and thought, for example, that it included phantasies of the good and bad breast and of sadistic attacks on the mother's body. Klein wrote:

“If we consider the picture which exists in the infant's mind- as we can see it retrospectively in the analyses of children and adults- we find that the hated breast has acquired the oral- destructive qualities of the infant's own impulses when he is in states of frustration and hatred. In his destructive phantasies he bites and tears up the breast, devours it, annihilates it; and he feels that the breast will attack him in the same way. As urethral- and anal- sadistic impulses gain in strength, the infant in his mind attacks the breast with poisonous urine and explosive faeces and therefore expects it to be poisonous and explosive towards him. The details of his sadistic phantasies determine the content of his fear of internal and external persecutors, primarily of the retaliating bad breast” (Klein 1952, p63).

However, this kind of mental imagery would require the cognitive capacity to hold some kind of concept of the breast or other object in mind (even though

such a concept may not be expressible in language) and also to attribute intentions to objects such as the breast. It is beyond the scope of this thesis to describe in detail all the research evidence which suggests that infants of under 6 months do not have these cognitive capacities; such evidence has been extensively reviewed by Mandler (1988), Gergely (1991) and Beck (1998, p155). However two examples illustrate the kind of research which does cast doubt on the Kleinian model of the infant mind.

Gergely et al. (1995) conducted visual habituation experiments which showed that the ability to attribute intentions to others does not emerge until the age of 12 months and that there are alternative explanations for previous empirical claims that this capacity emerges in the second half of the first year.

Secondly, Jean Mandler argues that concept formation depends upon perceptual analysis “a symbolic process...by which one perception is actively compared with another” (Mandler 1988, p 126). She suggests that such comparisons involve categorization and that perceptual analysis always demonstrates that an analytic process is at work, doing conceptual thought rather than primitive recognition. She further argues that, in the preverbal child perceptual analysis is the only route whereby information can become stored in an accessible representational system. Mandler (1988, 1992) cites a range of experiments, including by Fox et al.(1979), which appeared to demonstrate that the active comparison of stimuli develops from about 6 months onwards, demonstrating that perceptual analysis begins to develop at that age. The implication of these findings is that even the most primitive concept formation only begins at about 6 months, so that infants under this age would not have the cognitive capacities for concept formation that Kleinian theory requires. In addition, the earliest concepts formed from 6 months onwards are likely to be general categorizations of objects, for example into animate or inanimate, without detailed featural analysis (Mandler 1992, p590-591). Concepts such as ‘breast’, ‘urine’ or ‘faeces’ would seem to be too detailed and specific for the

developing cognitive capacities of the 3-6 month year old, according to the model offered by Mandler.

Information-processing

The early pioneers of psychoanalysis and analytical psychology were still struggling with 19th century models of the mind, based on the regulation of instinct and the hydraulic model of limited quantities of energy which were channelled towards an instinct-satisfying object and discharged (Sandler, 1997 p72). What was missing was the information-processing view of mind, which cognitive science now offers us and which owes much but not all of its explanatory power to an understanding of computation. Cognitive science is based on a representational- computational view of mind in which knowledge is constituted by mental representations and cognitive activity consists in the manipulation of these representations, i.e., the application of computational operations to them (Shanon, 1993 p2). Most information-processing takes place non-consciously, meaning that no conscious attention has been paid to the representations being computed, although some are available to be made conscious and can become so under certain conditions. Mandler highlights the fact that attention and consciousness are often not distinguished from each other and wishes to 'define attention as being independent of consciousness and to restrict it to the potential intake of information' (Mandler 1984, p62).

The central role of memory in an information-processing account of human mental functioning

Memory is the store of information which is available for computation, a store which contains many different categories and types of information; The concept of memory also includes the processing involved in adding to this store of information and the processing involved in retrieving information from this store. Memory and information-processing cannot therefore be understood independently of each other.

However, the picture is complicated by the increasing evidence that there are multiple memory systems, each of which stores information in a different form. One of the most widely accepted classifications is that of, episodic, semantic and procedural memory (Schacter 1996, p 17), although Bucci offers a much more complex analysis of memory systems which she feels more accurately reflects the neurophysiological processes which underpin the cognitive accounts of memory (Bucci,1997).

This brings me to a further area of potential confusion, which is that in addition to the classification of memory into different types, there are also differing theoretical models for the ways in which memories are formed, the information-processing steps which encode perceptions, organise and store information about these perceptions in representational form and retrieve these representations. The main models offered as information-processing accounts of memory are schema theory, associative network theory and records. Mandler defines a schema as a 'spatially and/or temporally organized structure in which parts are connected on the basis of contiguities that have been experienced in space or time. A schema is formed on the basis of past experience with objects, scenes, or events and consists of a set of (usually unconscious) expectations about what things look like and/or the order in which they occur' (Mandler 1979, p263). Associative network theory is a structural model in which activation spreading along a network of nodes with links between them forms the basis of information-processing. Records are discrete units of stored information which are described and discussed in detail in the next chapter (Morton, Hammersley, Bekerian 1985)

In spite of these difficulties, memory seems to be an obvious focal point for integrating cognitive science and psychodynamic accounts of the ways in which the human mind computes information. The role that emotion plays in affecting memory is central in psychodynamic theory, for example in models in which mental representations are seen as unconscious because they are dynamically repressed, that is, kept out of consciousness for emotional reasons and are not available to voluntary recall into consciousness.

Cognitive scientists have also developed accounts of the various ways in which emotion may affect memory, including attentional narrowing (Baddeley, 1972),

selectivity of learning caused by affective states (Bower et al 1981), differential elaboration of emotional events (Christianson and Loftus, 1991), dual representation of traumatic memories (Brewin et al, 1996), repressive coping styles (Myers and Brewin, 1995).

The choice of the Headed Records model

In order to compare models in psychodynamic theory and cognitive science for the effect of emotion on memory, I have chosen the Headed Records model for memory rather than schema theory or associative network theory because it gives a detailed and precise information processing account of each of the key stages of memory. The major alternative models, associative network theory and schema theory, do not such a precise account of the information- processing involved in each of the following stages :-

- Encoding

In the Headed Records model, event information is encoded by a process of comparison with the fields of prototype Records. Event information which is matched by information in a prototype Record is encoded in the form of processed information in the Record, whilst unmatched information is either not encoded or is stored as unprocessed information in the Heading of a Record.

Neither schema theory nor associative network theory offer such a precise account of the mechanisms whereby information is encoded. In one model of schema theory, Piaget's concepts of assimilation and accommodation do not specify the matching process in purely information-processing terms, but integrate physiological with psychological processes: " this phenomenon of functional assimilation presents a physiological aspect inseparable from the psychological aspect (Piaget 1977, p 560. In associative network theory, information is encoded in the form of 'weightings' at nodes of a neural network, a model which does not specify the criteria whereby event information is, or is not, selected for encoding.

- Organization

Records can include representations of emotions, of self and of interpersonal relationships, all of which are the domain of psychodynamic study. The Headed Records offers great flexibility in terms of the content of each Record, as I describe in Chapter Two, below; the differing classifications of memory which I have summarised do not therefore pose a problem since a Record may contain information, for example, in explicit, implicit or procedural format. In this sense, schema theory can be encompassed within the Headed Records model.

In schema theory, event information is organized by a process of integration with existing information in a schema and no account is given of the mechanisms for selection of information for the various formats which organize information in a Record.

Associative network theory is a non-representational model and does not offer any information-processing account of the formatting of stored information.

- Storage

In the Headed Records model, the contents of Records cannot be deleted or altered. Numerous Records may be stored in relation to any one event.

Neither schema theory nor associative network theory describe the processing of precise modules of information in this way. The modular nature of Records facilitates an investigation of the effects of emotion on the processing of a specific module (Record) of information.

- Retrieval.

In the Headed Records model, there are discrete steps in the process of retrieval of information stored in memory; the effect of emotion on each of these steps can therefore be investigated. The Headed Records model gives the most detailed and precise account of the process of retrieval of information from memory. Different psychodynamic mechanisms postulated for the effect of emotion on memory (e.g.

repression) can be investigated in relation to the particular step of the retrieval cycle which might correspond to that mechanism.

It also gives a clear and precise account of several mechanisms which might underpin failures of retrieval of information; psychodynamic theories often offer explanations for failures of recall of information, so an information-processing model which allows detailed investigation of such failures is the most useful in terms of providing an information-processing account of psychodynamic mechanisms.

Neither schema theory nor associative network theory offer such a clear account of the retrieval process, nor of failures of retrieval (see account of failure to recall a person's name, Chapter 2 below)

Since I have selected Headed Records as model for memory which I will use to give an information-processing account of selected psychodynamic mechanisms, I have also not explored Jean Piaget's model of the processes whereby information is encoded and organized as representations in memory. There are a number of similarities and contrasts that can be made between the Headed Records model and Piaget's ideas. For example, both are representational models and both recognize memory as a process for organizing and attributing meaning to new experiences by a process of comparison with existing information in memory. Piaget wrote: "The child will try, by virtue of a process of generalizing assimilation' to make the new object enter into each of his habitual schemata, one by one" (Piaget 1977, p284). The contrasts could be explored between the two models, particularly highlighting the modifiable nature of Piaget's schemata and the unmodifiable nature of Headed Records.

However, an attempt to investigate three psychodynamic models in relation to two cognitive science theories of memory would run the risk of introducing a degree of conceptual cross-referencing which could obscure any clarity in this thesis; having given my reasons for choosing the Headed Records model, the interesting comparisons with Piaget's concepts are beyond the scope of this thesis.

Attachment theory as a bridge between psychodynamic and cognitive science

It would be very difficult to investigate the relationship between emotion and memory without including one of the most central emotional issues in human experience which is that of relationships with key attachment figures. Relationships with key attachment figures are reflected in the mental representations of these relationships and the nature of these mental representations needs to be examined and clarified.

Most psychodynamic theories describe such mental representations of attachment figures as 'internal objects', which are thought to be, at least partly, schematised representations of a child's parents and other key figures of early life, although there is wide variation between psychodynamic explanations for the ways in which such representations or 'internal objects' are formed (Perlow 1995).

Attachment theory provides a model in which interpersonal experiences with key attachment figures are 'internalised', (encoded and stored as mental representations) and cumulative experiences of this kind are gradually built up in the mind into schematic representations of generalised patterns of such interactions, called 'internal working models' (Bowlby 1988 p129). These 'internal working models' influence a person's perceptions of, and attitudes and behaviour towards all subsequent emotionally important relationships but are not themselves accessible to conscious awareness; they therefore offer an account which is compatible with the experimental evidence for implicit memory and would seem to be a particular manifestation of the functioning of implicit memory with regard to the storage and retrieval of information about important relationships.

Internal working models as a manifestation of implicit memory can also provide an alternative explanation for unconscious fantasy to that offered by some psychodynamic theories such as the Kleinian model. Kleinian accounts assume that so-called instinctual drives give rise to spontaneous, complex mental imagery. Attachment theory offers an alternative explanation for unconscious fantasy based on the concept of 'internal working models'; this provides a comprehensive explanation for the clinical phenomena which seem to demonstrate that there are complex unconscious models of relationships in the human mind; the concept of internal working models is compatible with the evidence for implicit memory from cognitive science research.

Attachment theory therefore can act as a bridge between psychodynamic theory and cognitive science; for example, the concept of 'internal working models' gives an information-processing account of the way in which mental representations of relationships with key attachment figures are formed and stored in implicit memory, an account which is much more compatible with evidence from developmental psychology and research on the nature of memory than the psychodynamic concept of 'internal objects', as Bowlby himself suggested (Bowlby, 1988, p120). As a further bridge to cognitive science, the retrieval of 'internal working models' can be linked to the phenomena of state-dependent retrieval (in which any information learnt in one situation is preferentially recalled when a person is again in that situation) and to mood-congruent retrieval (in which an emotional state leads to preferential recall of information with the same emotional content). Relationships which retrieve a particular 'internal working model' will also retrieve information learnt on previous occasions when that working model was retrieved and the emotions which accompany the retrieved 'internal working model' will lead to preferential recall of similar emotional experiences.

Grossman emphasises the urgency of this bridge-building task, saying 'two psychologies have existed side by side for more than a hundred years, and the shakiness of the bridges between them has ever so often been deplored' He goes on to state that 'Attachment is not one relationship among others; it is the very foundation of healthy individual development. More, it is the precondition for developing a coherent mind, even if it is, finally, insufficient by itself for understanding the whole mind. Scientifically, attachment theory has done nothing less than bridge the gap between individual experience and objective research'. (Grossman, 1995 p116)

Clinical applications of the theoretical study of the effect of emotion on memory.

Particular clinical syndromes can be examined in terms of those underlying patterns of dissociation which contribute to the clinical phenomena. In recent years there has been an increasing literature in psychoanalysis and analytical psychology on the subject of 'borderline' patients, those whose sense of themselves as psychologically whole, integrated and independent is fragile to varying degrees. It has been increasingly

recognised by psychoanalytic authors that pockets of this fundamental unconscious anxiety about survival as an individual can exist in people who are apparently functioning in an otherwise psychologically integrated way. Psychoanalysts have drawn on attachment theory and evidence from developmental studies to gain a clearer understanding of the ways in which insecure attachment can give rise to psychopathology, including borderline symptomatology (Crittenden,1995, Fonagy, 1995, p251-257, Hobson,1995, p183-185).

Some of this research suggests that the patterns of symptomatology and the interpersonal difficulties shown by borderline patients arise from multiple and contradictory internal working models of relationships (Hobson,1995, p184). Unpredictability and inconsistency on the part of a child's parents lead to confusing and contradictory experiences of them and of the emotions aroused in relating to them. In secure attachment a child builds up coherent, integrated working models of a parent and of self in relation to that parent, leading to expectations that intimate relationships are safe and reliable; the child's sense of his own identity in relationships also remains consistent and integrated.

Marked unpredictability of behaviour in parents, particularly when it is accompanied by a lack of reflective capacity leads to the build up of multiple contradictory working models in the child, so that intimate relationships seem unsafe and unreliable and he also has contradictory and confusing images of himself in such relationships.

These contradictory working models are dissociated from each other and some interpersonal experiences will retrieve a particular working model, whilst a different pattern of relationship will retrieve an entirely different working model. Since internal working models are a manifestation of implicit memory the effect of emotion on memory is a key factor in understanding internal working models and borderline personality.

All the areas which I have outlined in this introduction will be examined in detail in this thesis. In the next chapter I shall give a detailed account of the Headed Records model and a critical analysis of its explanatory value:-

- in relation to different kinds of memory, such as explicit and implicit memory,
- as a framework in which attention is embedded in the Headed Records retrieval cycle, so giving a new and precise information-processing account of attention.
- in relation to the concepts of modularity and dissociation.
- in differentiating innate or primal mental mechanisms, which are not part of the memory system, from mental representations which are part of the memory system even when they are stored in a form which is impossible to bring to consciousness.

Confidentiality issues in relation to clinical material used in this thesis.

The theoretical issues explored in this thesis have direct clinical relevance and are often best illustrated by brief clinical vignettes. However, this raises the crucial question of confidentiality in relation to the patients whose clinical material is drawn on in this thesis. Glen Gabbard has explored the ethical issues which arise in relation to the publication of clinical material and has described a number of strategies for preserving confidentiality, such as 'thick disguise' of the patient's material, the use of only brief clinical vignettes or obtaining patient consent (Gabbard 2000). Gabbard suggests that each of the strategies has significant drawbacks and that no one solution fits all situations. For example, obtaining permission for publication from the patient could be seen as an abuse of the transference, in that it relies on the patient's dependence on and wish to please the therapist. Brief clinical vignettes may not provide sufficient background information for the reader. Thick disguise can never be entirely free of the risk that the patient, family members or friends may read the material and recognize it; it also requires significant distortion of the true facts in order to effect the disguise and this may lessen the value of the clinical material as factual evidence.

In this thesis, I have adopted a policy of using brief clinical vignettes which have been carefully selected to illustrate the theoretical topic being explored. I have only included the most relevant background information and have used thick disguise where I

thought there might be any possibility that the patient could be identified by him- or herself or by relatives or friends.

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Chapter Two

A Description of the Headed Records model

One of the fundamental principles of psychodynamic theory of any orientation is that memory, whether or not it accurately reflects real events, plays a key role in the therapeutic process:- ‘The individual’s history is organized through the psychoanalytic encounter; he takes upon himself the responsibility for his history, identifying himself with a history that he makes his own’ (Haynal,1993 p10.). Psychoanalysts also make various assumptions about the way that emotions, unconscious phantasies and conflicts affect and distort memory processes (Perlow 1995, p149, Ross 1991, p7, Sandler and Fonagy 1997,p 185,); such assumptions can be examined for their compatibility with one of several experimentally tested information-processing accounts of the way that the mind records, stores and retrieves information. Before examining psychodynamic theories, a detailed description of the information-processing account of memory which I will use is therefore necessary.

I am drawing on the model of Headed Records proposed by Morton, Hammersley and Bekerian (1985). I gave my reasons for using this particular model in the previous chapter and in this chapter I will address several questions which need to be answered:-

- 1) What are the essential theoretical features of the Headed Records model?**
- 2) What is the experimental evidence in support of this model?**
- 3) Does the Headed Records model add to our understanding of structural or functional divisions of memory?**
- 4) Can the Headed Records model offer an information-processing account of the concept of attention?**
- 5) Can the Headed Records model help to distinguish between innate and learnt information in the human mind?**

The concept of memory Records

The Headed Records model of memory is a development of Norman and Bobrow's concept that memory consists of discrete units each containing information relevant to an 'event', an event being, for example a person or a personal experience (Norman and Bobrow 1979). These units of memory are called Records and Norman and Bobrow suggest that at any one time one has access to all of the memory Record or none of it (Norman and Bobrow 1979, p113.); however, they do not specify what they mean by access, whether they are equating access with conscious awareness or instead, mean that it is available for further processing, an issue which I discuss at later points in the thesis. These chunks of memory (Records) are themselves structured into fields which form a conceptual framework for the formation of new Records, called 'instances', based on the original or 'prototype'.

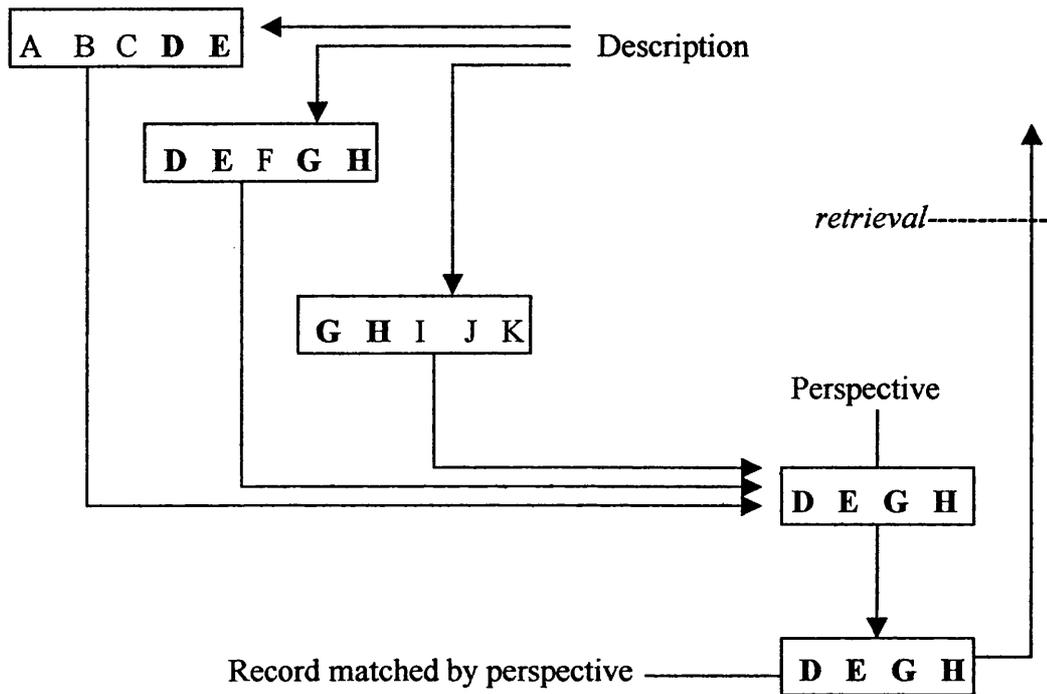
Any retrieval of information from memory starts with a description of the desired information as an initial specification of the Record sought from memory. This description guides the memory search process, in which a number of different prototype Records are evaluated to see if they contain information of relevance to the information being sought; then a further process of comparison takes place in which relevant prototype Records are searched in order to identify the fields which form the basis for the relevance of the prototype Record. The process of prototype selection and field description offers a 'perspective', which is a way of describing an event from a particular viewpoint. In order to do this effectively the perspective must also specify the elements in the event which correspond to the component parts of the prototype.

A 'Description' is a collection of these perspectives; it specifies an event by identifying the relevant prototypes, the perspectives which arise from the prototype fields. This 'target' Description is then matched to a memory Record which can then be retrieved : 'information retrieved from early retrievals may be inappropriate for the particular need, but may help specify the item sought' Norman and Bobrow, 1979 p109).

The following diagram illustrates the process of formation of a perspective, the comparison of a Description with the fields of a perspective and subsequent retrieval of a

prototype Record. The fields are designated by letters of the alphabet and the matching process illustrated by bold type.

Fig1. Formation of a 'perspective' and retrieval of a Record



Norman and Bobrow acknowledge that this step of matching the Description with the memory record being sought is the one which poses the greatest problems for all theories of memory (Norman and Bobrow 1979,p116) and it seems to me that they deal with this difficulty by bypassing it, saying that 'our use of the term 'matching process' is intended to cover both the access to candidate records and then the selection of those that are appropriate for the target evaluation'.

One aspect of particular interest in the Headed Records model is that it offers a precise account of failures of memory and makes testable predictions about the circumstances in which such memory failure might occur. In examining a specific example of a memory failure, the inability to remember a person's name whilst being able to remember other essential details about him, the authors of the Headed Records

model found that alternative models of memory, such as associative network theory or schema theory, were unable to give an adequate explanation for this failure. For example, in schema theory, a person's name would be incorporated in the schema representing that person, so that once the schema is accessed it is difficult to see how the name could be unavailable to recall.

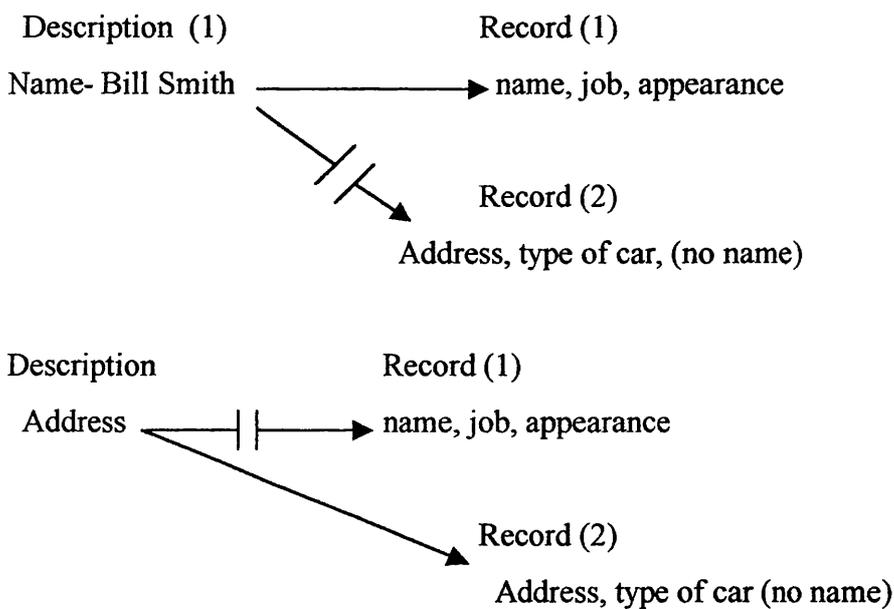
Norman and Bobrow propose that it is the Records themselves which are searched during the retrieval process, in spite of the fact that they do not describe the nature of the search process itself. Morton and Bekerian focus their attention on this problem and give a more precise and testable model for the nature of the search process, the way in which a Description is matched with the correct memory Record. They do not think that the memory Records themselves are searched because they noted three types of phenomena which led them to conclude that this is not an accurate account of the retrieval process (Morton and Bekerian 1986). Firstly, key information about an event may lead to a memory although it cannot be found within the memory Record which is accessed. In the example given by Morton, Hammersley and Bekerian, the person's name (Bill Smith) could not be recalled but the attempt to recall it led to retrieval of a Record of detailed personal information about him. Secondly, not all information in a memory can be used for accessing that memory; using the example, the record of Bill Smith's name could not be accessed by knowing his address. Thirdly, irrelevancies can cue recall; Morton and Bekerian give an example of a person who used a particular perfume again after a couple of years and immediately recalled vividly the experiences she had when previously using that perfume. It has been argued by Brewin et al. that this pattern of retrieval indicates that a different process of memory encoding is responsible for this kind of retrieval but this phenomenon is not confined to memories of traumatic events so that an explanation is still need for this pattern of retrieval in relation to non-traumatic memories (Brewin et al 1996).

If all the information about Bill Smith were contained in a single Record which is searched during the retrieval process the all-or-none access to a Record would result in the inevitable recall of all the information about him, including his name and would not offer an explanation for the actual pattern of partial retrieval which occurred. One might

then argue that information about Bill Smith is contained in several separate Records, some of which contain his name whilst others do not; however this would require a Record to be formed which had no link whatsoever to his name and therefore could never be used to identify him. Norman and Bobrow suggest that memory is searched by the process of forming a 'Description' which is the information used in the search process.

In the diagram below, if Bill Smith's name is used for the Description it could never provide access to a Record which contained information, say, about Bill Smith's address and the kind of car he owned but which did not contain his name:-

Figure 2. Matching the Description with the Record



Note:- A matching failure is indicated in the diagram (and in all subsequent diagrams) by a double bar across the arrow.

The diagram above illustrates the fact that information in Record 2 is permanently separated from Bill Smith's name, so that the name (Description 1) would never provide access to the memory of the address (Record 2) and the address (Description 2) would never provide access to the name, stored in Record 1.

This does not match experience in which failures to connect name and address are temporary.

One could then argue that there might be duplication of the same information in multiple Records, so that the type of car might be included in a Record which did not contain Bill Smith's name and also in another Record which did contain his name; this would seem to offer too unreliable a process of memory retrieval, in that memory search would access almost randomly a Record which contained the name required or a Record which did not do so. Even if one postulates a hierarchy of Records, so that an earlier Record is first searched, which contains, say, information about a man who has moved into a certain house and who has a certain type of car, and this Record is then used as a Description in order to search a more recent Record which contains more information about Bill Smith, including his name, this is not a model which corresponds to the way memory can provide immediate access to information required most of the time. The search of one Record after another, in series, is a method only used some of the time in the retrieval process, usually when a memory failure has occurred and memory is being consciously interrogated. Much more commonly information is almost immediate available to recall, indicating that the items being searched are searched in parallel. However, in Norman and Bobrow's model, if Records are searched in parallel, then memory failures could never occur; the Description would always find the matching Record.

Headed Records.

A model is therefore required in which it is not the Records themselves which are searched each time a Description is formed. The proposers of the Headed Records model therefore postulate that Records are linked to individual Headings and that it is the Headings which are searched and not the Records. Headings contain information which can only be used for access but cannot be retrieved, whilst their associated Records contain information which can be retrieved but which cannot be used for access. This intermediate stage between the Description and the Record offers a model which can be tested to see if it adequately explains failures, whereas Norman and Bobrow's model can

only offer a general explanation which would be that the Description has not been accurate or precise enough. The Headed Records model is one which describes the processes by which memory encodes, stores and retrieves information, in contrast to other models which do not offer a precise information-processing account of memory. First I will describe the model and then later explore the experimental evidence which underpins it and finally discuss how the model deals with some memory phenomena for which other models have offered an apparently satisfactory explanation.

The central features of the model proposed by Morton et al are:-

1. that memory consists of discrete units, or Records, each containing information relevant to an 'event'; this information can be in any form, any amount of information can be represented in each memory unit and the same information may be contained in any number of other memory units.
2. Attached to each of these memory units is an access key, or Heading, which has only one function, which is to enable retrieval of the associated memory unit.
3. The memory unit can only be accessed and the information contained in it retrieved by use of the access key.
4. The access key has two specific characteristics, a.) that its contents are not retrievable but can only be used for access and b.) that the contents of the access key are in a different form from that of the accompanying memory Record.

(Morton, Hammersley, Bekirian 1985)

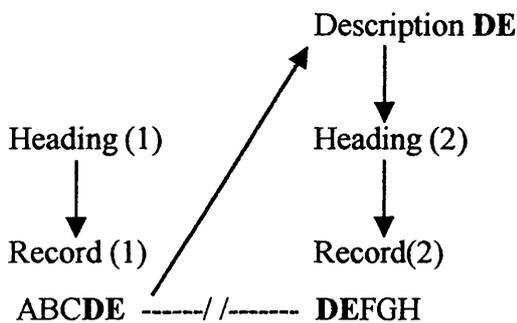
Characteristics of Records.

Records are 'the unit of storage for recallable information in memory' (Morton et al 1985 p6); they are independent of one another and no direct connections link Records that happen to be related in terms of their content. The information in one Record may form part or all of the Description which matches the Heading of a second Record, which is then retrieved. There is no other mechanism of retrieval.

Diagram 3 below illustrates the fact that there is no direct connection between Record (1) and Record (2), even though they both contain some similar information

(designated by the letters DE). However, the information DE may form a Description which can then match the Heading of Record (2) and so lead to its retrieval.

Fig. 3 :-to illustrate the relationship between Descriptions, Headings and Records



Access to a Record is all or none, so that the whole Record is retrieved once accessed. However this does not mean that conscious attention is necessarily paid to the whole Record which has been retrieved and this will be discussed more fully in a later section of this thesis. The whole Record may be available to conscious awareness, but other factors, such as the emotion aroused by a retrieved Record, may prevent conscious attention being paid to the whole Record. This contrasts with the model offered by Norman and Bobrow, in which retrieval seems to be equated with conscious awareness. In the Headed Records model, a Record is retrieved into an ‘interpreter buffer’ where it is available for further processing. Material in the interpreter buffer can be made available to consciousness but is not automatically so. This is under the control of the interpreter which follows rules laid down in the task specification (Kopelman and Morton, awaiting publication).

Records contain information which is also duplicated in other Records, so that the same event may be represented in whole or in part in multiple Records, in the same or different formats. The original Record formed at the time of an event is referred to as the ‘primary’ Record; subsequent Records are formed on each occasion that the primary Record is retrieved and attention is paid to it and these are described as ‘secondary’

Records. The primary Record acts as a prototype for the secondary Records, which therefore contain some of the information from the primary Record, but may contain considerable additional information. An eye-witness to an accident will form a primary Record of the event, but will also remember the event in the subsequent days (retrieving the primary Record), may also read newspaper accounts of the accident as well as possibly discussing it with other eye-witnesses and with family and friends; all of these will provide additional and possibly contradictory information which may be incorporated into numerous secondary Records.

There is no limitation on the amount of information which Records can contain; apparent limitations are reflections of the 'demands set at the time of storage, the conditions prevailing at the time of retrieval or the interaction of these two' (Morton et al 1985).

Limitations arise from the limited capacity of the sensory registers (specific stores for auditory and visual information which hold information for only a few seconds) and the limited processing capacity of working memory operating at the time of storage (Baddeley 1990). The conditions prevailing at the time of retrieval would include the amount of information competing for attention, but would also refer to the fact that the internal environment (e.g. the mental state) present at the time of learning may be represented as part of the Heading; recall may only be possible when a person is in the same mental state which then forms part of the Description which matches the Heading (Bower et al 1978, Eich 1980).

Records are unmodifiable, so that the information they contain cannot be altered or added to. Morton et al. (1985) have shown that the apparent modifiability of memory can be explained in terms of the absence of critical information at test. If the Description is precise enough to discriminate between the Headings of the original or 'primary' Record and a subsequent or 'secondary' Record, then the primary Record will be retrieved, but otherwise the later Record will be retrieved, giving the impression that a memory has been modified.

There is no restriction on the type of information in a Record and it may consist of very detailed sensory information or be of a highly abstract nature. There are also

procedural Records, containing the rules for forming Descriptions and presumably also, for example, for switching from non-conscious memory search to conscious interrogation of memory when a memory failure occurs. The possible content of Records is summarised at the end of this chapter.

Characteristics of Headings.

Headings are the means by which Records are accessed and remembering involves firstly searching the Headings with the information contained in the Description until a match is found; only when a Heading is matched does the content of its Record become available for recall.

The contents of Headings are unalterable once laid down; they are inaccessible and can never be subject to recall. The content of a Heading need bear no propositional relationship to the content of its Record; an apparently trivial and irrelevant part of an event may constitute the Heading for the Record.

Processing of information and Headings.

The format of information contained in Headings is different from that of Records and is relatively unprocessed, containing the environmental features surrounding an event and internal states existing at the time an event is experienced; information in Headings has not been fully processed but it has been encoded by perceptual recognition systems and stored; one way of explaining the unprocessed nature of information in Headings in information-processing terms is that the information stored in the Heading has not been structured by a process of comparison with information in existing Records, in the way that Norman and Bobrow describe. I described their model at the start of this chapter; their account suggests that a new event is compared with a number of different prototype Records which might be associated with the newer situation and then a further process of comparison takes place in which the component parts of the new event are identified and compared with identified fields of the prototype in order to see how they correspond.

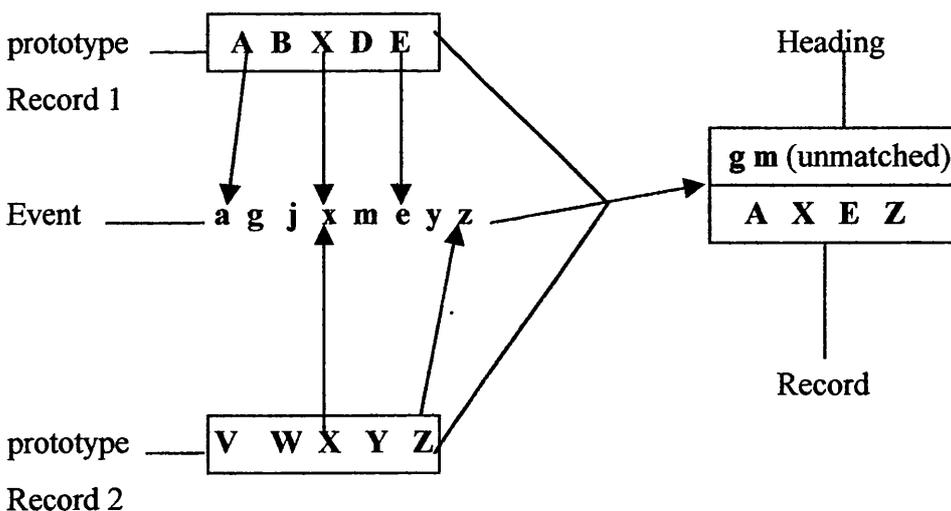
The process of interpretation is therefore embedded in and forms an integral part of the retrieval process, arising directly out of the way in which information is structured

in existing Records, i.e. the way in which different bits of information are grouped into fields in a Record.

This process of comparison with a prototype and fields offers a ‘perspective’, with which particular components of the event are matched. A ‘perspective’ is a way of describing an event from a particular viewpoint, identifying the elements in the event which correspond to the selected parts of the prototype. This is a model for the way in which information is processed and stored in Records but the concept of the Heading suggests that information in Headings has not been subject to this process of comparison and structuring.

Diagram 4 below illustrates the process by which aspects of an event (designated by letters of the alphabet in lower case to indicate that they have not been processed) are compared with the fields of a number of prototype Records (the fields are designated by upper case letters to indicate that they have been processed). Aspects of the event that are matched by some fields of prototype Records are then stored in the new Record (AXEZ), whilst some unmatched aspects of the event will form the Heading (gm)

Figure 4: to illustrate the selection of information for Records by comparison with a prototype Record.



Note: not all unmatched elements in the event necessarily become part of the Heading of the newly formed Record.

Norman and Bobrow do not clarify whether prototype Records are defined in terms of their content but seem to define prototype Records in terms of a function, namely that of providing a basis of comparison with a new event or with another retrieved Record; in this thesis, I continue to use the concept of the prototype Record in the same functional terms, but I also identify a special category of prototype Record, whose content is in schematic, implicit format and which organises perception of new events whilst remaining inaccessible to consciousness itself. This particular category of prototype Record offers a Headed Records account of the 'internal working models' described in attachment theory (see further description in this chapter, page 64 below).

Morton and Bekerian use the term the 'characterizer' to describe processes whereby new information is compared with existing information stored in Records and interpreted by it (Morton and Bekerian 1986,p53) and their model would seem to suggest that information in Headings has not been processed by the 'characterizer'. Rules governing the matching and retrieval process would also form part of the 'characterizer' and these rules would be contained in Records containing generalized or schematic information about the degree of specificity required for matching Descriptions with Headings

Processes of memory retrieval.

Memory may be consciously interrogated or unconsciously searched but in this model the same sequence of operations is involved whether the memory search is conscious or not.

The search process involves looking for a match between some information and a Heading. The information used in the search is called the Description (Norman and Bobrow 1979) although Morton et al do not define a Description in exactly the same language as Norman and Bobrow (for which, see page 40 above). According to Morton et al. (1985) a Description is formed:-

1. from currently available information from external sources, such as an explicit question.
2. from internal sources such as a Record that has just been retrieved

3. from the formation of a Task Specification which contains a list of the current goals.

Descriptions do not arise automatically but have to be created. Morton et al. do not discuss the proposal made by Norman and Bobrow that Records are divided into fields, or the way in which a Description draws on a retrieved Record. It is not clear whether they accept Norman and Bobrow's fairly detailed description of a selection of perspectives from prototype Records in the formation of a Description.

Morton et al argue that the selection of information for a Description will be influenced by the goals currently demanded by the external environment and any other information which might be relevant to those goals, such as a related Record that has been retrieved. Rules for the construction of Descriptions are also used in the construction of Headings and these rules are contained in control Records which are summoned whenever there is a demand for information.

A match is then required between the Description which has been formed and a Heading; the information in the Description determines whether the match has to be absolutely precise or not, which it would need to be for example when attempting to recall the information associated with a particular name.

Headings are searched in parallel and there may well be more than one Heading which matches the Description. However only one Record is retrieved at a time and Morton et al (1985) describe the evidence in support of their argument that the most recent of the possible Records is retrieved. The work of Loftus, Miller and Burns (1978) on the effect of post-event information on memory is reexamined using the Headed Records model; Morton et al conclude that the apparent modifiability of memory can be explained in terms of the absence of critical information at test, information which would distinguish the primary Record from the newer Record which contains post-event information as well as information about the original event. If the Description is precise enough to discriminate between the Headings of the primary' Record and the subsequent (secondary) Record, then the original Record will be retrieved, but otherwise the later Record will be retrieved, giving the impression that a memory has been modified. The

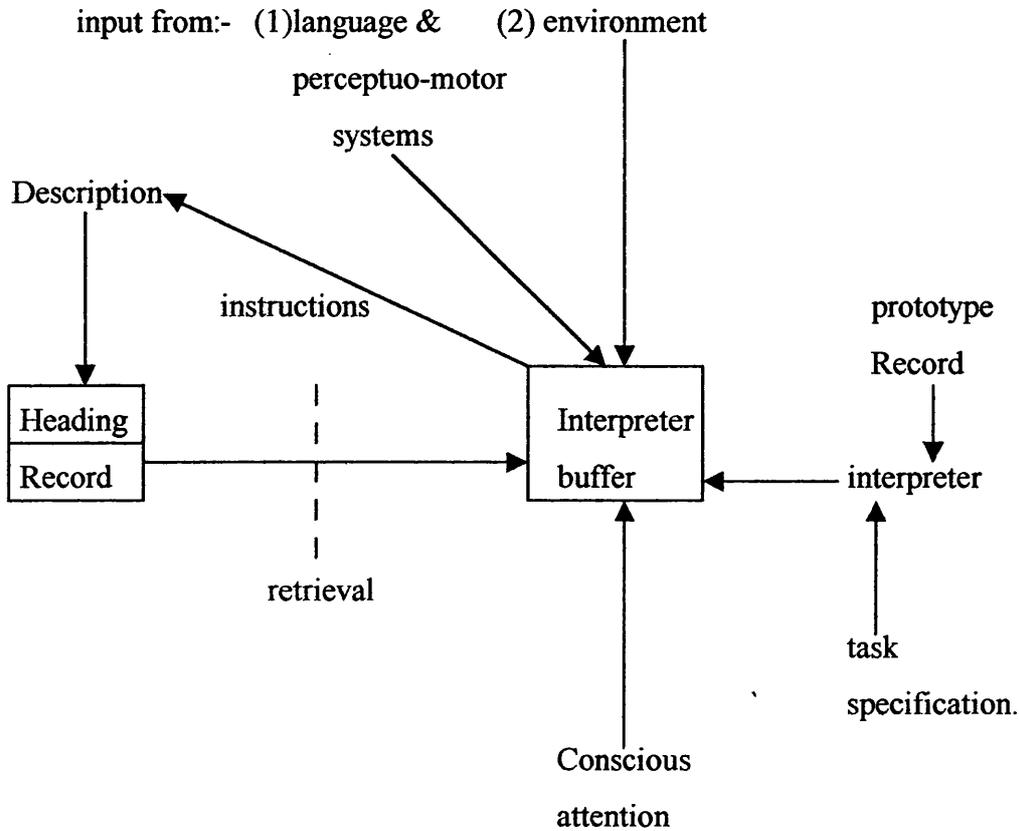
idea that the matching process is biased in favour of the most recent memory is widely accepted (Postman and Underwood 1973)

Outcome of the search process.

A successful search results in a match between a Description and a Heading, leading to retrieval of the relevant Record into the post- retrieval 'interpreter buffer'. The search process is terminated and the retrieved Record in the 'interpreter buffer' is subject to further processing by the 'interpreter', according to some principles which are fixed and other principles which comprise the current task specification, which is a list of current processing goals (Kopelman and Morton 2001). The fixed principles might be contained in control Records (e.g. a Record which contains instructions to avoid situations which are interpreted as threatening to personal safety) and in 'working model' prototype Records. The information is then used for purposes which depend on post-retrieval requirements and may range from an action sequence to the recall of a specific piece of verbal information.

Figure 5, below, illustrates the role of the interpreter buffer in relation to a retrieved Record.

Figure 5. To illustrate the role of the 'interpreter buffer



adapted from Fig (1) in Kopelman and Morton (2001).

The figure shows that information in the interpreter buffer can become the focus of conscious attention and is also available for interpretation, by means of the matching process with a prototype Record which I have already described earlier in this chapter. The information in the interpreter buffer is also available for comparison with the task specification, which contains information about the current processing goals, i.e the purpose for which the retrieved Record is being sought.

A memory search may fail at the stage of matching of Description and Heading in the cycle; a Description may be formed which does not match any Heading and in this case the search will not result in any Record being retrieved.

It may, however, be the case that the verification process shows that the retrieved Record does not satisfy the task specification, in that the information retrieved is not that which was sought; this can happen with action sequences, an example of which would be

that of someone driving a car who 'automatically' follows a familiar route but one which is not on this occasion the route required. The driver's inattention has led to the environmental cues acting as a Description which matches the Heading for the Record of the familiar route instead of a conscious Description being formed which would match a Heading and retrieve a Record for a known but infrequently used route. It may also happen with attempts to recall verbal information such as a name or address.

If the information obtained is not what was sought, then the search process has to be repeated, but with a different Description if a different Heading is to be matched and a different Record to be obtained. This recycling process can be repeated as many times as is necessary, or may be abandoned if repeated attempts fail to provide the information needed.

Some implications of the Headed Records model.

In the abstract to their paper Morton et al state clearly that, as well as being unalterable, Headed Records can not be deleted. This is directly contrary to the claims of authors such as Linton (1982) and Wagenaar (1986) whose evidence appears to suggest a gradual elimination of information from memory with time. Morton and Bekerian (1986) suggest that the Headed Records model offers alternative explanations for apparent forgetting which are not based on loss of the information from memory stores but on failures in the retrieval process, failures which result from retrieval being a two stage process and the fact that the Heading may bear no relation to the content of the Record. So, a Description may be formed which bears some relationship to the content of the Record being sought, thus:- Description- 'where have I left my keys?' Conscious memory interrogation fails, but for the sake of this example I do not actually go round the house physically looking for them. A new Description is formed- 'Think of the safe places I normally put my keys in', which might be likely to bear some relationship to the content of the Record containing the information as to where the keys actually are. Memory interrogation fails again because no Heading is matched. A second new Description is formed 'What was I thinking about when I put my keys down?' This time memory search is successful

because the Record containing the information about my keys has a Heading containing information about what I was thinking about at the time.

Attempts to locate information in time (or place) may lead to a retrieval failure of a different kind, in which a Record with related but different content is retrieved.

(Description- When did we first go to visit X ? Answer - '1993' but this is incorrect, because it was actually 1992 but the later record has been retrieved since we also visited X in 1993 and the Description has matched the Heading for that Record).

Apparent forgetting may also occur as a result of the state-dependent nature of Headings; it may not be possible to match a Description to a Heading without returning to the emotional state one was in at the time the Heading for the Record was formed. This would seem to have considerable implications for psychoanalytic work and I will return to this issue in the information-processing account of dissociation in Chapter Four of this thesis.

Apparent forgetting may also occur because although a complex Record has been retrieved, the limited capacity of working memory may not be able to retain all of it once retrieved or the process of search of a retrieved Record might not be exhaustive.

Another conclusion to be drawn from the Headed Records model is one which is stated clearly by Morton and Bekerian but which warrants further emphasis; it is that 'Perceptual experience is interpreted by reference to our knowledge'. George Mandler used a schema model to make the same point, saying 'We comprehend events in terms of the schemas they activate' (Mandler, 1975, p 56). The Headed Records model is a description of the way in which past knowledge is drawn on and used to organize our immediate experience. Perceptual experience is interpreted in the light of existing Records, so it is quite possible for a new Record to be laid down which does not contain any information from the current perceptual experience which solely forms a Heading for the Record, whilst the Record itself only contains information from previous Records. A possible example of this might be post-traumatic 'flashbacks' which Brewin et al have suggested may be a form of 'situationally accessible memory' (Brewin, Dalgleish and Joseph 1996). An environmental trigger such as a smell, taste, sound or other perception

which is similar to a perception in the traumatic situation acts as a Description which matches the Heading of a Record of past trauma because that Heading contains similar perceptual information. The Record of past trauma is retrieved and the vivid, distressing nature of the information contained in this Record occupies the whole of the person's attention, so that attention cannot be paid to current new information. The secondary Records formed therefore only contain information about the past trauma and current perceptions act only as Descriptions.

Evidence for the Headed Records model.

The Headed Records model originated as a tentative explanation for certain kinds of forgetting which other models were unable to account for and I have already outlined these in the first section of this chapter. These phenomena suggest that memory is fragmented and this is a central principle of the Headed Records model.

Hammond et al (1984) have provided experimental evidence supporting this principle; subjects were asked to imagine that they were employed by an intelligence organization to decode secret messages. The task of decoding the message was divided into two phases, the first of which involved the manipulation of information in tables displayed on the screen in order to obtain a code value to use in decoding the message. At the start of the second phase, a scrambled version of the message was displayed and the subject had to decode it, edit it and set the security rating of the message. There were a total of eight possible editing commands in this phase of which only four were actually required to decipher any one message and the subjects had to work out from the nature of the message which particular operations were required.

Each time they used an editing command a modified sentence was displayed below the previous one and each sentence had a reference number beside it which had to be entered as an argument each time a command was used. This 'argument' would be incorrectly entered if the subjects assumed that it was always the number attached to the bottom-most sentence that should be changed rather than the number attached to the sentence being edited; they would usually be the same but would not be if an editing error had occurred and an earlier sentence needed to be altered. This could arise if the subject

entered a command which, although not the correct one, was interpretable by the system; in this case a new message would be created with its own number, at the bottom of the display. To recover, the subject would therefore have to enter a new command which referred to the penultimate message (which had just been incorrectly edited) rather than to the newly created message at the bottom.

The majority of subjects, 44 out of 48, made the incorrect assumption that it was the most recent message which required editing rather than the penultimate one and so entered the number for the new message rather than the number attached to the message they were actually editing. Of the 44 who made this error, 11 (25%) demonstrated one trial learning of the correct definition of the argument and were then able to generalize this correct definition across all eight commands. However, of the remaining 33, 28 never made a referral error with a command previously involving a correct command, but did make one or more referral errors on other commands.

Hammond et al. interpret the fact that learning about referral errors appeared to be specific to each command as evidence that the understanding of the correct use of the message number had to be made separately for every command; Morton et al. (1985), reviewing this experiment further concluded that each correct interpretation of the rules was learnt and set up in a separate Record for each command and therefore would not automatically generalise to all other commands. They argue that this is supportive of the model in which knowledge is stored in separate fragments rather than a schema model in which information learnt in one situation would be available for generalized use.

A second central principle of the Headed Records model is that a Record and its Heading cannot be altered once set up. Morton et al re-examine the evidence given by Loftus and others which seems to indicate that post-event information does lead to retroactive interference with a specific memory of an event (Loftus 1975, Loftus et al 1978, Loftus 1979). One such study involved showing subjects a filmed car accident. They were later told incorrectly that a barn had appeared in the film. When questioned a week later, 17% of the subjects agreed that they had seen a barn, whereas when subjects were not given this misleading information, only 3% agreed that they had seen the barn. The subjects who were given the false information appeared to have incorporated that

information into their memory of the film (Loftus 1975). However in the Headed Records model this would be explained by the setting up of an additional but separate Record containing the incorrect information. Since this is the later Record and the Heading for both Records matches the Description 'what are the contents of this film?', it is the later, incorrect Record which will be retrieved, according to the HR model.

In another Loftus experiment (Loftus et al 1978) subjects were shown a series of 30 colour slides depicting successive stages of a road accident. They were then asked to complete a questionnaire about the accident. In this experiment a detail relating to one of the slides was incorrectly described in the questionnaire for some of the subjects. Some subjects saw a slide of a scene with a STOP sign in it and were later told in a questionnaire that it had been a YIELD sign. The subjects were then given a recognition test in which they were presented either with slides identical to the ones previously shown (the STOP sign) or with slides which contained the YIELD sign which they had not seen in the original slide. In some versions of this experiment, 80% of subjects stated incorrectly that they had seen the YIELD sign in the first slide; Loftus again concluded that they had integrated the incorrect information into their memory of the slide and that the misleading information had altered the subjects' representations of the slide.

However, Morton et al. challenge this interpretation of the data suggesting that the misleading effects reported by Loftus et al. can be explained by the absence of critical information at test, in this case the order in which the slides were presented to the subjects. Loftus et al. presented the slides in the recognition test in a random order with regard to the original slide sequence. Bekerian and Bowers repeated the experiment with the slide sequence and the questionnaire but, crucially, they presented one set of subjects with the test slides in the same order as the original sequence, whilst other subjects were presented with slides in random order as Loftus et al. had done. The misleading effects were only reproduced when slides were presented in a random order, when the inaccurate information was recalled, whereas if the slides were presented in the same order as the original sample, the slides were correctly identified (Bekerian and Bowers 1983).

Morton et al conclude that the sequential nature of the original slide presentation is represented in the Heading of the Record for the slides; if the slides are subsequently

presented in random order the Description would not match the sequential information in the Heading and so the Record for the more recent inaccurate information would be retrieved (because the Description would not be specific enough to discriminate the earlier accurate Record from the later inaccurate Record, and in these circumstances the later Record is retrieved).

In the Headed Records model, matching of the Description to the Heading is a critical part of the process of Record retrieval and evidence from differences between recognition and recall supports this; recognition is superior to recall because the stimulus itself forms part of the Description. It is highly likely that some part of the stimulus is literally represented in the Heading as well and a match will be made (this is not inevitable- presumably the Heading might sometimes consist only of some incidental thought that the person had at the time the original Record was formed, as with my example of the lost keys). With recall, the Description has to be formed without access to the original Record, but with only the information currently available, so that the chances of matching a Heading are lower.

There is also evidence to support the hypothesis that Headings usually contain a literal representation of the stimulus. When test material is presented in the same form as in the original presentation, performance on recognition tasks is improved (Morton et al. 1985, p 18). Performance on recall tasks also improves when the environmental features at test are identical to those at encoding; for example Godden and Baddeley (1975) showed a 30% decrease in recall of word lists learned in one environment and recalled in a different setting. Internal states in the individual such as mood or intoxication also influence learning and memory (Bartlett & Santrock 1977, Bower et al 1978, 1981, Eich 1980). Recall of test material is affected by such factors, suggesting that they form part of the Heading of Records. However recognition is not impaired by intoxication (Eich 1980). The conclusion drawn by Morton et al. is that a Heading probably consists of two components, one of which is a literal representation of the stimulus and the other is the internal or external state. Thus recognition would not be state dependent because the stimulus has been re-presented and is a sufficient Description to match the heading. With recall, the stimulus is not re-presented and if the internal state

has been altered by intoxication there may not be sufficient information to form a Description which can match the Heading.

A discussion of some questions which arise from the Headed Records model.

1) At any moment in time, there are many different Headings being searched and their accompanying Records being accessed at any one time. Morton et al describe the process which follows the formation of any one Description, so that only one Heading is successfully matched and one Record retrieved per Description; many unrelated Descriptions are being formed at any given moment and in consequence many different memory searches going on at the same time, each of which follows the rules of the Headed Records model.

2. There would seem, at first sight, to be a difficulty with the model of Headed Records when applied to the identity of a place or person, someone or somewhere related to over a long period of time; the Headed Records model is one in which Records are like the individual photographs collected together in an album, stored in chronological order and with certain procedures for finding and looking at them. Each photograph records the place or person at a particular time and each is separate from the others. I would draw on this collection of Records in the same way that I might look at a collection of photographs, when recalling specific occasions when I was in that place or with that person. But when I think of a person or place I know very well and see very frequently, I seem to have a mental image which is not pinned down in time and place, as a photograph is. In 'Three Ways of Looking at Memory', Morton and Bekerian (1996) lay out in detail the central assumptions of the Headed Records model, one of which is that new Records can be created 'from our perceptual experience, from old Records or from some combination.' They amplify this by saying that new Records can be created by extraction of information from an old Record or by the combination of information which results when more than one old Record is used in a particular task, as in creative thought; this explains how, when meeting someone I know well, I form a description which would

be something like 'who is this person?', use the Description to match the latest Heading laid down and retrieve the Record, which would be one which contained both information about my most recent previous meeting with that person and also generalised information from previous Records.

The process of generalisation can be repeated as new secondary Records are formed in sequence, each new secondary Record drawing on the information contained in a previous secondary Record and I have described these generalised secondary Records as 'working model' Records in the section below on the nature of the information which Headed Records may contain.

I use the concept of 'working model' Records in preference to the concept of a schema throughout this thesis; the concept of the 'working model' Record provides an account of the way in which generalised information may be built up in memory without it being necessary to switch to a different theoretical framework, that of schemas, whenever I am dealing with semantic, implicit or procedural memory. The Headed Records model can be used to account for the retrieval of information from implicit, procedural or semantic memory, as well as from explicit, declarative or episodic memory.

3. A further question concerns the way in which information in a Record might become the Heading for another Record; Morton and Bekerian (1986) state that a Heading for a Record for a particular individual may 'include his name, a representation of his face, a visual image of the place he was last met or a combination of these' However Records contain processed information, whereas Headings contain unprocessed information; by what means is processed information from a Record turned into the unprocessed information of the Heading of a subsequent Record? I think this raises a general question about the rules by which the 'characterizer' functions. Morton et al suggest that these rules are contained in control Records which are summoned whenever there is a demand for information. Norman and Bobrow have, perhaps, offered a more precise information-processing account of the processes which Morton et al include in the term 'characterizer'. Their model of prototype and field selection forming a 'perspective' would suggest that information about a new event is compared with information in

existing prototype Records and the characteristics of the event itself, together with variables such as the quality and focus of conscious attention, select certain information (from an existing Record, A) which the event matches to form the content of a new Record, B which will contain processed information from Record A as well as processed information about the new event (see figure 4, above).

Other information about the new event may not be successfully matched by this process of comparison and therefore becomes part of the Heading (see fig 4 above).

4. An evolutionary perspective is relevant to understanding how such a memory system might have developed. Parallel search of Headings allows rapid access to stored information without conscious attention so Headed Records allow patterns of automatic action and thought which could be seen as having survival value. A rapid and efficient means of interpreting new information by reference to existing Records also enhances the chances of survival.

5. The Headed Records model seems to be one which can include self-reflection but does not depend on it; it is probably not exclusive to humans and mammals and perhaps other animals might organise perceptual experience through Headed Records, although the content of the Record would be different for different species.

6. Current perceptual experience may be used to form the Heading for a new Record but the Headed Records model allows that a Record itself might not contain any information from the current experience, but only information drawn from previous Records; this may have implications for the understanding of difficulties in learning from new experiences and for repetitive and compulsive patterns of behaviour. One obvious example might be the abstinent alcoholic who has one drink and is then unable to refrain from an alcoholic binge. There are various ways of thinking about this behaviour analytically, such as seeing alcohol misuse as a means of suppressing conscious awareness of intense anxiety about separation from key attachment figures and as an attempt to coerce caring attention

from those attachment figures by inducing a state of drunken helplessness (Knox 1995); however, underlying these psychodynamic factors may be the fact that the taste, smell and other sensations involved in taking the first drink after a period of abstinence act as a Description which matches the Heading for the Record of alcoholic drinking, so retrieving the Record (or Records) of uncontrolled drinking behaviour and of the mental state which accompanies that behaviour. If there are no existing Records for alternative patterns of behaviour, such as stopping after one drink, then the conscious intention to stop does not retrieve any Records and so cannot influence the drinker's behaviour, which is determined by the retrieved Records containing information about previous alcoholic drinking behaviour.

The nature of the information which Headed Records may contain.

At this point I would like to examine the types of information which Headed Records may contain, since this will be crucial to the discussion about the effects of emotion on the retrieval cycle.

Headed Records may contain:-

1. Representations of people, places or events. These may be divided into:-

a.) Primary Records formed at the time of an 'event', which contain information roughly corresponding to the external reality, although only a selection of the available information is included in the Record being formed; this selection is determined by the content of the preexisting Records which are retrieved by the 'event' and which are used to interpret the event and so give it meaning (see discussion of Norman and Bobrow's account of prototype Records and the formation of a 'perspective', page 40 of this chapter; this process is the means by which emotion influences memory and this will be described more fully below). Information about the person's mental processes and bodily sensations at the time of the event may also be included in the Record, as well as forming a major part of the Heading of that Record.

b) Secondary Records formed by retrieval of the primary Record, information from which is then included in all secondary Records. These secondary (by which I mean

all subsequent) Records may contain some information which corresponds to the original 'event', but may also contain imaginative additions and reconstructions of the original event, including elaborations from dreams and the incorporation of another person's description of the original event .

As each subsequent secondary Record is formed, it may contain increasingly generalised information, incorporated from the previous relevant Record, which in turn has taken it from the preceding Record, and so on. The very generalised information in such secondary Records might be the kind which are described by Johnson-Laird as 'mental models', so that we could describe these as 'mental model' Records. (Johnson-Laird, 1989, p469.)

A particular variant of such generalised 'mental model' Records would be Records of relationships with key attachment figures. Secondary Records of 'self-other' relationships would be formed, containing information about generalised patterns of past interpersonal interactions with key attachment figures. These 'self-other' Records contain some representations of self in interaction with the key attachment figure and some representations of the key attachment figure in interaction with self (the difference is in the central focus of the representation) . Since any such interaction has high emotional significance, these Records also contain information about the emotion aroused by the relationship; they can be considered to be Records containing information corresponding to the 'self-other-affect triads' initially described by Kernberg and also to Fonagy's 'network of unconscious expectations or mental models of self-other relationships...that organise interpersonal behaviour but are not consciously accessible to the individual unless attention is specifically directed towards them' (Fonagy,1999, Kernberg, 1988).

Such Records also correspond to the kind of information which Bowlby suggested would form the content of 'internal working models' and I have therefore chosen the term 'working model' Records to describe them (Bowlby 1988, p120.) It is these Records which form the special type of prototype Record which I referred to on page 50 of this chapter.

2.Action sequences. These may be:-

a) Representations or plans of intended actions to which conscious attention is being or can be paid. The information in these Records would be stored in a declarative memory format (see below)

b) Non-conscious procedural Records containing action patterns of automatic behaviour. The information in these Record would be stored in a procedural format. Both might form the basis for complex actions such as driving, playing tennis etc.

3. 'Content-less' Records containing no representations but only non-conscious instructions to the autonomic nervous system.

4, Control Records containing rules for encoding and task specification verification.

The relationship between Headed Records and other classifications of memory.

Sherry and Schacter have summarised the various classifications of memory which have been developed, pointing out that these are usually dichotomous (Sherry and Schacter 1987 p446). The classifications most frequently used are procedural versus declarative, explicit versus implicit and semantic versus episodic. However, distinctions among three and even more memory systems have also been put forward (Tulving 1985). Wilma Bucci (1997, p99) also suggests that the schemes for classification of memory which have been most widely accepted and influential in recent years are:-

Declarative v. non-declarative (or procedural).

semantic v. episodic.

Implicit v. explicit.

intentional v. automatic.

Sherry and Schacter (1987) and Bucci (1997) argue that it is unlikely that each of the dimensions of function which have been described refers to a distinct memory system and that given the multiplicity of dimensions that have been identified, a criterion is need to

select the distinctions that actually do relate to different memory systems, rather than being purely descriptive.

Sherry and Schacter have proposed a classification into two specialised memory systems which show incompatibility of function and which therefore, in their view, represent discrete systems. System 1 is devoted to gradual incremental detection and registration of features that remain invariant across sets of events, but which does not retain specific features of a particular episode. System 11 is an episodic-representational system which preserves the contextual details that mark individual events. One might say that System 1 registers and stores information about similarities and invariance across events in time, whilst System 11 provides a record of difference between episodes.

Bucci suggests that an example of System 1 might be the learning of the songs of his subspecies by a male bird or learning of olfactory orientation cues by salmonoid fish (Bucci p103). However, there is considerable evidence that these are behaviour patterns which are not based on learning or memory, but rather that they are genetically preprogrammed responses to specific environmental triggers and that they emerge fully developed, without the trial and error which would constitute an essential part of a learning process based on memory.

However, examples aside, System I and System II may truly reflect two types of memory.

Bucci concludes that each of the memory systems described carves up the domain of memory or knowledge at rather different joints, but that three fundamental functional categories may be identified in the range of proposed classification systems:-

1. Behavioural (habits and skills) versus representational knowledge, reflected primarily in the declarative versus procedural distinction.

2. General knowledge versus specific memories reflected in different ways in Sherry and Schacter's System 1 or 11 and in Tulving's episodic-semantic distinction.

3. Conscious versus unconscious knowledge underlying the distinction between explicit versus implicit and intentional versus automatic functions.

However there still remain ambiguities with this broad classification of memory. As I indicated with the example of birdsong given by Sherry and Schacter, behavioural patterns are not always the result of a learning process and therefore the concept of memory is not always applicable in relation to behavioural or procedural knowledge. For example, the balance adjustments required to ride a bicycle are learnt, but blinking when a foreign object approaches the eye is not learnt. More complex behavioural patterns may also not be learnt. To give an example, Johnson and Morton have proposed that the new-born human infant is both capable of learning about the specific characteristics of individual faces which it sees, but also possesses a 'primal' mechanism containing structural information about faces, which orientates the infant's attention towards any face which appears within its field of vision. Primal information is not learnt and arises out of 'the interaction of the genome with the internal environment and with non-specific external environment input' (Johnson and Morton 1991, p131). Primal information is not therefore part of the memory system even though it sometimes can produce quite complex behaviour, such as the new-born infant's turning her gaze towards faces.

The same issue is relevant in relation to the distinction between intentional and automatic functions; primal mechanisms can give the appearance of being intentional even though they are entirely automatic patterns of behaviour; an infant who becomes anxious when she finds herself at a distance from her mother which is great enough to become noticeable, may be both conscious of anxiety and its cause (distance from mother) but also goes through a pattern of behaviour (crying and running to mother) which is automatic and probably primal even though it seems intentional.

I therefore conclude from this discussion that complex procedural and intentional behaviour may be a manifestation of an implicit or procedural memory system but in other cases may reflect the operation of primal mechanisms. A related confusion often arises in relation to the term 'implicit memory', which is often taken to refer to any behavioural response which reflects the influence of information previously given to the subject; however such a response may be solely a function of the perceptual-motor system and may not be a function of any memory process. A subject who hears the word 'hippopotamus' and is then immediately asked to name an animal is most likely to say

'hippopotamus', but this is an automatic perceptual-motor reflex and not an example of memory retrieval.

It is these kinds of difficulties and inconsistencies which render existing classification systems for memory rather unsatisfactory and complicate any attempt to investigate the effect of emotion on memory.

Are so-called different memory systems really modular or are they instead dissociated?

The Headed Records model does not attempt to reclassify these different memory functions, but includes them all into one framework. Headed Records may contain any type of knowledge, implicit, explicit, episodic, semantic, declarative or procedural.

It may be the case that memory is not modular, that information is not stored in separate memory systems such as declarative or procedural, explicit or implicit, but that these apparent differences actually reflect dissociative mechanisms, which means that the retrieval conditions are different for differing types of memory. Information about an event might be formatted into small chunks of discrete information for explicit memory retrieval and into large generalised chunks of an abstract and procedural nature for implicit memory. A Description with characteristics of explicit memory will only retrieve a Record in similar explicit format, whilst a Description in implicit (semantic or procedural) format will retrieve the implicit Record for the information about the same event (which in this case would also include generalised information drawn from other similar events).

Some support for this idea comes from Philip Smith, who has focussed on the constructive nature of memory in his new 'jigsaw' model of memory, in which he proposes that the 'raw material of memory is a set of stored fragments (incomplete bundles of features). Memory retrieval is an iterative process involving interactions between memory fragments and a coherent jigsaw, called the *Current Memory*, which is assembled from the memory fragments' (Smith 2000). A key distinction between Smith's concept of a Current Memory and the concept of a Headed Record is that the former is always conscious, whereas a Record may not be available to consciousness even when retrieved. However, both describe information which is available as a result of a retrieval

process and the key issue is that Smith proposes that the retrieval process involves assembling fragments of information into larger 'chunks'. If this is the case, one function of the 'characterizer might be to specify the nature of the fit between the fragments.

In the section on the information which Headed Records may contain, I suggested that there may be a process of serial Record formation in which there is a gradual transition from explicit Records to implicit Records in relation to certain kinds of regularly repeated experiences, such as continuing relationships with key attachment figures. Each interpersonal encounter would provide information for an explicit Record, which when retrieved forms the conscious memory of that encounter; however other secondary Records would include certain generalised information about that encounter together with similar information from previous similar encounters. For a small child, the kind of generalised information might be that when her mother greets her after an absence, she always smiles and hugs her and the child then feels loved and safe. This kind of information is then also included into Records of other interpersonal interactions, in an increasingly abstract and generalised implicit form, so creating 'working model' Records which are in implicit not explicit format.

Such a model would imply that there is no modular division between explicit and implicit memory, in that they are not stored in different compartments in the mind; instead the model suggests that explicit and implicit memory are dissociated, in that it is the conditions of retrieval which are critical to the form in which a memory is retrieved. A Description in 'explicit' format will retrieve an explicit Record and a Description in implicit format will retrieve an implicit Record.

The model also implies that there may be transitional Records with both explicit and implicit information stored in them; this has to remain hypothetical without sufficient experimental evidence at present, although if such evidence could be found it would provide crucial support for this model of the relationship between explicit and implicit memory.

Headed Records and primal mechanisms

The Headed Records model is a representational view of knowledge; there are other models which are based on the assumption that cognition is possible without representation, such as a parallel distributive processing model, in which no information as such is stored; but only a predisposition to put bits of information together. It is outside the scope of this thesis to investigate this PDP model.

One essential feature of Headed Records is that information has been processed, taken in and stored as a mental representation in a Record. The information may be of any kind, including physiological feedback from body organs, imaginative constructions in the mind, including dreams; whilst the information stored in a Record is often in the form of a mental representation which is potentially available to conscious reflection, it may be action sequences or instructions which produce behavioural effects. In this case the information in the Record is a mental representation but of a kind which is never available to conscious awareness. I have described this above in my account of the nature of the information which Headed Records may contain; confusion over the concept of mental representation arises if an assumption is made that all mental representations can potentially become conscious. Mental representations can be of many different kinds, only some of which are in explicit format and so can be available to conscious attention. However, whatever the format, if a Record has been formed then it contains a mental representation, even though this may be entirely non-conscious. This contrast with primal information, which is not in itself a part of the Headed Record system since no representation has been formed.

In 'Mind in Society-The Development of Higher Psychological Processes', Vygotsky illustrates this in this quote from Marx :-

'The spider conducts operations that resemble those of a weaver and a bee puts to shame many an architect in the construction of her cells. But what distinguishes the worst architect from the best of bees is this, that the architect raises his structure in imagination before he erects it in reality.. At the end of every labour- process, we get a result that already existed in the imagination of the labourer at its commencement'.

(Marx 1887[1995, p116])

There are other mechanisms which are not primal but which facilitate learning, such as 'Conlern' a set of systems which 'acquires and retains specific information about the visual characteristics of individual conspecifics' in relation to the human face (Johnson and Morton p90). These may be regarded as part of the Headed Records system, probably taking the form of control structures which, for example, determine the task specification and specificity of matching required between the Description and the Heading.

There is a difficulty with this argument which becomes apparent in a later section of this thesis, on the ways in which change is brought about in psychoanalytic psychotherapy. In this later section I argue that a primitive anxiety Record (Ra) forms the basis for attachment behaviour in very small children, from the time that they start to show separation anxiety at the age of about nine months. I suggest that this Record, Ra, is a primitive Record which contains information that takes the form of a sense of danger accompanied by acute anxiety, but no more precise cognitive information. This Record, Ra, enhances the chance of survival by bringing about behaviour contained in Ra such as seeking proximity to the safe parent in response to the information that survival is at risk. Later anxiety records, containing more complex and precise information about the degree of danger posed by a new event, are formed, but Ra can still be retrieved by a sufficiently precise Description.

The implication of this argument might be that 'Ra' is a primal mechanism and is not a mental representation and therefore not information in a Record. I have just argued that all Headed Records contain representations formed from information drawn from the external or internal environment (by internal I mean the body's physiological processes and all mental processes).

I think this contradiction can be resolved by proposing that the primal mechanism underlying separation anxiety and attachment behaviour is a purely physiological reaction to any sudden and extreme change in the environment, such as a loud noise or sudden movement; these events produce unpleasant physiological arousal and any unpleasant physiological experience brings into play a primal mechanism, whereby the infant seeks

proximity to mother. There need be no cognitive component to this process, no learning and therefore no Headed Record involved. Crittenden suggests that the limbic system plays a key role in relation to 'affective responses that regulate behaviour in the absence of prior experience' (Crittenden 1995 p369). She reminds us that Bowlby pointed out that innate feelings of anxiety and comfort represent genetically encoded information relevant to survival; these feelings function so as to modify behaviour in ways that reduce the probability of experiencing conditions that hold a high risk of being fatal in the first opportunity for experiential learning. The limbic system 'represents evolutionarily encoded information about danger' . However a Headed Record can be formed from the first occasion that this primal sequence occurs. The first experience of the primal sequence provides cognitive information from which the infant learns and which becomes the content of a Headed Record, which would probably largely contain information about the physiological state of arousal and the sense of danger with little information about the external event which contributed to the arousal. This would be the primitive Record, Ra, which when retrieved gives rise to a sense of extreme but nameless anxiety and danger.

Psychoanalysts have recognised this state but have provided other explanations for it which seem compatible with the Headed Records model I have offered; Bion used the term 'nameless dread' to describe a state of meaningless fear that an infant experiences with a mother incapable of 'reverie'; his explanation was that the infant internalises (in information-processing terms, forms a mental representation of) this unreflecting mother and this mental representation of a mother who does not make the infant's experience meaningful renders all other experience meaningless as well; the internal object 'strips meaning from all other experience' (Hinshelwood, p349). Guntrip drew on Winnicott's work to describe 'a primitive fear phenomenon, such as we could envisage in an infant who is not adequately protected and ego-supported by his mother and thus exposed to a fear of annihilation because of his own extreme weakness. The fear of annihilation Winnicott speaks of as one of the primitive 'unthinkable anxieties'' (Guntrip, 1968, p237).

Both these accounts seem to describe the experience of primitive anxiety with little or no cognitive component, which I have described in information-processing terms in order to illustrate the possible relationship between primal mechanisms and the Headed Records model. This has to remain a tentative and theoretical relationship which remains untested, although there is an experimentally-tested parallel in the relationship between Conspec, a primal mechanism which orientates infants' attention towards the human face and the subsequent learning of information about the specific characteristics of individual human faces (Johnson and Morton 1991).

A summary of the extensions to the Headed Records model which I have introduced in this chapter.

The majority of the features of the Headed Records model which I have described in this chapter originate with the authors of this model. However, there are a number of concepts which I have introduced and which I need to highlight here:-

1) The matching process as the criterion for determining whether event information becomes part of a Record or part of the Heading of that Record.

When a new Record is formed, I have suggested that event information which is matched by a retrieved prototype Record is structured by that prototype and is then included as processed information in the Record, whereas information which has not been matched by the information in a prototype Record becomes part of the Heading of the new Record.

2) A definition of attention as the matching process which I have just summarized.

The significance of the matching process outlined in point 1) above is that it offers a new way of conceptualizing attention and describing it in information-processing terms.

Attention is embedded in this matching process rather than being a separate 'spotlight' mechanism.

3) I have introduced the concept of the 'internal working model' Record which contains information in a schematized form. I have also suggested that these Records are a special category of secondary Record, containing information about key attachment figures and about self in relation to those attachment figures, information of the kind contained in the 'internal working models of attachment theory.

I have also introduced the idea that these 'internal working model' Records are formed by a process of repeated formation and subsequent retrieval of secondary Records containing explicit event information.

4) I have suggested that apparent modularity of memory may be explained in terms of retrieval criteria such as the nature of a Description which is formed. A Description containing information in explicit format would retrieve a Record in explicit format, whereas a Description in implicit format would retrieve an implicit Record.

5) I have examined the possible relationship between primal information, which is not part of the Headed Records system, and the kind of information which Records formed very early in the cognitive developmental process might contain.

Conclusions and evaluation

At the beginning of this chapter, I raised several questions which I have then attempted to answer in this description and analysis of the Headed Records model.

I have described the theoretical features of the Headed Records model, showing the detailed and precise account that it offers for the retrieval of information from memory; the value of this model lies in large part in this precision, so that an exact account can be given of each of the information-processing steps which lead from the formation of a Description to the retrieval of a Record and its subsequent availability for further processing. This model therefore provides a useful vehicle for formulating precise information-processing descriptions of selected psychodynamic mechanisms, in terms of the steps of the retrieval cycle.

I have described the experimental evidence which lends support to this model, showing that it offers an explicit explanation for certain patterns of memory failure which demonstrate the inaccessibility of information contained in the Heading of a Record (such as a person's name when it forms the Heading of a Record which contains other information about him). I have also described the evidence which supports the concept of multiple Record formation in storing memories of an event.

One possible criticism of my approach in this thesis is that the Headed Records model is only one of three main frameworks for understanding memory and therefore can only offer an account of psychodynamic mechanisms within the limitations of this particular model. It may well be that schema theory or associative network theory could illuminate different aspects of key psychodynamic mechanisms such as repression or dissociation; I hope to show that, to a limited extent, a small part of this objection can be dealt with by my incorporation of some aspects of schema theory into the Headed Records model by means of the concept of the 'internal working model' Record, which I have described in this chapter. However, the fact that the precision of the Headed Records model suits my purposes does not eliminate the objection that there are limits to its explanatory power.

Associative network theory, for example, provides a model which may seem initially more capable of linking information-processing with the underlying neuronal architecture of the human brain; in this model there is a constant tuning of connection weights in neural networks in response to environmental inputs. However, Steven Pinker argues that neural network models alone cannot account for the complexity of human information-processing which depends instead on the structuring of networks into programmes for manipulating symbols (Pinker 1997). These programmes, the rules which govern the manipulation of mental representations, operate at a different level of organization and complexity from that of the neural networks which have created them.

A similar argument applies in relation to the possible objection that I have not linked this study of the effect of emotion on memory to the neuroanatomy of the human brain; LeDoux suggests that the functionalist conception of mind as a program that can run on any machine can be 'tolerated' in relation to cognition but not in relation to

emotion because, LeDoux argues, most emotions involve bodily responses whereas no such relation exists between cognition and actions (LeDoux 1999, p40). There are two objections to LeDoux's viewpoint; firstly, the Headed Records model is a 'programme' which has been empirically tested in relation to the functioning of the human brain in living subjects and is not an artificial program which has been designed for and tested on mechanical computers; it is never suggested that it is a program which could be run on any computer. Secondly, I show in the next chapter that the distinction between cognition and emotion is not nearly as clearcut as LeDoux suggests it is; I follow Mandler's approach in suggesting that emotion consists of a combination of physiological arousal with cognitive evaluation and attentional mechanisms (Mandler 1975). If this is true then it is still necessary to attempt to gain an understanding of the rules which govern the processing of emotional information, regardless of the mapping of patterns of the physiological and anatomical stimulation which accompany that information-processing. Tooby and Cosmides point out that the information-processing language of cognitive science is the most useful for the purpose of discovering, analyzing and describing the functional organization of our evolved psychological architecture because the evolutionary function of the brain is the adaptive regulation of behaviour and physiology on the basis of information derived from the body and from the environment (Tooby and Cosmides 1992, p64) . This information-processing is the focus of this thesis and research to investigate the relationship between the functioning of emotional information-processing and the patterns of neuroanatomical activation which underpins it is beyond the scope and methodology of this thesis.

A further limitation of this thesis which already emerges in this chapter describing the Headed Records model is that the role and nature of consciousness are left largely unexamined in relation to the model; I do investigate the role of one particular aspect of consciousness in relation to the formation of secondary Records and 'internal working model' Records and I also make a clear distinction between consciousness and attention, but it is the concept of attention which is analysed in Headed Records terms. The concept of consciousness has many possible definitions and it is beyond the scope of this thesis to

attempt to introduce additional ideas about consciousness to those already offered by cognitive science, as summarized by Pinker (Pinker 1997, p134-135)

It will become apparent throughout this thesis that much of the analysis of the relationship between Headed Records and selected psychodynamic mechanisms has to remain theoretical and as yet untested empirically. Experimental evidence for the Headed Records model itself can be found but such evidence is not yet available for some of the implications which I explore in this thesis, particularly those implications which relate to psychodynamic mechanisms.

However experiments which might provide such evidence can only be designed if a clear theoretical model exists to form the basis for specific hypotheses to be formulated and then tested; A good example of this link between the theory and the experimental evidence is given in relation to the re-examination of the research by Loftus which seemed to show that post-event information leads to retroactive interference with a specific memory of an event (Loftus et al. 1978); when this experiment was repeated (as described on page 47) the results support the hypothesis that the nature of the information contained in the Description is crucial in determining which Record is retrieved. The precision of the theoretical model has enabled the experiment to be conducted in a manner which crucially reveals the details of the matching and retrieval process which had not been sufficiently clarified in Loftus' model and therefore in the experimental evidence. In confining this thesis to a theoretical analysis of the relationship between the models offered by psychodynamic theory and cognitive science for the effect of emotion on memory, I hope to provide the framework within which precise experiments can then be formulated and the models effectively tested.

Finally, in this chapter I have not yet investigated the effect of emotion on memory in terms of the Headed Records retrieval cycle and this will now be explored in the next chapter.

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Chapter Three

An analysis of the effect of emotion at different points of the Headed Records retrieval cycle.

Records are 'the units of storage for recallable information in memory' (Morton et al 1985). They are independent of each other and there is no access to Records that happen to be related in terms of their content, except via the Heading; Records are unmodifiable so that they cannot be altered or added to.

In the light of these key aspects of the Headed Records model, I now want to address the question:-

How does emotion affect memory? How is this effect brought about in terms of the Headed Records retrieval cycle?

An information-processing account of emotion.

Having given an account of the Headed records model of memory which I am using for the examination of psychodynamic concepts, I now need to describe the theory of emotion which also forms the basis for this analysis.

I would highlight again here an issue which I touched on in the introduction (page 1), which is that it is not really possible to investigate the influence of emotion on memory in isolation from its influence on attention and perception; emotion affects attention and perception and so determines the amount and type of information which is available to be encoded and stored in Records. Morton and Bekerian also point out that 'perceptual experience is interpreted by reference to our knowledge', so that present perceptions and attentional focus are organised and given meaning by existing Records (Morton and Bekerian 1986). As Johnson-Laird points out:- 'The limits of our models are the limits of our world' (Johnson-Laird,1991, p 471).

A detailed account of the information-processing whereby existing Records organise and give meaning to present experience is given by Norman and Bobrow in their description of the comparative process whereby elements of an event are compared with

'fields' of prototype Records to give a perspective, which is a way of describing an event from a particular viewpoint (Norman and Bobrow 1979). I have described this process in Chapter Two, page 40. Records which contain information about emotion can be the prototype Records which are retrieved and which organise an event and give it a particular meaning. These Records may contain information in explicit format about past events, but more commonly such information will be in implicit format, as 'mental model' or 'internal working model' Records.

Clinical illustration.

A patient who is an only child has told me that her mother had 14 miscarriages, some before her birth but many during her childhood years. On each occasion her mother would suddenly be taken into hospital for complete bed-rest, without warning and would remain there for several weeks in the forlorn hope of preventing what proved to be the inevitable miscarriage. In those days children were not allowed to visit in hospital so that my patient's experience was of sudden, inexplicable and total abandonment by her mother, with a father who was unable to take on any effective mothering role in her place. However her grandfather came to live with them when my patient was about 3 years old and he did look after her both practically and emotionally, but then began to abuse her sexually between the ages of about 5 and 7 years. She recognises that when her mother returned home after each miscarriage, the relationship between them was never really re-established, her mother felt like a stranger to her and they have never been close since.

As an adult she married a man whose career meant that he had to travel abroad extensively, without much warning, for days or occasionally weeks at a time; my patient experienced these absences as abandonment; whilst her husband was away she would avoid going out, even to the shops, whenever possible and felt that all she wanted to do was curl up in bed and go to sleep until her husband came back. When her husband's job made it necessary for him to live away during the week and come home only at weekends, she began to realise that she could not re-establish intimacy with him and that he began to seem like a stranger to her, just as her mother had done. After several months

of this pattern, she began to turn for emotional and practical support to another man, as she had done to her grandfather as a child and perhaps not surprisingly, a secret and in some respects abusive, sexual relationship developed with this man soon afterwards, just as her grandfather had secretly sexually abused her in childhood.

The emotional Records of childhood abandonment were retrieved by her husband's repeated and sudden absences and gave his absences the same meaning, reproducing the same pattern of reactions with him; the person she turned to for comfort as a child was her grandfather, and the Records of this relationship linked comforting companionship with secret and forbidden sexuality. When she found another man who looked after her in her husband's absence, these childhood Records, which linked parental care with an inappropriate sexual relationship, made it likely that a sexual relationship would develop, as it did.

It was only after some months of psychotherapy that my patient became aware of the way in which childhood patterns of relationship were re-enacted in her adult life, so that it was 'working model' Records, whose information was in implicit format which were retrieved and which organised her adult experience and behaviour (see Chapter 2 for an information-processing account of 'internal working model' Headed Records).

George Mandler gives a detailed analysis of the various theoretical models for a psychology of emotion in his book 'Mind and Body'. He discusses the two major traditions in the study of emotion which are essentially accounts of mental (or central nervous system) mechanisms on the one hand and organic (or peripheral autonomic nervous system) responses on the other (Mandler 1975). The mental tradition emphasises the priority of psychological processes in the causal chain of emotions, whereas the organic tradition, originating with William James, regards the autonomic nervous system as the source of emotion (James 1894).

Mandler offers a detailed critique of the experimental evidence of each of these approaches and draws the conclusion that an interactive model is required to explain emotion. Mandler concludes that:-

-the evaluative aspects of the cognitive apparatus,

- the arousal generated by the autonomic nervous system (and its action on mental structures) and

-the construction of conscious contents

all form part of an information-processing account of emotion. He argues that:-

‘the coaction of evaluation and arousal generates states that, when represented in consciousness, produce most of the experiences that are in the common language called emotional’.

Developmental psychologists postulate that there is an innate set of primary emotions which are expressed by pre-wired facial muscular action patterns and Meltzoff and Gopnik suggest that the infant’s mimicking of adult facial emotion expression activates corresponding physiological states which constitute these primary emotions (Ekman 1992, Meltzoff and Gopnik 1993). However, Gergely and Watson point out that we cannot assume that discrete innate emotion displays are evidence of conscious feelings in early infancy; these affect states are likely to be undifferentiated in early life and the appearance of differentiated conscious feeling states depends on further cognitive development (Gergely and Watson 1996). In adult life, the mental representations which contribute to differentiated conscious emotion are the product of each individual’s unique experience.

It is the underlying information-processing which matters in this study of the effect of emotion on memory; this consists of:-

- a. states of physiological arousal
- b. the mental representations of that state of physiological arousal .
- c. the other mental representations which are formed under the influence of various states of arousal.

This gives a model of emotion which is open-ended and perhaps infinitely variable; no one emotional state is ever exactly the same as another, even if we do group together the resulting conscious experiences into broad categories such as anger, fear, joy etc.

Emotion and Headed Records

In using this model of emotion, it is apparent that it is not possible to make a clear distinction between the information-processing mechanisms involved in memory and those involved in the generation and experience of emotion. Headed Records provide an information-processing account of the cognitive-evaluative mechanisms and mental representations which contribute both to emotion and to memory; in addition, the sensations which arise from the autonomic nervous system (ANS) arousal which forms part of emotion can themselves be represented and stored in a Record, or may form part of the Heading for that Record.

However whilst the information-processing mechanisms underlying memory and emotion may be the same, the Headed Records and arousal states which together produce emotion have effects on the formation and contents of new Records, as I have shown in the clinical illustration above and these effects can be identified and described.

I will now analyse the effect of emotion on the retrieval cycle of the Headed Records model in order to demonstrate the ways in which these effects are brought about. Clinical illustrations are given of each mechanism described.

In terms of the Headed records model, emotion may operate to affect memory at various points in the retrieval cycle:-

- 1. Emotion may focus attention to stimuli or deflect attention. By altering the criteria for evaluating the importance of stimuli, emotion alters what is available for encoding in memory.**
- 2. Emotional Records may lead to the formation of a task specification which prevents retrieval of prototype Records which contain certain categories of information. In this way, emotion may prevent particular prototype Records being retrieved by a current event even when attention has been paid to a stimulus.**

- 3. Emotion may distort the usual pattern of formation of Records so that Records are formed of mental and emotional states and Headings are formed of the external events which gave rise to these;**

- 4. Emotion may prevent conscious awareness of a new Record which has been formed.**

- 5. An emotional state may need to be re-experienced before a Record can be retrieved; it must be included in the Description formed in order to match the Heading and retrieve the Record.**

- 6. Emotion might control the process whereby information from Records of individual experiences is drawn on to form Records containing generalised information in the form of 'working models'.**

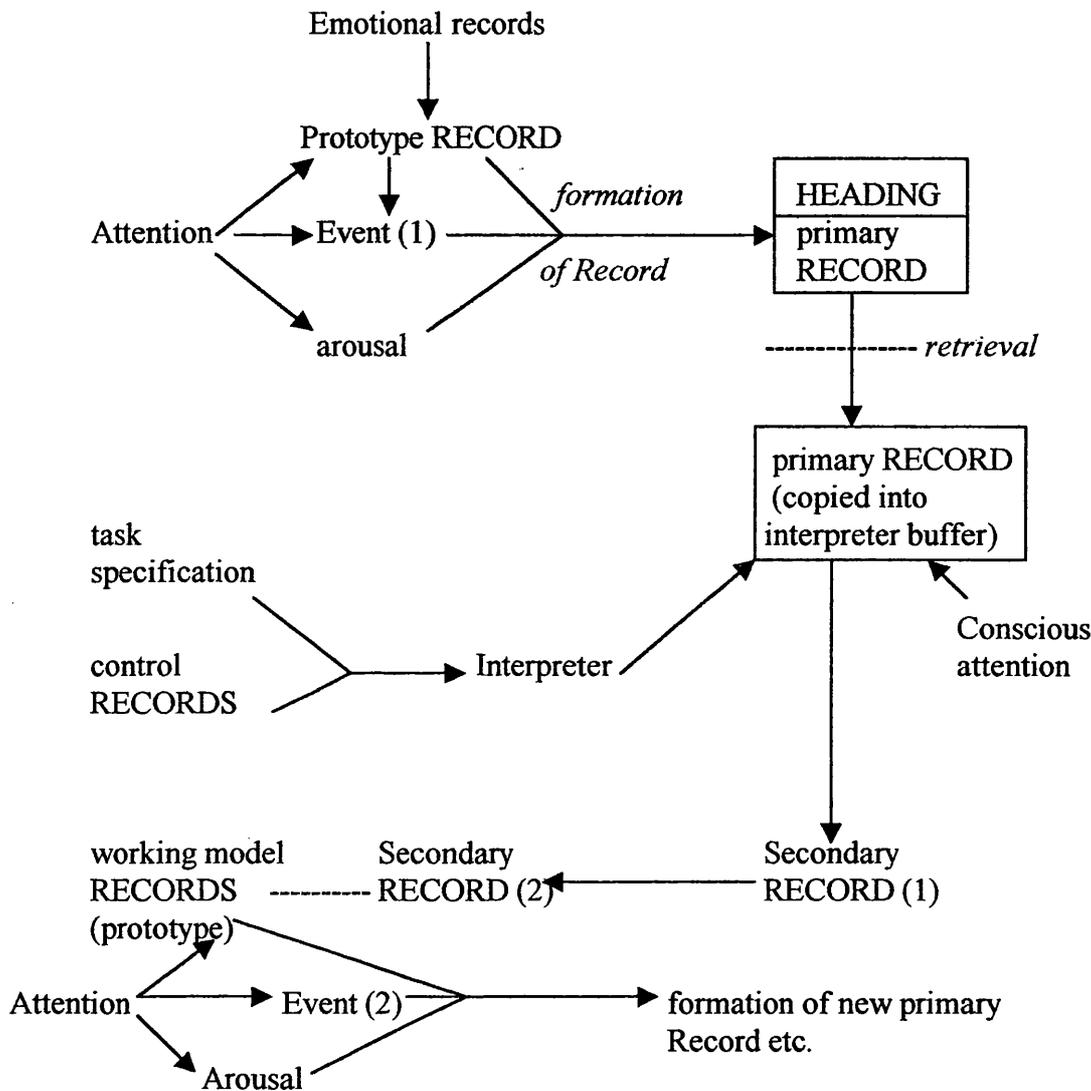
Emotion may thus affect the retrieval cycle at any of these key points.

The diagram below illustrates the relationship between the semantic entities of the retrieval cycle; it is not a diagram of the retrieval cycle itself, because it is not possible to demonstrate retrieval of a Headed Record in the same diagram showing formation of a Headed Record- retrieval cannot take place in relation to a Record which has not yet been formed.

The diagram shows that attention is paid to a current event, to the prototype record retrieved by that event and to the arousal (for example, the degree of anxiety or excitement) created by the event. Information from all these sources is included in the Record and some of it, in unprocessed form, in the Heading of that Record. This Record, the primary Record of an event, can then be retrieved on subsequent occasions by a Description which matches the Heading of that Record. Once retrieved into the interpreter buffer, the Record may be available to conscious attention and also to interpretation by comparison with a task specification and the information contained in control Records. A secondary Record may be formed which combines information from

both the primary Record and the interpreter. This process can be repeated many times with the gradual formation of working model Records. These may become the prototype Records which are drawn on when a new primary Record is formed.

Figure 6. To illustrate the relationship between the semantic entities of the retrieval cycle (pre-retrieval and post-retrieval processes are illustrated in more detail than in figure 4., chapter 2)

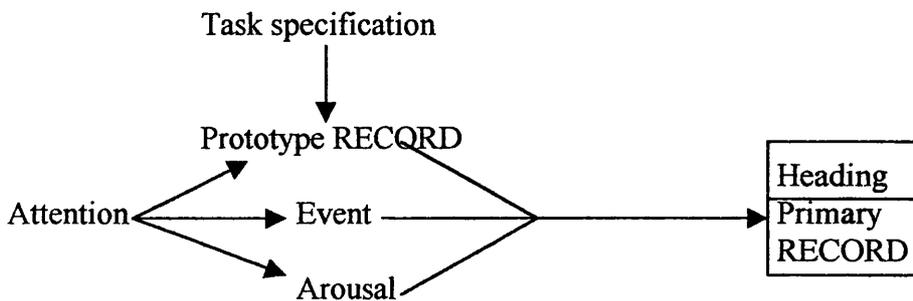


[Note:- retrieval involves copying the Record into the interpreter buffer]

The flow charts of formation and retrieval of Records can be illustrated by dividing the above diagram into three parts, one for formation of Records, one for retrieval and one to show formation of secondary Records:-

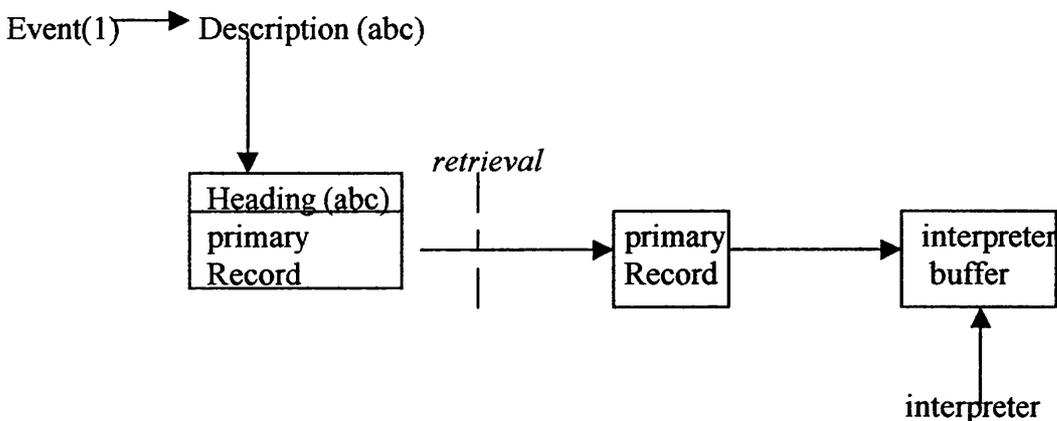
The first diagram a) below illustrates the process whereby attention is paid to an event, to the information in a prototype Record and to the arousal generated by the event; some information from all these sources is then incorporated into the primary Record which is formed at the time of the event and some information, in unprocessed form, becomes part of the Heading of that event.

a) Figure 7. To illustrate the formation of Primary Records



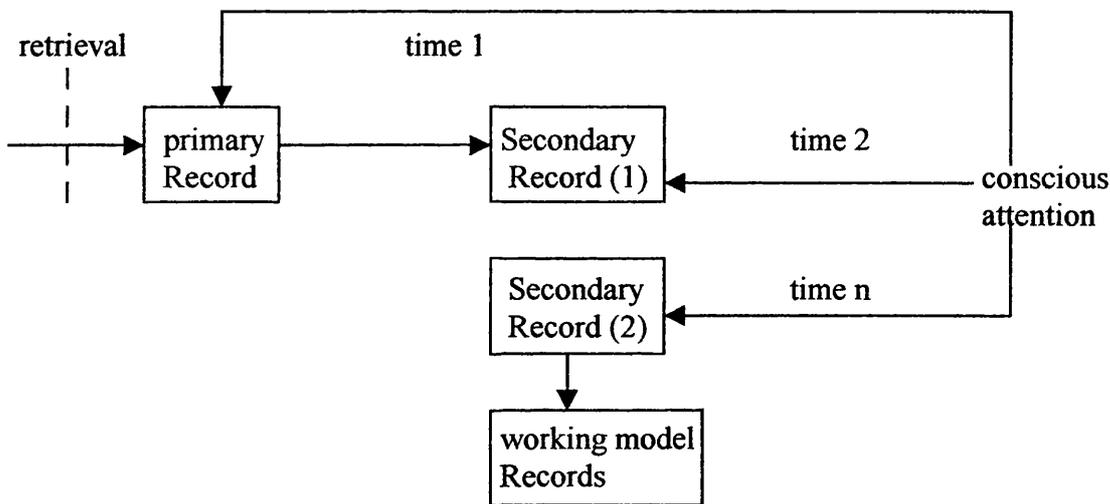
The diagram below shows that once a primary Record has been formed, it may be retrieved on subsequent occasions by a Description that matches the Heading of the Record. The primary Record is then retrieved into the interpreter buffer, where it becomes available for further processing.

b) Figure 8. To illustrate the retrieval of Records:-



The next diagram illustrates key features of the further processing which may take place in relation to a retrieved Record. When attention is paid to the retrieved primary Record, the information in the primary Record is drawn on to form the contents of a secondary Record which may also contain information from other sources, such as other people's accounts of the event and the subject's own imaginative reconstruction of the event. This process can be repeated many times, eventually leading to the formation of 'working model' Records.

c) Figure 9. To illustrate the formation of secondary Records



Discussion

1. Emotion may focus attention to stimuli or deflect attention, thus altering what is perceived and therefore what is available for encoding in memory.

This could result from:-

i) **arousal or sympathetic nervous system activation, which then itself becomes the focus of attentional mechanisms, so that there is less capacity for processing of external events.**

Mandler explores the question as to what is perceived as psychologically central and argues that this is determined by the amount of initial attention assigned to it (Mandler 1975, p256-257). Arousal reduces responsiveness to those aspects of the situation which

initially attracted a lesser degree of attentional focus; this is a direct and automatic effect of the autonomic nervous system on attention. There is also an indirect effect, in that autonomic arousal narrows attention by occupying some of the limited capacity of attention-consciousness and thereby limiting the remaining available attentional capacity to those events or stimuli which have originally been perceived as central; under stress, events perceived as peripheral will receive even less attention, whereas 'central' tasks receive more attention. This explains the apparent poorer memory for details of an emotional rather than neutral event found by Christianson and Loftus; however, in a series of experiments showing colour slides of varying degrees of emotional content, they found that people remember different detail information from emotional events than they might remember from events which are neutral in character. Emotional events lead to better retention of central information but worse retention of peripheral information than neutral events. They feel that this is in line with the view that emotionality affects the selectivity of attention, so that a highly emotional event is accompanied by attentional narrowing with fewer details being processed and with the focus on central details (Christianson and Loftus 1991) .

Clinical illustrations

This is a common experience for anyone who is anxious, say a person attending an interview who may be so aware of his or her heart beating faster, hands trembling, sweating and muscles tensed that it becomes harder to concentrate on questions being asked and to evaluate what the most appropriate reply might be.

Patients who suffer from panic attacks also describe such attentional narrowing such as a male patient on a tube train journey, during which he suffered a panic attack. He was acutely aware of his heart beating, his own breathing and other bodily sensations and his attention also focussed on his desire to get to the next station where he could get out. He noticed every change in the speed of the train, but was otherwise unaware of anything or anyone around him.

As is so often the case, novelists have an intuitive understanding of such psychological processes and an excellent account of the attentional narrowing which accompanies high arousal is given in 'The Ghost Road' by Pat Barker, where she describes a moment when one of the characters, Rivers, accidentally drops the torch he was holding in a cave whose walls are covered with thousands of bats:-

'Then the walls lifted off and came towards them. Rivers barely had time to see the beam of light become a tunnel filled with struggling shapes before he was enclosed in flapping squeaking screaming darkness, blinded, his skin shrinking from the contact that never came.

He stood with eyes closed, teeth clenched, senses so inundated they'd virtually ceased to exist, his mind shrunk to a single point of light. Keep still, he told himself, they won't touch you. And after that he didn't think at all but endured, a pillar of flesh that the soles of his feet connected to the earth, the bones of his skull vibrating to the bats' unvarying high-pitched scream....

Inside the cave, Rivers and Njiru opened their eyes. Rivers was not aware of having moved during the exodus, indeed would have sworn that he had not, but he discovered that he was gripping Njiru's hand' (Barker 1995, p167)

ii) preexisting (prototype) Headed Records patterning awareness of the present situation to which the individual is reacting.

These Records may consist of representations of previous external events combined with representations of the mental processes, emotions and degree of arousal accompanying that previous event. These Records determine which aspects of a new situation become the focus of attention, in other words, which aspects are perceived as central. Information about emotion included in such Records can therefore influence or determine the pattern of awareness in a new situation. The meaning, including the emotional significance, which these Records give to the new situation may itself produce SNS arousal and so contribute to i) above. In a meta-analysis of studies on mood-state dependent memory, Ucross supports this argument, saying that 'the environment is in part what the subject makes it, so that the context is not a static feature of one's experiences but a dynamic

one. Certain aspects of the environment will be more or less important, partly depending on the particular focus of the individual and *this perceived context will influence the way one analyses and encodes events*' (my italics) (Ucross 1989).

Thus both preexisting emotion and emotion created in the new situation may influence attention. This patterning of present perception by past experience provides a major focus for analytic work, primarily through the way in which the patient's relationship to the analyst is patterned by his or her past relationships; these experiences are stored as representations in Records. These Records contain complex representations of parental and other key attachment figures, formed partly from actual experience of these people and partly from imagination, fantasy and dreams during childhood and early adult life; they also contain self-representations, formed in a similar way, I have described the kinds of information which such Headed Records may contain at the end of the first chapter and have already given a clinical illustration in the section above, on an information processing account of emotion.

To illustrate this particular aspect of the influence of past 'emotional' Records on present perception, I will describe:-

Clinical illustration.

A male patient who had asthma as a child; during his therapy he described experiencing a profoundly oppressive state of mind, like a heavy weight pressing down on him. He felt unable to escape from it, unable to think about anything else but also unable to think clearly about the oppressiveness either. He recognised that it was the mental equivalent of an asthma attack, which he had to endure and which took him over completely until it passed. He realised that he was in a constant state of dread, waiting for the oppressiveness to come again, just as he had dreaded an asthma attack in childhood. His previous experience of asthma was patterning his perception of his own mental state in adult life, so that any oppressive unpleasant emotion was experienced as though it were an asthma attack; it was some time before he was able to experience the oppressiveness in a different way, but this did happen when he suddenly recognised that the

oppressiveness was an anxiety state. The oppressiveness had previously been organised and given meaning by Records of childhood asthma, but a shift occurred when I interpreted that it was not only his asthma which had been oppressive in childhood but also his relationship with his mother, partly because of their shared anxiety about his asthma. He recognised that he could not imagine intimacy being enjoyable and that he had always envied his brother's much freer relationship with his mother. One effect of this interpretation was to enable him to begin to experience oppressiveness as a mental and emotional experience, rather than a physical one; one might say that my interpretation acted as a Description which retrieved emotional Records of oppressive states of anxiety, envy and guilt. These could then be used to organise his present sense of oppressiveness, which he had previously only been able to make sense of in terms of childhood asthma and so as a physical experience.

To return to the patient's relationship with the analyst, the patterning of the patient's perception of the analyst by past experience (and therefore by past Records) forms the basis of the transference.

Clinical illustration.

A clinical illustration concerns a female patient with whom I increasingly felt that my interpretations were wrong, useless, mistimed or irrelevant; I became quite anxious, fearing her silent contempt for my stupidity, whereas she seemed to feel that all my remarks showed that she was the one who was getting things wrong. In one session she told me about her feelings of despair after a row with her partner which had made her feel that he was malevolent towards her and wanted to hurt and damage her. This description enabled me to recognise that she feared that all my interpretations were also attacks and that she feared that I hated her, so that my interpretations became for her, malevolent attacks to be kept out rather than insights which she could take in; I was able to draw on her descriptions of her childhood relationship with her mother to put into words her unconscious fear that I hated her in the same way that she felt her mother had hated her. She recognised the truth of this and found it a relief that I had put her unconscious fear

into words; she could then begin to draw on other Records to organise her perception of me, whereas she had previously been structuring her experience of me through the Records containing representations of a hostile and cruel mother who hated her. This structuring had been unconscious, so that mechanism 3, the diversion of conscious attention from a Record had also been operating.

Several months later, a dream she recounted seemed to provide further support for the interpretation I had made at that point, and also demonstrated that one accurate interpretation does not erase such Records which pattern her perception of me. The patient dreamt that she was walking down Holywell (representing her wish to be wholly well?) in Oxford with a woman; she then seemed to be lying down and the woman was carrying an egg which she opened and which was partly empty. The woman then offered her the egg to eat, but my patient noticed that there were two horrible yellow worms in it and she said she did not want to eat it. The woman then said 'Oh, you don't like worms do you' and stuffed the egg into her mouth. The reference to my couch (lying down) would indicate that the woman in the dream represented me and that she was still afraid that I would attack her and force bad interpretations and bad objects into her .

Whilst the two previous clinical illustrations show the way in which Records of the patient's relationship with his or her mother have structured his or her perception of present experiences, it can also be Records of the relationship with a patient's father which organise the perception of the therapist, even when the therapist is female.

Clinical illustration.

A male patient often talks about how badly he functions professionally and wonders whether he is any good at his job at all; he often seems to feel that he is professionally 'inferior' to me. When I commented on this he recognised that he thinks I must be very critical of him. This is just like his relationship with his father who never praised him and always made him feel that he could never achieve the same level of skill and competence as his father; as a child my patient would be asked to sweep the leaves

up in the driveway and he would spend ages trying to ensure that he had raked up every single leaf. His father would then come and inspect his work, make clear to him that it was not good enough and would then sweep the leaves himself to his own satisfaction. The Records of this critical father, whether fact, fantasy or a combination of both were organising his perception of me.

I have not yet clarified the characteristics of the information contained in 'emotional' Records which pattern awareness of present events by determining which aspects of a new situation will become the focus of attention. Are there particular kinds of information in these Records which distinguishes them from any other Records? I intend to leave this discussion until later in this section.

2. Emotion may prevent particular prototype Records being retrieved by a current event even when attention has been paid to a stimulus. Emotional Records may lead to the formation of a task specification which prevents retrieval of prototype Records which contain certain categories of information

Information about a current event is organised and so given meaning, through the retrieval of a 'comparison' or 'prototype' Record, the Record of an earlier, similar event; key aspects of the current event information will be used to form a Description which may match the Heading and so retrieve the required Record. This prototype Record would help to give meaning to the present situation through its own structure; this might, for example contain information about protagonists who are involved in the current event, their likely motivation and attitudes and likely outcomes of particular actions in the light of this information. This process relies on the successful formation of a Description and on the successful matching of an appropriate Heading.

However, owing to the person's prior history, a task specification may have been set up which has the effect of prohibiting the use of certain material in a Description. For example, if a particular individual has become associated with traumatic outcomes, then

task specifications may be laid down to prevent that individual's identity entering into a Description. This in turn, would minimise the chance of the associated traumatic Records being retrieved. A clinical example of such a process is given in clinical illustration E below. If the matching process fails in this way, possible alternative outcomes are:-

- 1) the stimulus (information about a current event) may not be encoded and stored at all.
- 2) the matching process may be successful with different prototype Records.
- 3) a Record may be formed in which the encoding of stimulus event information would be minimal, without the benefit of a prototype Record.

The key issue in relation to this aspect of the effect of emotion on the retrieval cycle is the nature of the task specification.

1) One function of the task specification is to pick out key aspects of a situation in order to formulate the Description. The task specification may alter the degree of specificity required in the match between a Description and a Heading, depending on the current processing goals, the purpose to which the information will be put.

2) The task specification may prohibit certain information from being used in the Description, containing instructions to the effect that the Description should not include information which matches Headings of particular Records or types of Records. In this case, the task specification may consist of Control Records which contain generalised rules which prevent a match between the Description formed by a particular event and the Heading of a prototype Record (see Chap.2, p52). Records containing information about emotions and one's own mental state could form control Records of this kind; an example might be a Record which contains information that extreme emotional distress is to be avoided. This would form a task specification which would prevent a match between a current event which might be expected to cause distress and prototype Records of similar previous experience.

There is a two stage retrieval process in which the Record is first retrieved into the interpreter buffer and then, if the task specification allows, fully retrieved, which means that it becomes available for use as a prototype Record which organises stimuli

from current events. This still leaves a further entirely separate post-retrieval process whereby conscious attention may be paid to a retrieved Record.

Allen has suggested that, in the absence of the meaningful integration of experience in memory, patients may be left with unintegrated images and emotions (Allen 1995). In Headed Records terms this means that the failure to retrieve a prototype Record leads to a new experience being rendered meaningless and so actions or responses appropriate to that situation are not activated; a person caught up in a disaster such as the sinking of the ferry, the Estonia, may become frozen, unable to attempt to escape, because they have not linked the situation with Records of danger or Records containing escape procedures. The British survivor of the Estonia disaster did describe such behaviour in those around him who did not seem to make any effort to escape. The meaning of the situation in terms of its extreme danger is avoided, because Records which render the full horror of the situation apparent are not retrieved. Such Records would produce a state of panic and if a task specification contains information that panic is to be avoided, retrieval of 'disaster' prototype Records will be prevented. It may be the case that those who survive such disasters are the people who rehearse possible emergencies and escape routes in their minds; by imagining ways of surviving the disaster they form a Description which matches the Heading of Records of imagined action sequences of escape rather than with Records in which they are helpless to prevent their own violent death.

Any unexpected and extreme situation of this kind may result in a very brief failure to retrieve Records of danger, so that the degree of danger in a new situation is not immediately recognised or understood; a vivid example is given in a newspaper account in which a man describes his thoughts as he saw a hand grenade land on the floor of a restaurant close to where he was sitting with his wife and friends:- 'I remember staring at it and thinking 'How bizarre, it's a hand grenade'.' and only seconds later reacted by moving to protect his wife and himself from the danger (Times April 17th,1997 p4).

Clinical illustration.

A borderline patient in analysis often experiences chaotic negative states of mind which she can only describe as 'not feeling very well' or 'feeling bad'. She often says that she feels 'upset' but she does not know why. She has a history of psychological and physical (but as far as I know, not sexual) abuse in childhood. her emotions are meaningless to her- she does not know whether she is angry, frightened, depressed or paranoid, just that she feels bad or not well and usually ends up by bingeing or burning or cutting herself to relieve this state of mind. In this case I think that her actions provide a painful physical experience which can form the basis of an organising Record, Rb, for the feelings of 'badness'. However this is a diversion from other organising Records which would give a far more terrifying significance to her sense of badness'. these Records might, for example, contain information about her parents as hostile and dangerous in an unpredictable and meaningless way; they related to her in a mindless way, unable to see or value her intentions, feelings and desires and so severely impairing her development of a psychological self with an awareness and representation of her own mind. Any bad experience in the present retrieves these punitive parental Records, Rp, but, by linking the bad experience to Records, Rb, of self-inflicted physical pain, she avoids paying attention to the Record, Rp, which does not become linked with the present bad feeling.

Some indication of progress in this patient's therapy is demonstrated by her developing some slight capacity to retrieve a very limited range of prototype Records which she can link with a present emotional state and so make sense of it; recently she described a state of feeling 'bad', which was distressing but she had no idea why she felt that way, until she realised that she was feeling very angry with someone, B, whom she is very attached to. She described to me that it was a relief to realise that the 'bad' feeling was anger and that she could then work out what B had done to make her so angry. She felt better once she could use cognitive processes to organise and explain her emotional state and she lost the sense of meaninglessness which she normally has when she feels 'bad' or 'not very well'. She went on to say that she thought this had helped her to avoid cutting or burning herself which is what she usually does when she feels 'bad'.

My impression was that her relationship with B was one in which it had become a little safer for her to feel anger; previous occasions on which she had felt angry with B had not resulted in retaliation or rejection and had become represented in Records which she could safely pay conscious attention to, to provide a basis for cognitive evaluation of her present state of feeling 'bad'. If she had only had Records of her relationship with her parents to draw on, conscious awareness of those Records would have produced too much anxiety, because they contain extremely persecutory and punitive representations of parent figures, representations which are formed from actual experience and from fantasy. Rather than pay conscious attention to these Records, she would have cut or burnt herself to 'make sense' of and provide a reason for her 'bad' feeling .

One way in which patients may attempt to deal with the experience of unintegrated images and emotions which occur when an preexisting Record is not retrieved to organise them, is to find an alternative Record to organise 'meaningless' emotions; this may offer an explanation for self-destructive behaviour and may contribute to the process which Bucci has described as defensive dissociation, in which attention is turned away from emotion schemas which might give a painful or destructive meaning to current events (Bucci 1997, p202).

Clinical illustration.

Another bulimic patient made a remark which seemed to offer some confirmation of this view; she said that when she is feeling emotionally distressed, but in a chaotic way so that she does not really know what emotions she is experiencing, then she finds that ' the physical pain which bingeing causes is preferable to the emotional turmoil. It provides a clear focus and a reason for feeling so bad'. On another occasion she described her state of mind one evening when she was on her own and did not know how to spend the time- nothing seemed worth doing; she went on to say that she was aware that she had thoughts in her head when in that state but she did not know what they were. It was not just that she could not put them into words, but that there were underlying feelings which she could not identify 'they were there somewhere' and she knew they were linked to the

feeling that she did not know how to use her time; the confusion and anxiety of this mental state caused her to binge, because bingeing was preferable to the state of emotional chaos and meaninglessness.

3. Emotion may distort the usual pattern of formation of Records so that Records are formed of mental and emotional states and Headings are formed of the external events which gave rise to these.

This constitutes the basis for dissociative states, such as PTSD where emotion:-

a) places material about the subjective mental state in the Record which would normally be in the Heading. This would be a result of both arousal and cognitive evaluative aspects of emotion.

b) also places material about external events in the Heading which would normally go in the Record. Thus external events act as Descriptions matching the Heading and retrieving the Record of mental processes linked with extreme emotional distress. This places the retrieval of these Records outside the individual's conscious control, resulting in 'flashbacks', apparently randomly occurring but in fact possibly activated by chance encounters (in fact or imagination) with external events which activate the retrieval cycle. This type of Record may co-exist alongside 'normal' Records of a traumatic event, in which the external events form the Record and the mental processes form part of the Heading. Brewin et al have also suggested that two types of memory may be formed of traumatic events, one of which is situationally accessible and the other verbally accessible, although they do not use the Headed Records model (Brewin et al 1996).

Van der Kolk and Fisler also suggest that there are critical differences between the ways people experience traumatic memories versus other memories of significant personal but non-traumatic events; they suggest that traumatic memories are initially stored as sensory fragments without a coherent semantic component and that a narrative of trauma only develops over time (Van der Kolk and Fisler 1995). In Headed Records terms, their proposal would be akin to suggesting that information which normally is stored in the Heading becomes encoded in the Record instead. However this does not

offer in itself a sufficient explanation for flashbacks, which would also require that an external event acts as a Description to a Heading which contains unprocessed information about the events of the traumatic experience, resulting in an involuntary retrieval of the Records of emotional distress; such Records may also contain details of the traumatic event but the content of the 'flashback' is often mainly of the emotional state experienced at the time of the trauma.

Clinical illustration

A senior teacher witnessed a road accident in which a 13 year old pupil in his care ran across the road and was knocked down by a car, dying in the arms of my patient's wife; several weeks after the accident, the teacher became severely depressed and when he eventually came to see me some weeks later amongst the many other issues he raised was the fact that he passed the spot where the fatal accident happened almost every day. I think that the physical details of that place had become part of the Heading for the Record of guilt and loss which he felt about the child's death. The emotion had become part of the Record and the external details formed part of the Heading. Other Records of the accident were also retrieved, with information about external events in the Record, rather than the Heading, so that my patient would also have conscious memories of the accident and these would also act as Descriptions which could retrieve Records in which the external event formed part of the Heading and his mental state formed the content of the Record.

Clinical illustration

A patient who had been sexually abused over a period of years has described the fact that certain colours, smells or sometimes particular places visited in reality or in imagination, can trigger extreme anxiety, often linked with feelings of nausea; these are like the emotions and sensations she used to feel after an episode of sexual abuse. A recent NSPCC advertisement, which used images suggestive of abuse, triggered this anxiety

and nausea and made her feel like a child, experiencing all the helplessness which she had felt when she was abused.

Clinical illustration

This patient who had been sexually abused cannot tolerate being in small dark offices at work with her back to the door; she feels deeply uneasy and depressed in these situations and has refused to use one particular office for this reason. She is not clear why she dislikes these rooms but hates the lack of light, the dark wood and brown paint. She herself has not yet made the connection but I remember that she told me early in the therapy that she used to try to hide in the garden shed from the grandfather who sexually abused her, but that he would come and find her in the shed. My impression is that the features of the rooms which she dislikes are retrieving Records of the emotional state she was in whilst hiding in the shed.

4. Emotion may prevent conscious awareness of a new Record which has been formed.

A similar process to 2) may operate at the point where a representation, or Record, might become conscious; in this case the stimulus, S, and the organising Record, Ro, are processed and a new Record, Ro,S, is formed, containing information from both. However, if this new Record arouses anxiety when conscious attention is paid to it, the task specification could contain an instruction not to pay conscious attention to it. This avoidance of conscious attention would also seem to play a significant role in the clinical phenomenon of repression, in addition to mechanism 2) above; in repression, the meaning of the experience is kept out of consciousness and the meaning can be seen to reside in the Records, Ro, which are retrieved to organise and make sense of a new perception and the new Record, RoS, which is formed. In this Record, RoS the perception of the present event, S, is integrated with information from the organising Record, Ro.

Some experimental evidence provides support for this mechanism. Fox has shown that people with a repressive coping style show attentional avoidance and Brewin et al describe a similar mechanism in trauma victims who develop an 'avoidance schema' that

monitors sensory input for trauma related stimuli and directs conscious attention away from them, so that they avoid thinking about the trauma and so escape the accompanying emotional arousal (Fox 1993, Brewin 1996). Their avoidance of processing negative information is shown by the fact that they hold unrealistically optimistic assumptions and beliefs (Myers and Brewin 1995)

Clinical illustration.

A patient in analysis described his feeling that he could not move when lying on the couch; he felt paralysed and it was a dreadful oppressive sensation, as though he were pinned to the couch. He felt unable to look at me although he was intensely aware of me; he could scarcely keep awake and could not think at all, as though he was in a fog. He had previously told me that his mother thought that a 'good' baby means a baby who is asleep and had also described childhood memories that his mother would sit silently in a room with him but be unable to play with him; he remembers how oppressive that felt but he did not himself connect his present experience with me with that information.

I think that the experience of lying on my couch retrieved a Record of his early childhood, containing his memories (not in the form of conscious thoughts) of a mother who wanted him to keep still and go to sleep; the emotions of dreadful oppressiveness activated by retrieval of that Record were included in a new Record which also contained the experience of lying on the couch; the unpleasant sensations and emotions resulted in conscious avoidance of this new Record; it could be experienced as bodily sensation but not fully expressed verbally- although he could describe the sensations he felt when lying on my couch, he could not recognise their significance as a recreation in the present of an experience in the past. A new Record linking the past with the present had been formed but was not conscious. An important aspect of this illustration is that the memory (or Record) of the childhood experience was conscious; he could describe these memories and they themselves were not the focus of repression. However he could not consciously attend to the effect these past experiences had on the way he interpreted the present and the meaning of both the past and the present was avoided, or repressed.

Clinical illustration

A patient came for therapy because she had panic attacks and difficulty in swallowing which began when she was pregnant. After several sessions she remembered that as a small child she had been rushed into an isolation hospital without warning because she had scarlet fever, which started with a sore throat and difficulty in swallowing. When she recalled this event in a session it was clear that the memory itself had not been repressed- it could easily be recalled and she herself remarked that she had always known about those childhood events but had simply never connected them with her throat symptoms in later life. As the sessions proceeded it emerged that being pregnant had activated a lot of anxieties about abandonment, illness and death, anxieties similar to those which her parents felt when she was admitted to the isolation hospital as a child and which she herself had felt when she was rushed into hospital again at the age of 25 for an appendectomy; whilst she was in hospital on that occasion another patient had died. When she herself was born her mother had a severe postpartum haemorrhage and did not see her baby (my patient) for several weeks after the birth.

Once again, the memories of significant events in childhood relating to abandonment, illness and death were not themselves repressed. However what was repressed was the emotional significance of pregnancy for my patient, her fear that being pregnant might mean that she would go into hospital and be abandoned or die, fears partly based on her own experience of emergency hospital admissions; the fears were also partly based on her mother's similar anxieties which could have been communicated to her either directly or by more indirect, non-verbal behaviour of her mother's. The fear emerged in the form of the psychosomatic symptom of difficulty in swallowing, which can be seen as part of the content of a Record formed from the new situation (being pregnant) and the previous Records of illness.

This new Record was not conscious, in that before therapy, she did not consciously link her present situation with her past experience, but the content of the Record contained the physical symptom of difficulty in swallowing which she did re-experience.

Clinical illustration

A patient started a session by saying that he could not remember some of the previous day's session and wondered why; he went on to describe what he could remember, which included his recognition that the partner he lives with controls him in very similar ways to his mother's control of him when he was a child. He also remembered that in the previous day's session he had been describing the sense of worthlessness and meaninglessness he had experienced when he had spent a day on his own and had ended up watching television all day, unable to think what else he wanted to do with his time. He remembered that I had said something important which seemed to connect these two things but he could not remember what that was. I found that I could remember quite clearly what I had said and since he was trying to recall it, I reminded him that I had said that it sounded as though his unconscious experience with his mother and his partner was that his time was not really his own and that he was always 'on call', so that free time was not something he felt was his to use as he wanted. It was an interpretation which linked his inability to use free time a few days ago with 'working model' Records of past interpersonal relationships in which it seemed to him as though his time was not his own to enjoy as he wanted, but that the needs of the person he was attached to must always take priority. He then remembered that he had told me about his feeling that both his mother and his present partner have needed him to be there to look after them so that it felt that at any moment he might be called on; he also recounted an exchange which had taken place with his partner when he had had 15 minutes to spare before leaving the house to come to a session. His partner had said 'how can we usefully use this time?' and my patient had been consciously aware for the first time how often his partner behaves in this way; he had been able to reply 'No, how are you usefully going to use this time?' However the angry and depressed feelings which this recognition aroused seemed to have resulted in his avoiding paying conscious attention to his sense of himself as passively controlled and his forgetting the remark I had made which connected the past with the present was part of this process.

5. An emotional state may need to be re-experienced before a Record can be retrieved; it must be included in the Description formed in order to match the Heading and retrieve the Record.

Although arousal can be re-experienced, emotion is not just arousal (see above) but also results from retrieval of Headed Records which form the cognitive evaluative aspect of a particular emotional experience. Arousal of roughly the right kind and intensity may be sufficient as a Description to retrieve a Record whose Heading also contains representations of a roughly similar degree of arousal; in this case, emotion is being loosely equated with arousal when one says that an emotional state must be re-experienced to retrieve a Record.

Arousal may provide the initial basis for the development of transference in the early stages of analysis; a new patient is usually both anxious and excited at meeting the analyst for the first time and can easily re-experience the kind of feelings that a child has for a parent. The state of arousal acts as a sufficient description to retrieve Records of child-parent interactions which then organise the experience of meeting the analyst, because the analyst is usually anticipated to be a powerful, understanding and potentially helpful person.

However some Records may have a Heading which includes representations of a specific emotional content which can only be matched by a Description with exactly the same emotional content; in this case it is the cognitive aspects of the emotion (the representations of the mental state) which must be re-experienced before the Heading can be matched and the Record retrieved. As analysis proceeds more specific Records of child-parent interactions may be retrieved by specific emotional events within the analysis; many analysts recognise that a patient's descriptions of past relationships can have a powerful unconscious effect on the analyst. The patient's Records (see the section on 'working model' Records, below), which contain information about his expectations of certain patterns of attitude and behaviour can lead the patient to act in ways which place pressure on the analyst to respond in ways which confirm those expectations. If the analyst fails to notice this and acts in precisely the way the patient fears, the patient then

re-experiences exactly the same emotional state which he or she had felt in the child-parent interaction which he or she has described.

Patrick Casement is one analyst who has described this process in 'On Learning from the Patient' and says that it is uncanny how the therapist can unconsciously reproduce a real failure in the therapy which is so close to the patient's experience of a childhood trauma. He recounts an analysis during which the analyst overslept and was not there when the patient arrived for an early morning session; the cleaner arrived and let her in and expressed particular concern about the therapist's absence as it was 'so unlike her not to be here'. Inevitably, Miss G. felt something really serious must have happened. Perhaps there had been an accident. Perhaps her therapist was in hospital. maybe she had died.' The patient had been repeatedly traumatised in childhood by her mother's repeated absences, in hospital with cancer and then by her mother's death when she was age four. The therapist had been very aware of these issues and had attempted to maintain particular regularity, reliability and consistency with her.

Patrick Casement goes on to say that the terrifying similarity of the therapist's failure to her own childhood trauma enabled the patient to re-experience the 'obliterating anger' she had felt in the original trauma. She could now begin to attack her therapist with her own strongest feelings about that earlier and this present failure. He goes on to say that 'Miss G. could only begin to modify her unconscious phantasy, that it might have been her own anger at her mother's absences which had seemed to have been the cause of her death, through subjecting her therapist to her most intense feelings about that absence with her therapist (ultimately) not retaliating or collapsing, but surviving'.

Clinical illustration

A rather painful example from my own practice relates to a patient whose relationship with her mother could in part be summarised as a competition between them to be the child needing to be understood and protected; my patient felt that her mother frequently claimed that role, accusing my patient of being powerful and sadistic, whereas my patient felt like the vulnerable child and experienced her mother as punitive. My patient related well to me, felt understood and contained by me and safe with me; she had been to other

therapists, all of whom she felt had let her down and she led me to feel a certain sense of satisfaction that I was doing a better job with her than they had. Disaster struck when she came for a session one day when I was preoccupied about a family member of mine who was quite seriously ill; my patient had asked me to look into a possible change of session time and I had forgotten to do so and my patient felt upset at my unreliability. I found myself saying that I had been preoccupied with something important to me at which she immediately became hurt and attacking, saying that she didn't want to know what my reasons were and that she expected me to keep my promises and stick to commitments I had made. Feeling pretty angry with her, I made remarks about her not being able to see me as a separate person with needs of my own. She ridiculed these remarks and I found myself experiencing her as overwhelmingly powerful and vindictive towards me and feeling really hurt and vulnerable myself. I thought I was trying to convey this to her in saying that she seemed to be feeling vindictive towards me, but between us we had simply recreated an exact replica of the kind of exchange she has so often had with her mother. However disastrously I handled it, she has not left the therapy but now experiences me as unsafe and unreliable just as she does her mother; the emotion has been re-experienced and the Records of mistrust have been retrieved and actively experienced in the therapy instead of just being described. The issue as to how this re-experiencing of emotional Records can bring about change in analysis will be discussed in a later section.

Clinical illustration.

Another example of the need for an emotion to be re-experienced before a Record can be retrieved concerns a borderline and bulimic patient, who asked me if she could take away and keep a small box from my consulting room over a holiday break, to which I agreed with a request to her to return it to me after the break. She did so but after every session following the break she found herself wanting to binge, without knowing why; eventually she realised that her desire to binge was connected with her anger with me for asking her to return the box. She felt that I had taken something precious away from her and that this was what always happens to her; people give her things and then take them away, not just

material objects, but her confidence, trust and sense of control. She thinks people can help her and give her hope and confidence and then they take those things away. As she told me of this insight she felt intense sadness and a powerful urge to binge. She had re-experienced the sense of being deprived by someone she trusted and re-experiencing this emotion had retrieved Records of many other situations in which she had felt the same emotions.

State-dependent retrieval, in which the emotion acts as a Description and retrieves Records with a similar emotional content, can result in retrieval of two kinds of Records:-

-Declarative Records, of the kind immortalised in the ‘madeleine scene’ in Proust’s ‘A la Recherche du Temps Perdu’

‘Working model Records whose influence operates outside awareness, and it is these which are of most importance and which are described more fully in section 6, below.

6. Emotion might control the process whereby information from Records of individual experiences is drawn on to form Records containing generalised information in the form of ‘working models’.

Emotion would probably have this effect by control Records preventing attentional mechanisms from screening certain Records and incorporating the information they contain into schematic or ‘working model’ Records. This could give rise to groups of Records which are retrieved by a particular emotional tone and which are separate from other groups of Records retrieved by a different emotional tone. I also discuss this process in relation to clinical material in Chapter Seven on borderline personality disorder.

There is support for this argument in recent work by Fonagy and Target who have discussed the way that individual episodes of interpersonal experience are aggregated into schemata or mental models of relationships. In psychoanalysis these schemata of self-other relationships are activated but the experiences which gave rise to these schemata are now irretrievably lost to consciousness. Fonagy and Target suggest that the past unconscious may be thought to refer both to experiences involved in the formation of

working models, never encoded and not recoverable, as well as individual memories of other events, memories which are retained because of their consistency with the working model (Fonagy & Target 1997, p211-216)

Formation of 'working model Records

Records may contain information of various kinds as I have described in the first chapter and some Records contain information about specific events, stored in 'declarative' form, so that the information is available to conscious attention once the Record is retrieved. I have examined in detail the ways in which emotion may alter the focus of attention either to events in the external world or to the content of retrieved Records (mechanisms 1,2 ,3 & 4 above). Emotion has a major influence on the content of the primary 'declarative' Record formed of an event and also on the secondary 'declarative' Records which are created each time the primary Record is retrieved and attention is paid to it. By altering attention, emotion alters the content of new Records formed

Over time, information from these 'declarative' Records is drawn on and integrated with information from numerous other 'declarative' Records to form information of a generalised kind, contained in 'working model' Records which are not accessible to conscious attention when retrieved but which nevertheless provide generalised rules for understanding current events and so organise and give meaning to current experience. It is these 'working model' Records which govern our understanding of current experience and which determine our attitudes and reactions to new events, including new relationships (mechanism 6 above).

so:-

1) In childhood, the infant's total physical and emotional dependence on the parent would lead to the reasonable conclusion that any experience that the parent was not 'safe' would arouse intense anxiety. Parents are not 'safe' when they are very angry, depressed, anxious or ill themselves.

2.) The anxiety-arousing information about the parent (facial expression, tone of voice, body movements) would be a central event on which the child's attention would be focussed by the emotion aroused and would be stored in a 'declarative' Record.

3) Secondary 'declarative' Records are formed as the child remembers the anxiety-arousing event and the central source of anxiety in the Record, namely the information about the parent that makes her/him seem 'unsafe'.

4) Repeated 'unsafe' experiences with parents would lead 'working model' Records to be formed which contain generalised information about insecure attachment experiences. These 'working model' Records are retrieved when new relationships are formed in adult life and provide generalised rules about such relationships, but outside awareness. Adult relationships are therefore likely to follow these rules and repeat the same pattern of insecure attachment.

A securely attached child would, in contrast, develop 'working model' Records of safe attachments and would bring the non-conscious expectations contained in these Records to adult relationships and so be more likely also to form secure attachments in adult life.

Working model Records therefore:-

1) Contain information which reflects the way in which emotion has controlled and directed perception and attention and has therefore determined the content of primary and secondary declarative Records.

2) Control attention in any new situation by structuring the meaning and significance of different aspects of that new experience and so determining the focus of attention.

Clinical Illustration.

A patient was telling me about recent events in her life but I noticed that she seemed distracted, lacking emotional involvement in what she was telling me; after a short silence she told me that whilst she had been talking she had been distracting herself by intermittently paying attention to various colours in my room, selecting one colour and

then silently repeating a fixed series of the names of other colours to herself. She would then select another colour in my room and run through a different set of colour names and so on, each list being determined by the colour she started with. She does not normally have marked obsessional characteristics and she agreed with me that this was a distraction technique to avoid having to attend fully to some painful issues which might arise in the session; in Headed Records terms this distraction procedure allowed her to focus on the immediate issue she was talking about, but might prevent this material from being sufficiently mentally organised, its emotional significance sufficiently recognised, to form a Description for other past emotional Records and perhaps to be incorporated into generalised emotional schemas which might give additional meaning to the current material. In essence, anxiety about anticipated emotional pain or conflict was at the root of this inhibitory process.

Discussion of the clinical relevance of the effect of emotion on the Headed Records retrieval cycle.

In clinical situations, or indeed in any relationship, many of the mechanisms which I have just described may operate together and indeed, may activate each other. For example, retrieval of preexisting Records of childhood patterns of insecure attachment, will predispose a person to experience a current relationship as one of insecure attachment. An experience of insecurity in an intimate relationship makes the person re-experience the same emotions they felt in childhood, and these emotions then act as a Description retrieving Records of the insecure child-parent interactions which organise the person's perception of the present relationship. This gives a picture of a self-reinforcing cycle which could explain the remarkable tenacity with which some patients seem to cling to insecure relationships with their loved ones.

Clinical illustration.

A patient came to her session in great distress on a Monday morning after a row with her partner over the weekend. She described the row and conveyed her frustration, rage and despair at her partner's insistence that, whatever she told him she felt, he knew better

than she did what was in her mind and what her intentions towards him were; she felt she was going mad when he kept saying 'I know what you are really like'. As she described this to me, it was glaringly obvious to me that this was almost exactly the way in which she had described her mother's attitude to her in childhood. It therefore seemed as though childhood Records of her mother were organising her perception of her partner's behaviour. It might immediately be pointed out that he was in reality behaving like her mother, but the point is that she felt like a helpless child with him and it seemed impossible for her to hold on to her adult perception that he was emotionally abusing her. She was relating to him as though he was a parent whose view of reality she was not strong enough to reject; the pattern of their relationship became that of a child and a parent and in that sense her 'working model' Records of past parent child-interactions were organising her perception of the relationship with her partner and her perception of herself, during the row.

However until we began to explore this in the session, she had not been consciously aware of the information retrieved Records which were organising her perception of the row and of her relationship with her partner. She also described how, as the row progressed she had become increasingly frantic to repair the damage done by the row, as her partner became increasingly sadistic towards her, saying that he was leaving and would spend the night elsewhere. She described the humiliation and terror she felt as she pleaded with him not to leave, because she could not bear to be abandoned by him. It seems to me that she was re-living vividly the acute separation anxiety she had experienced as a child in similar situations with her mother, who seems to have been coldly controlling and manipulative towards her in the same way that her partner sometimes becomes and it was the re-experiencing of the emotions of rage and frustration which then retrieved Records of herself as a helpless, frantic and abandoned child, Records which she enacted in the exchanges with her partner.

Conclusions and evaluation

The Headed Records retrieval cycle allows an information-processing account of the various ways in which emotion may affect the encoding, storage and retrieval of memories and the ways in which these effects may be observed clinically.

By altering the focus of attention, emotion influences perception and therefore the information which is available for encoding in memory. By altering a Description and so preventing a current experience from leading to the retrieval of a particular prototype Record, emotion changes the meaning which is given to a current event.

Acute distress, of the kind experienced in situations of physical or psychological trauma leads to post-traumatic stress, one feature of which is the experience of frequent and unpredictable flashbacks; these can be understood in the Headed Records model as a distortion of the usual pattern of formation of Records. Normally, sensory material undergoes processing in the interpreter buffer before it is incorporated in a Record; in this way, when the Record is later accessed, the sensory information is interpreted as something historic. The proposal is that, under the influence of acute distress, material is incorporated into a Record directly. When the Record is later accessed the sensory material is interpreted as being current and is experienced as occurring in the here and now. Brewin and his colleagues have made a similar proposal (Brewin et al 1996).

On the other hand, emotion can also contribute to the partial inaccessibility of memories in two ways. Emotion may lead to the creation of control Records which prevent conscious attention to Records or parts of Records which contain emotionally distressing meanings. Secondly, a particular emotional state may constitute a key part of the Heading of a Record; in this case that emotion must be reexperienced in order for the memory to be retrieved.

Finally, emotion may play an important role in the way in which explicit memories are drawn on in the formation of implicit memories; emotion therefore influences the content of 'internal working model' Records.

Since this chapter forms the information-processing foundation on which my subsequent analysis of psychodynamic mechanisms depends, it is appropriate at this stage to anticipate some possible objections to and criticisms of this approach. I will attempt to

address the criticisms which might be made from different standpoints, those of cognitive science, including a more behavioural view, and psychoanalysis.

The most obvious criticism which might be made from a cognitive science standpoint, is that my analysis of the effect of emotion on the Headed Records retrieval cycle is purely theoretical, as yet lacking empirical evidence to support it; the case histories can illuminate the model, but as Fonagy and Tallindini-Shallice have succinctly argued, they do not provide evidence for its accuracy compared with other possible models (Fonagy and Tallindini-Shallice 1993). I have already addressed this challenge in the conclusions and evaluation section at the end of the previous chapter, but will repeat the central argument here, which is that an essential precursor to accurate empirical investigation is a coherent theoretical model which is detailed enough to allow for precise testing; this is what I am attempting to achieve in this thesis and the devising of experiments which can test different aspects of the model is outside the scope of this particular thesis. Tooby and Cosmides present a similar argument, suggesting that conceptual systems, models and theories function as organs of perception and they quote Einstein saying ‘ it is the theory which decides what we can observe’ (Tooby and Cosmides 1992, p67)

From a more cognitive-behavioural perspective a rather different criticism might emerge; it might seem as though the theoretical process of analysis of the effect of emotion on the steps of the Headed Records retrieval cycle has little practical value in therapeutic terms. It does not appear to lead to the development of strategies for modifying the cognitive processes, the negative repetitive patterns of thought and behaviour which contribute to psychological distress and symptomatology. However, the theoretical analysis in this thesis acts as a foundation for an information-processing account of certain central psychodynamic concepts and it is the more accurate conceptualization of the psychodynamic mechanisms which underpin clinical phenomena which can lead to more effective therapeutic intervention, as I demonstrate in later chapters of this thesis.

A psychoanalytic critique of my investigation so far might centre on the role of unconscious fantasy. Some psychoanalysts might feel that my approach is too abstract, in

attempting to identify and form general rules about mental processes which they argue can only be related to in the consulting room. Such psychoanalysts would argue that this kind of approach undermines the analyst's freedom to relate to the subjective experience of the patient and the uniqueness of each individual transference-countertransference encounter. The effect of emotion on memory would depend upon the content of the unconscious fantasies in each patient rather than upon any general rules of the kind I have described. These analysts might also criticize my approach on the grounds that it does not address the developmental roots of the effect of emotion on memory; in their view unconscious phantasies (ph is the spelling used to identify a particular use of this word) arise in the first few months of life and it is the extent to which these are modified in early childhood which determines much of the unconscious content of the adult mind, including the extent and nature of psychopathology.

In my view, these two possible criticisms are mutually contradictory; the suggestion that generalized models may constrain the unique and creative interaction between each analyst and patient is belied by the argument that this thesis may have paid insufficient attention to early developmental influences on human psychological functioning. Psychoanalysts do have models which they regard as universally relevant, such as Freud's concept of the Oedipus complex and Klein's model of the paranoid-schizoid position. One of the key criticisms of these psychoanalytic models is that they exist in isolation from the wealth of theoretical and empirical evidence which is emerging in other disciplines, such as that of cognitive science. This thesis is one small step towards an integration of psychodynamic models with such evidence.

The next step is therefore to identify some of the psychodynamic mechanisms which are proposed for the effect of emotion on memory and which play a central role in key psychodynamic theories. Using the Headed Records model, an information-processing account of these mechanisms can then be given which increases our understanding of the ways in which emotion contributes to compartmentalization of memory in the human mind. These questions will be addressed in the next chapter.

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Chapter Four

An analysis of selected psychodynamic mechanisms which are thought to explain the effect of emotion on the storage and retrieval of information, using the Headed Records model

The Headed Records model gives rise to several questions which are relevant to psychodynamic accounts of the effects of emotion on memory and to the process by which psychoanalytic psychotherapy may be effective:-

-How do psychodynamic mechanisms such as repression, dissociation and splitting relate to the Headed Records retrieval cycle and the effects of emotion on this cycle?

-Can an information-processing account of these mechanisms be given which adds to our understanding of the ways in which emotion helps to create compartmentalization in the storage and retrieval of information in the mind?

Some psychodynamic mechanisms examined using the Headed Records model

I will now analyse psychodynamic models of the effect of emotion on perception and memory using the model of the effects of memory on the retrieval cycle of Headed Records which I have described. I will focus on the concepts of:-

Repression.

Dissociation

Splitting

The mechanisms I have chosen to investigate are those which reflect the main psychodynamic hypotheses about the influence of emotion on memory and perception. Psychodynamic theories of all orientations propose that memory is altered by emotional factors, through defence mechanisms which keep anxiety-producing material, including memories, away from consciousness.

However, the increasing body of experimental evidence concerning the effects of emotion on cognition is largely ignored by psychodynamic therapists of all schools. An

information-processing account of emotion and the ways it can influence memory and perception would provide a way of evaluating these various psychodynamic concepts. In order to do this, the concepts first need to be identified, defined clearly and as far as possible translated into information-processing terms.

This task presents two difficulties, firstly imprecision and inconsistency in the use of the various terms in psychodynamic models themselves. The second difficulty has been identified by Sandler and Dreher (1996, p3.) as the fact that there are two sorts of theories which analysts use during the course of their work; one sort constitutes the explicit or official theories which analysts use and the other category of theories is implicit, in that they have been created 'outside the analyst's consciousness during the course of analytic work and in the context of that work'. These 'unconscious theories' are partial theories or models which are held in reserve to be called upon when necessary, even though they may contradict the explicit theory. Sandler and Dreher also point out that analysts with different theoretical orientations may be closer on the clinical level than they are in terms of their public theories, because their implicit theories are closer than their explicit ones, being more pragmatic. The nature of these 'implicit theories' will therefore need to be identified and defined as well as the 'official' theories which represent group allegiances within the analytic world.

Firstly, I need to clarify the core concepts which the differing psychodynamic theories offer for the effect of emotion on memory and perception, which form their central theoretical commitments or ideologies. The second stage is then to analyse these differing psychodynamic accounts, to see what developmental concepts and what kinds of information processing each model proposes or implies; The third stage is to explore the various models within the framework of a particular information-processing account of memory, such as the Headed Records model, which will enable an analysis of the accuracy and consistency of the psychodynamic models to be undertaken and a more precise model to be developed of the effects of emotion on the various stages of the memory retrieval cycle.

Psychodynamic models of the effect of emotion on cognition.

Repression.

The term 'elasticity' was coined by Joseph Sandler to describe the way in which psychoanalytic concepts 'could be employed with altered meanings as they were deployed as bridges between one psychoanalytic conceptual framework and another' (Sandler et al., 1997 pxiii). The three major frameworks in Freudian theory to which Sandler is referring here are:-

- The external trauma causation theory of neurosis, 'the affect- trauma' frame of reference.

- the topographical model, based on drive theory, in which the instinctual drives and the defences against them are seen to play the key role in the development of neurosis

- the structural theory in which conflicts and compromises between different psychic agencies in the mind, the ego the id and the superego, are seen as the central issue. (Sandler et al.1997, pxvi)

In any investigation of the psychoanalytic meaning of a concept such as repression, it is therefore crucial to define clearly in which framework this concept is placed.

The earliest Freudian view of repression, the affect-trauma model, arose out of Freud's collaboration with Breuer and their attempt to find a psychological explanation for hysterical phenomena. In this model, real trauma plays a key part in the production of symptoms, producing intense emotions and memories which were unacceptable to that person's normal moral standards. Freud described repression as "a question of things which the patient wished to forget, and therefore intentionally repressed from his conscious thought and inhibited and suppressed" (Freud and Breuer,1893). This is Freud's first use of the term 'repressed' in its psychoanalytic sense (Freud 1895, p10 n) and was initially conceived as a form of voluntary dissociation from consciousness of memories and associated emotions (affects) that were threatening to the individual's standards and ideals.

Repression is thus seen as the pushing away of unacceptable memories, ideas and associated emotions so that these are relegated to the unconscious part of the mind. The emotional excitation remains dammed up outside consciousness. Repression selectively excludes from consciousness those events which might bring to consciousness these painful, threatening and distressing emotions which could overwhelm the ego if conscious.

In the topographical model, which emerged from 1897 onwards, the emphasis has shifted from the role of actual trauma to the role of instinctual drive. Freud came to the conclusion that his patients' traumatic memories were really wish-fulfilling sexual fantasies. The unconscious was considered to consist of unsatisfied instinctual wishes which derive directly from sexual and aggressive drives. Repression is a mechanism whereby the subject attempts to repel or confine to the unconscious, representations (thoughts, images, memories) which are bound to an instinct (Freud 1915,p86). Repression occurs when to satisfy an instinct- though likely to be pleasurable in itself- would incur the risk of provoking displeasure because of other requirements.

The topographical model represents a major shift in Freud's thinking towards the view that instinctual drives play a key role in the formation of mental representations so that the latter do not only store information about external events and experiences but also about instinctual wishes. In early infancy, sexual and hostile images, thoughts and feelings towards parents are said to arise universally as an expression of instinctual drives and take the form of the 'Oedipus Complex'. Unpleasant emotions of anxiety and, later, guilt, trigger the repression mechanisms that keep these mental processes out of consciousness. In the topographical model, experiences or fantasies in later life which have a similar emotional and cognitive content and which therefore would activate unconscious guilt are also repressed; this secondary repression arises from and can be traced back to the original repression of the Oedipus complex.

In his 1915 paper on repression, Freud suggested two phases which he called 'primal repression' and 'repression proper'. Primal repression 'consists in a denial of entry into consciousness to the mental (ideational) presentation of the instinct. This is accompanied by a fixation; the ideational presentation in question persists unaltered from

then onwards and the instinct remains attached to it'. Repression proper 'concerns mental derivatives of the repressed instinct-presentation, or such trains of thought as, originating elsewhere, have come into associative connection with it'. There is a clear suggestion in this paper that conscious suppression contributes to repression proper, that there is a voluntary element as well as the involuntary unconscious 'pull' of primal repression. This voluntary aspect of repression will be explored later in this chapter, in relation to my analysis of repression in terms of the Headed Records model.

The structural theory was the third and final formulation of psychic organization which Freud proposed and which he spelt out in full in *The Ego and the Id* (Freud 1923). In the structural theory, Freud concerned himself with describing the organization of mental structures and the relationship between those structures. The *Id* is regarded as the reservoir of instinctual, sexual and aggressive, drives and wishes and its contents are unconscious. The *Ego* is the mental structure that evolves to cope with the demands of external reality and to mediate between the drives, reality and the *Superego*. This latter is the mechanism by which mental processes are kept out of consciousness; an unconscious representation is formed of a partly real, partly phantasy, prohibiting and threatening parent, the superego, and this representation is the source of the unconscious guilt which prevents conscious awareness of the 'Oedipal' material. In this model, intrapsychic conflict between the superego, the id and the ego eventually brings about repression, a notion which replaces the former idea of a barrier between conscious and unconscious parts of the mind.

One of the major difficulties with both the topographical and the structural accounts of repression is the assumption that the roots of the Oedipus complex lie in instinctual drives, a problem which also arises with the Kleinian concept of splitting, discussed below. Many present-day Freudians do not accept this account of repression and also do not necessarily accept that Oedipal conflict is the original source of all subsequent repression (Fonagy 1999, Renik 2000). Psychoanalytic theory has therefore undergone considerable revision and an account must therefore be given of a contemporary psychoanalytic model of repression.

Freud himself recognised that it was the psychic rather than the objective reality of an event which determined its psychological impact; repression is now usually conceptualised as the intentional keeping out of consciousness of the meaning of a memory rather than the memory of the event itself. Lifting of repression needs to be re-conceptualised as a 'change of understanding and feeling in relation to a childhood experience' (Fonagy and Target, 1997, p197), rather than the recovery of a previously unavailable memory. This revised view of repression does allow the possibility that the events themselves could be ordinarily forgotten.

I would also emphasise that adopting this view of repression means that Oedipal conflict is no longer the central issue and cause of repression, although still contributing to it. Oedipal impulses and anxieties can be encompassed within the larger framework of attachment patterns and the development of healthy narcissism (the development of good and secure self-representations), rather than being seen as expressions of instinctual drive and the main source of the division of the mind into conscious and unconscious parts. Other childhood experiences may have greater significance in contributing to repression, particularly any traumatic event. Anyone who has experienced repeated trauma, whether physical or psychological, may develop a tendency to avoid the emotional significance of experiences, thoughts and fantasies in the past and in the present and this may be the essence of repression. Such emotional avoidance leaves the person with rigid and outdated schemas of self, object and interpersonal relationships, because they are not constantly updated and revised by new information and experience as more healthy person's schemas are (Bowlby, 1988, p130).

The contemporary psychoanalytic view could be seen as a return to the affect-trauma model of repression combined with features of the structural model; the role of anxiety aroused by traumatic events is recognised rather than the view in the topographical model that instinctual drives play the key role in repression. However there is a re-definition of what constitutes trauma, with attachment and separation issues playing a central role (Eagle 1995). The contemporary psychoanalytic view of repression also gives a central role to the influence of internal psychic structures, a model which superficially seems to have some features in common with the superego, id and ego of

the structural model. However in contemporary psychoanalytic models, these internal structures can be considered to be ‘internal working models’, rather than drive-based psychic structures like the id, and superego; contemporary attachment-based psychoanalytic theory therefore offers an explicit account (internal working models) of the kind of implicit models which more traditional Freudian, as well as Kleinian and Jungian, analysts use when their explicit models fail them in the clinical situation (see the section on ‘unofficial or implicit theories’ below).

Splitting.

Freud did not use the term dissociation but referred instead to ‘splitting’ of the ego (the agency which has the task of self-preservation by mediating the demands of the id, the superego and of external reality). He regarded this as a consequence of repression rather than as a different mechanism and described it as the coexistence within a single subject of two contrary and independent attitudes (Freud 1940[1938], p204). The Dictionary of Kleinian Thought (Hinshelwood 1989) has no reference to the term dissociation, but only to the term splitting and it was predominantly Melanie Klein who developed this concept of splitting as a fundamental part of her model of psychic mechanisms. Klein extended Freud’s concept of splitting to include splitting of the object as well as the ego, so that in her model, the mind would contain ego + object representations with a particular affect tone, kept separate from other clusters of ego + object representations with a different affect-tone (Klein 1946, p6).

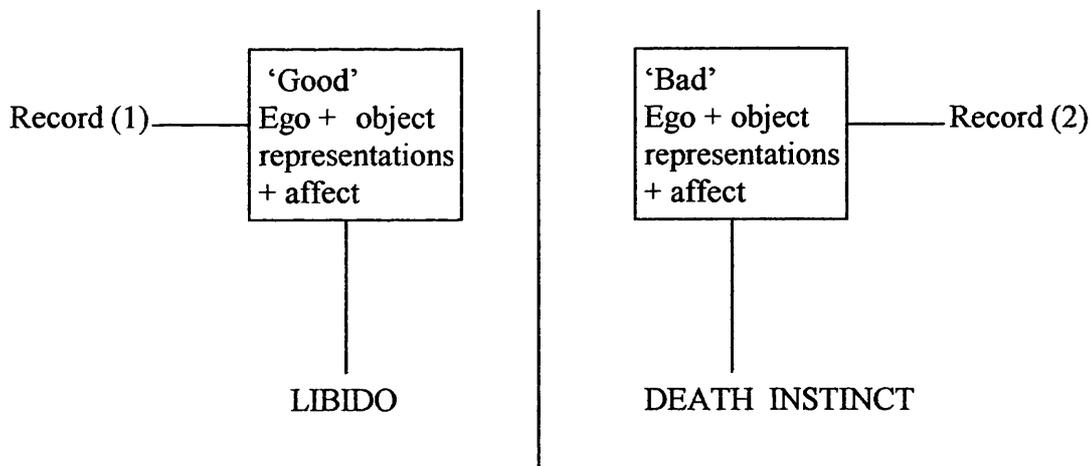
According to Klein, splitting is a different process from repression and is conceived as an earlier developmental mechanism, which therefore may exert an influence on the form that later repression takes. Splitting is described by Kleinians as a more severe defence, dividing the mind into two parts with object relationship and ego in each part, with each separate relationship co-existing side by side.

A fundamental principle of this model is that splitting is not primarily a mechanism for keeping memories of real events out of consciousness, but rather, for keeping anxiety derived from the death instinct out of consciousness. The death instinct is conceived of as a separate instinct from libido and one which is essentially destructive

with the aim:-' to undo connections and so to destroy things. In the case of the destructive instinct we may suppose that its final aim is to lead what is living into an inorganic state. For this reason we call it the death instinct' (Freud 1940a, p161)

The diagram below illustrates the Kleinian concept of splitting in terms of the information contained in Records formed under the influence of the two instinctual drives described in the text above, the libido and the death instinct. Record (1) formed under the influence of the libido contains positive affect representations and positive or 'good' ego and object representations. Record (2) formed under the influence of the death instinct would contain negative affect representations and these would be accompanied by negative or 'bad' ego and object representations. Splitting means that these two Records are formed, stored and retrieved under different instinctual influences and in this sense are split off from each other.

Figure 10. To illustrate the Kleinian model of 'splitting'.



N.B in the diagram above, the notations Record 1 and Record 2 stand schematically for sets of Records.

Some of the theoretical weaknesses of this model arise from the way Klein developed the model from her clinical work with patients with severe clinical symptomatology; she observed phenomena such as resistance (in which the analyst's interpretations are

strongly rejected), acting out (in which the patient resorts to non-verbal means of communication such as missing sessions, prolonged silences or destructive behaviour outside the analytic room) and various other negative therapeutic reactions and then derived a developmental model from these clinical patterns, a model which was assumed to apply to normal as well as abnormal psychological development. One of the features of this model is that the dissociative mechanisms which she observed in her adult and child patients were assumed to originate in the first few months of life, a phase which she described as the 'paranoid schizoid position, in which she suggested that the infant experiences external reality in a polarised and 'split' way, as either totally gratifying and 'good' or totally persecutory and 'bad'.

This model is based on several very doubtful assumptions:- that anxiety is a direct consequence of the operation of an instinct called the death instinct. It is not clear from the Kleinian literature whether the two split parts of the mind are partly conscious and partly unconscious, or whether they are thought to be totally unconscious, in which case, what is their relationship to, and influence on, conscious awareness, perception and memory? The Dictionary of Kleinian Thought (p419) states that 'The splitting of parts of the self becomes, in the course of development, a split between the conscious and the unconscious -i.e. repression'

Because the emphasis in Kleinian literature is so much upon mental objects as expressions of instinctual drives, it is extremely difficult to identify how present day experiences are thought to be affected by the mechanism of splitting. In the Kleinian model, split-off unconscious phantasies prevent accurate perception of external reality. External events are perceived and reorganised by the framework of the relevant preexisting unconscious phantasy and frequently distorted by it (Perlow 1995, p157). Such distortion would affect memories as well as perception and Kleinian analysts focus much less on patient's memories as representations of real events but more as expressions of unconscious phantasies and therefore of the presumed instinctual drive which the phantasy is supposed to express.

In this model, 'internal objects' are conceptualised not as mental representations, anticipatory sets which organise experience but which are not experienced in themselves, but as motivated behaviour, wish-fulfilling expressions of instinctual drives which are experienced as unconscious phantasy. However, developmental psychologists such as Stern and Lichtenberg have shown that the infant's mental representations are not split into 'good' and 'bad' objects as Kleinian theory proposes and the Sandler point out that the infant in the first few weeks of life does not have the complex intentionality and cognition which this model suggests (Lichtenberg 1981, Sandler and Sandler 1978, Stern 1995). There is no experimental evidence for a 'death instinct' nor that such an 'instinct' creates innate and complex mental imagery which is independent of perception.

However, if the notion of instinct-based unconscious phantasy is discarded, there remains the aspect of Kleinian theory which does correspond to cognitive science accounts of the mind, which is the view that preexisting schemas organise perception. Empirical research suggests that cognitive schemas are internalised and generalised representations of past experience (Blaxton 1989, Hamann 1990, Schacter 1996). Fonagy has reviewed the evidence which suggests that schemas of self-other relationships are also stored implicitly, as a network of unconscious expectations or mental models of self-other relationships that organise interpersonal behaviour but are not consciously accessible. These mental models are derived from accumulated past experience but stored independently and separately from discrete autobiographical memories (Fonagy 1999).

One of my tasks in this analysis of psychodynamic concepts is to offer an account of the concept of splitting which is more compatible with experimentally based models such as that of an implicit mental model. Many therapists do find their patients have mental representations grouped into clusters around a common emotional tone and 'split' from each other, but there are developmental accounts of this which in no way depend upon the Kleinian explanation that they arise from instinctual drives and these other models will be examined as I proceed.

Dissociation.

This is the term that Jung usually used, although sometimes the term ‘splitting’ is used instead. One major difference between the Jungian use of this concept and the Kleinian meaning of the term ‘splitting’ is that Jungian dissociation is not rooted in drive theory, but is a description of structural divisions in the psyche, but a quite different structural division from that of Freud’s structural model. However there is an added complication in that Michael Fordham, who modified Jungian theory and applied it to infant development, tended to use Kleinian models and terminology, such as splitting, integrating these into Jungian theory without always fully untangling the theoretical incompatibilities of the two terms (Knox 1997) .

A brief discussion is needed here about Jung’s use of the term dissociation in relation to Janet’s formulation of the concept and also to the way it is used in contemporary clinical psychology. Ellenberger highlights the roots of Jung’s concept of the ‘complex’ in Janet’s model of dissociation:-

“ C.G. Jung repeatedly referred to Janet (whose lectures he had attended in Paris during the winter semester (1902-1903). The influence of *Psychological Automatism* can be seen from Jung’s way of considering the human mind as comprising a number of sub-personalities (Janet’s ‘simultaneous psychological existences’). What Jung called ‘complex’ was originally nothing but the equivalent of Janet’s ‘subconscious fixed idea’” (Ellenberger, 1970, p406).

This is a very different way of conceptualizing dissociation from the information-processing model of contemporary psychologists who consider it to be an altered state of consciousness which gives rise to post-traumatic stress disorder and, in its most extreme form, to Dissociative Identity Disorder. Van der Kolk and Fisler (1995) showed that trauma leads to abnormal encoding of sensory and affective elements of the traumatic experience and that, in PTSD, these are retrieved as visual, olfactory, affective, auditory and kinesthetic experiences which are dissociated from any coherent semantic component.

However, it should be noted that this way of conceptualizing dissociation also has its roots in Janet’s recognition that when people experience intense emotions, memories

cannot be transformed into a narrative. Janet wrote that under these circumstances a person is “unable to make a recital which we call narrative memory, and yet he remains confronted by the difficult situation” (Janet 1919/1925, p660). He suggested that this leads to a failure to integrate the traumatic memories which remain split off from ordinary consciousness, a view which is supported by the research of van der Kolk and Fislis (1995). It remains unclear whether the view of dissociation offered by Jung and that of contemporary researchers can be integrated.

Renos Papadopoulos has traced Jung’s progressive reformulations of the nature of dissociability of the psyche in terms of the various ways in which he defined the concept of the ‘Other’, eventually defining it as the ‘objective psyche’, or collective unconscious (Papadopoulos 1984, p87). Roger Brooke in ‘Jung and Phenomenology’ (Brooke, 1991, p126) makes the point that the unconscious is not a dynamically repressed unconscious for Jung. In the classical Jungian position, ‘the unconscious’ is conceived as an autonomous structure, which thinks, is goal directed and behaves like a conscious subject. Brooke points out that Jung’s concept of the complexes gives some theoretical coherence to his ambiguous use of the terms conscious and unconscious. Complexes are fragmentary personalities of splinter psyches and the ego is only one complex among many. Dissociation gives rise to complexes, which are the ‘living units of the psyche’. Within these complexes, there is perception, feeling, volition and intention, as though a subject were present. The unconscious is thus multiple consciousness. Consciousness is a consequence of the ego’s capacity to appropriate as one’s own and use effectively and freely the complexes that are already structuring one’s existence. Without the ego’s self-reflection, the complexes function automatically and have a compulsive quality.

One of the best summaries of Jung’s concept of dissociation and its contribution to the formation of complexes is given by Sandner and Beebe :-

‘ Jung thought that whatever its roots in previous experience, neurosis consists of a refusal - or inability- in the here and now to bear legitimate suffering. Instead this painful feeling or some representation of it is split off from awareness and the initial wholeness- the primordial Self- is broken. Such splitting ‘ultimately derives from the apparent impossibility of affirming the whole of one’s nature (Jung 1934.p980,) and gives

rise to the whole range of dissociations and conflicts characteristic of feeling-toned complexes. This splitting is a normal part of life. Initial wholeness is meant to be broken, and it becomes pathological, or diagnosable as illness, only when the splitting off of complexes becomes too wide and deep and the conflict too intense. Then the painful symptoms may lead to the conflicts of neurosis or to the shattered ego of psychosis' (Sandner and Beebe 1984, p296).

This seems to have quite a lot in common with Freud's affect-trauma model, with similar features to those Sandler highlights, namely:-

- pushing away of unacceptable ideas and associated emotions so that these are relegated to the unconscious part of the mind

- the emotional excitation remains dammed up outside consciousness.

In this model emotion does play a part in the division of the psyche; however in Jung's version unconscious processes are not dynamically repressed but dissociated. The distinction may be made clearer by pointing out that repression is division between conscious and unconscious functioning of the mind, whereas in dissociation, one set of conscious and unconscious representations is kept separate from another, so that complexes are living units:-

'each carrying a splinter of consciousness of its own, a degree of intentionality, and the capability of pursuing a goal. They are like real personalities in that they contain images, feelings, and qualities And if they engulf the ego they determine behaviour as well' (Jung 1934, p101.)

Emotion is included in the functioning of these dissociated parts of the mind called 'complexes'. Complexes are 'feeling-toned groups of representations' in the unconscious and consist of 'innate' (archetypal) patterns of expectation combined with external events which are internalised and given meaning by the 'innate' pattern (Jacobi,1959,p6). Jung was clear that the 'feeling-tone', or emotion, holds clusters of memories together in an unconscious grouping which is dissociated from the rest of mental functioning and these clusters of emotionally based representations exist as a normal phenomenon as well

as contributing to psychopathology. This seems to me to be fairly close to a model of complexes as schemas, partly conscious and partly unconscious patterns which organise perception and memory.

Some Jungian analysts do not place any real significance on infantile amnesia nor on recovery of 'repressed' memories in general; neither do they accept the concept of unconscious phantasies arising from instinctual drives as Kleinian analysts do. In essence, classical Jungian analysis aims to facilitate greater integration of conscious and unconscious parts of the mind, to create more 'permeability' between the mental contents of dissociated parts of the psyche. For Jung psychological difficulties do not arise from the influence of repressed childhood memories, but from a difficulty in the present which activates a dissociated part of the mind, a complex, which then dominates mental functioning inappropriately and without self-reflection. Internal objects are described in this model as representations, anticipatory sets or schemas which organize experience but which are not experienced in themselves.

An analysis of the developmental concepts and information-processing accounts offered by these three psychodynamic theories

My brief survey of the three main psychodynamic theories highlights a crucial theoretical issue:- only in early Freudian theory, the affect-trauma model, is the influence of emotion on memory, the key mechanism; I should point out in passing, however, that in this model, repression does not only affect memories but also ideas, predominantly sexual, which are incompatible to the ego, as well as actual events. Freud gives clinical examples of such patients in whom "the erotic idea was repressed from association" (Freud 1895, p146). In contrast, in contemporary psychoanalytic theory it is the influence of emotion on the formation and accessibility of self-, object- and interpersonal schemas (or working models) which is considered to be crucial. Past experience contributes to the formation of these internal 'working models', but it is not the memory of specific past events, in 'declarative' form which is significant in repression.

In Kleinian theory it is 'innate' processes called instinctual drives which distort memory and perception by means of the 'phantasies' which give expression to the drives; these are postulated to be active in adults as well as children so it is not memories of childhood phantasies which distort memory and perception in adulthood, but the continuing activity of the instinctual drives and the unconscious phantasies they give rise to.

In Jungian theory it is dissociated schemas, called complexes, each with an 'innate' structural core (an archetypal nucleus) which influence and interact with perception and memory; the complex consists of innate expectation, mental representations and emotions. Present experience is interpreted and responded to in the light of the complex which is controlling attention. There is both top-down and bottom-up processing in this model.

Unofficial or implicit psychodynamic theories.

These are more difficult to identify, because they are implicit and therefore not extensively discussed in the psychoanalytic literature. However Perlow (1995,153) explores the concept of mental representations as schemas, which can be defined as an amalgamation of past experiences with an object (or attachment figure) which provides an emotional and cognitive anticipatory set for future interactions (either interpersonal or phantasied). Schemas therefore include emotional aspects of relationships and the influence of non-realistic factors, which Perlow feels could be drives, wishes or phantasies, but which I would suggest could also be any 'innate' mental process, depending on the psychodynamic theory.

This schema model does seem to approximate to the kind of implicit theory which analysts of all theoretical orientations draw on in their clinical work as opposed to their public discussions; it is a more abstract model, more concerned with process than content and so provides a model which allows analysts of differing theoretical orientations to explain their patients' material and the effects of analysis in terms of the particular school's 'public' theory, whilst implicitly fitting the public theory within a schema model. In fulfilling this dual function, it does not force the analyst to confront the

inconsistencies and failures of the public theory, because the latter is adapted to the implicit model which the analyst draws on in the clinical setting.

This model of a schema, which is made up of experiences which are internalised and organised around innate core structures, offers an account of the influence of emotion on memory which fits all psychodynamic models even though different psychoanalytic theories place different emphasis on the relative importance of actual events as opposed to innate structures. As an implicit model, it serves as a bridge between the explicit theory which the analyst holds and the interpersonal process of the analytic session, which may be regarded as a system governed by rules which need bear no relation to explicit analytic theories. The rules governing the interpersonal patterns which develop in analytic sessions now need to be described and a more precise account given of the schemas underlying those patterns and how such schemas might develop.

An information-processing account of generalised memories.

There is no way of demonstrating that a schema model is the best description for the implicit model which analysts use; however there is a pointer that this may be the case in the remarkable explosion in interest in Attachment Theory amongst analysts in the past few years. One essential feature of Attachment Theory is the concept of attachment or interpersonal schemas, described by Bowlby as 'internal working models' and by Stern as 'Representations of Interactions that have been Generalised' or RIG's (Stern 1985). Both of these concepts describe generalised patterns of relationships which structure present awareness but remain predominantly non-conscious in themselves and which are formed from multiple repeated experiences of certain patterns in relationships with key attachment figures.

It is a model which can allow analysts of all theoretical orientations to update their theories without discarding them entirely. The concept of the 'internal working model' is elastic enough to have sufficient similarity with the various concepts of internal objects offered by Freudian, Kleinian and Jungian models and so to be useful as a 'working model' itself to analysts of all theoretical orientations, without them being

conscious of this. In other words I suggest that analysts of all theoretical orientations use internal working models of internal working models in their clinical work.

In Chapter Two, I described the concept of the internal' working models. John Bowlby summarised one of the central features of Attachment Theory as the persistence into adult life of representational models of attachment figures and of self built up during childhood and adolescence. These models of parent and self in interaction operate at an unconscious level and Bowlby called them 'working models'. they are generalised non-conscious representations of self, of attachment figures and of the relationship between these. For a securely attached child, the changing ways in which the parents treat her result in a gradual up-dating of these models; however, for an anxiously attached child, this gradual up-dating of models is obstructed by anxious avoidance of new patterns, so that early models persist even when the individual in later life is dealing with people who treat her entirely differently from the ways her parents treated her as a child (Bowlby 1988, p131).

Daniel Stern supports Bowlby's account with his own description of 'Representations of Interactions that have been Generalised', or RIG's, which are abstract representations, based on multiple specific memories and which forms the basis for expectations about the likely course of events, actions, feelings and sensations in given situations (Stern 1985, p97). These abstract representations are of generalised episodes which are not specific memories of actual events but are formed from multiple such specific memories from which generalised information is drawn.

The Headed Records model therefore needs to be able to offer an explanation of the way in which personal experience 'migrates' to form semantic concepts, stored in some kind of generalised record, schema, RIG or 'working model'. Since the kinds of Headed Records with which I am most concerned in this thesis are those containing information about relationships with key attachment figures, I shall from now on use the term 'internal working model' Record rather than schema and in preference to 'RIG'. The term 'declarative' Record will be used to describe Headed Records which contain information about specific events, including imaginative or dream events. This is not the same as dividing memory into episodic and semantic memory, as Headed Records cover

a wider range of memory processes and phenomena than Tulving's concept of episodic memory, which is more restricted to actual events and does not encompass 'fantasy' Records, for example (Tulving 1972).

Headed Records can include the kind of generalised 'schema' type, 'RIG' or 'working model' representation which seems to constitute the 'unofficial' model which psychoanalysts of all theoretical orientations use implicitly in their clinical work. However, the Headed Records model cannot support or refute the role of instinctual drives or any other innate structures proposed by psychodynamic theory to explain the effect of emotion on cognition. A model, such as Headed Records, which is concerned with the way in which external events are registered stored, modified and retrieved, can only offer tentative explanations for the effect of postulated innate mechanisms on the Headed Records retrieval cycle. A thorough examination of psychodynamic concepts of innate mental structures in the light of cognitive science research would require a separate thesis and so has to be left aside in this one.

An analysis of some psychodynamic models of the effect of emotion on perception and memory in relation to the Headed Records model.

I will now attempt a more thorough investigation of the differing psychodynamic mechanisms I have described above; I will use the Headed Records model to see how various psychodynamic mechanisms can be related to the differing ways in which emotion might interfere with memory retrieval which I have just outlined and so to give a more precise information-processing account of repression, dissociation and splitting. The lack of such an information-processing account has been acknowledged by many researchers as an obstacle; Erdelyi (1990) argued that the concept of dissociation lacks clarity and has not been clearly differentiated from repression and other defences. However, Kihlstrom seems to accept that the topographical language of depth psychology may offer the most useful account of repression and dissociation; the repressive barrier is thought of as horizontal, rendering repressed contents unavailable to introspective access or voluntary control under any circumstances. They can only be known indirectly through their effects on publicly observable behaviour. Kihlstrom argues that the dissociative

barrier is vertical, segregating some contents of the conscious and preconscious systems from others, a concept which has similarities with the Kleinian concept of splitting and even more with the Jungian model of dissociation. This vertical barrier prevents conscious access to percepts, memories and thoughts that nonetheless remain available in principle to introspective awareness (Kihlstrom and Hoyt, 1990, p 200).

However cognitive scientists offer different explanations for the apparent phenomenon of repression; Bower, for example, suggests that at least some apparent examples of repression may be redefined in terms of two different types of awareness, one of which is communicable in language whereas the other is manifest in behaviour (Bower 1990). Kihlstrom (1995) considers the possibility that repression could be described as the consequence of a conscious suppression process which has become automatised and in so doing has changed its representational format from declarative to procedural; this would enable less demand to be made on limited attentional capacity but would also mean that the person loses introspective access to the information-processing which is taking place.

Recent research on PTSD (Brewin et al. 1996) is helping to develop a more precise model of dissociation but the Headed Records model offers an opportunity for a comparative exploration of the precise points in the retrieval cycle which emotion may affect and therefore a much clearer account of dissociation, repression and splitting.

Repression.

The concept of repression has been increasingly questioned by some cognitive scientists. Several authors have questioned whether repression exists as a psychological process. Pope and Hudson (1995) concluded from a comprehensive literature search that present clinical evidence is insufficient to permit the conclusion that individuals can repress memories of childhood sexual abuse. Merskey (1995) also argues that the time has come for a critical examination of the evidence for repression, evidence which at present remains unsystematic and anecdotal. Loftus (1993) has suggested that, rather than an active process which keeps emotional material out of consciousness, apparent repression

can be explained by simple forgetting. Kihlstrom (1995) has concluded that considerably more research is needed on repression before we can be sure that it exists.

One of the most sceptical is David Holmes who says 'we cannot conclude that repression does not exist, but, after sixty years of research has failed to reveal evidence for repression, it seems reasonable to question whether continued expenditure or effort on this topic is justified' (Holmes 1990, p99). Holmes bases this conclusion on a wealth of research investigating the concept of repression as it is defined by 'most individuals today', whilst acknowledging that there are some difficulties over arriving at an agreed definition. He believes that it can be agreed that repression has three essential elements:-

1. Repression is the selective forgetting of materials that cause the individual pain.
2. Repression is not under voluntary control.
3. Repressed material is not lost but instead is stored in the unconscious and can be returned to consciousness if the anxiety that is associated with the memory is removed.

He adds that the assertion that repression is not under voluntary control differentiates repression from suppression and denial. Holmes looked again at research which appeared to support the phenomenon of repression by demonstrating differential recall of pleasant and unpleasant experiences. Holmes proposed that:-

- a) recall of experience is determined by the intensity of affect associated with the experiences at the time of recall
- b) the intensity of affect associated with experiences declines over time
- c) the affect associated with unpleasant experience is more likely to decline or will decline faster than the affect associated with pleasant experiences

He argued on the basis of these hypotheses that if the affect associated with unpleasant experiences showed more or faster declines, at the time of the second recall the unpleasant experience would be less intense and if intensity determines recall, the unpleasant experiences would be less likely to be recalled.

Holmes tested these predictions by asking college students to keep a diary of their pleasant and unpleasant experiences for seven days and to score each experience for pleasantness/unpleasantness on a nine-point scale; each experience was recorded on a card and the affect score for the experience was recorded on the back of the card. A week

later the subjects were asked unexpectedly to write down all the experiences they had recorded on their diary cards. They were then given their diary cards, asked to read each experience and to give the experience a score, again on a nine-point scale in terms of how pleasant/unpleasant it was at the time, without seeing the original score they had written on the back of the card. The results indicated that unpleasant experiences showed greater declines in affective intensity than pleasant experiences and so were less likely to be recalled.

Holmes concludes from this that reduced recall of unpleasant experiences is due to reduced affective intensity associated with the unpleasant experiences rather than to repression, although he does admit that the experiment does not explain why there were greater declines in the affective intensity associated with unpleasant than pleasant experiences and that this could be due to repression of the unpleasant affect.

Other experiments investigated subjects differential recall of completed and incomplete experimental tasks, on the assumption that if incompletions were experienced by subjects as stressful failures, they would be more likely to be repressed and therefore less well recalled than completions. Subjects undertook tasks under conditions of high stress, in that the tasks were presented as an intelligence test, or low stress, where no importance was attached to the tasks; the results showed that under high stress fewer incompletions than completions were recalled, whereas in low stress conditions there was no difference in recall of completions and incompletions. Holmes concludes that the experiments strongly suggest that decrements in recall of uncompleted tasks were due to the interfering effects of stress rather than to repression, a finding which he felt was confirmed by the fact that recall of stimulus words which were not directly associated with the stress was as great as for words which were directly associated with the stress.

A third line of investigation of repression focussed on a comparison of the recall patterns of individuals who are or are not expected to use repression; Holmes questions the use of the term 'repressor' to describe certain categories of individuals who do not report stressful or unpleasant events (Holmes 1990, p95), pointing out that the fact that a subject may be unwilling to report undesirable events does not necessarily mean that they are unaware of them. Indeed high physiological arousal in these subjects suggests that

they are aware of anxiety-producing material which they do not report. Other experiments have examined the recognition time for stressful and non-stressful words flashed up on a screen and appear to show that familiarity and social constraints influence recognition time, so that when these differences are eliminated, stressful words are recognised as quickly as non-stressful words.

From this kind of evidence, Holmes concludes that there is as yet no controlled laboratory evidence supporting the concept of repression, as he has defined it, as the process determining selectivity in perception and recall. He goes on to suggest that one solution is to redefine repression to mean all the various processes which have been demonstrated to result in differential recall; Holmes feels that this would save the term from extinction but that most of the defining features of the term repression would then have been stripped away.

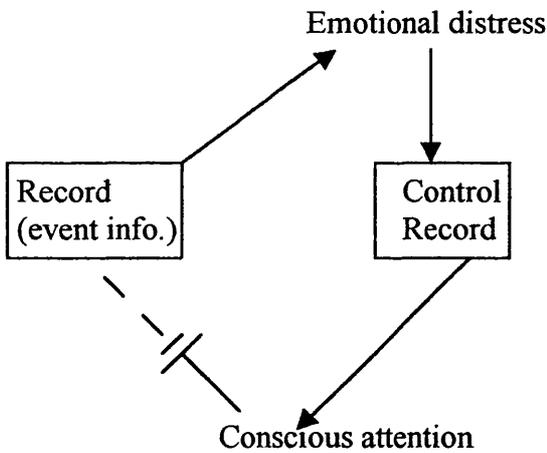
There are several errors which I think Holmes makes in interpreting his data, one of which seems to arise out of the apparently contradictory explanations given for the results of these different experiments. In the experiment on the recall of pleasant or unpleasant memories he says that there is no evidence that repression accounts for the reduced recall of unpleasant memories; however when discussing his experiment on repressors, he concludes that they may be unwilling to report undesirable events even though high physiological arousal shows that they are aware of them. One could therefore argue that the lower ratings given by the subjects to unpleasant experiences might reflect their unwillingness to report the unpleasantness of the experience, even though aware of it. Holmes labels this as denial rather than repression proper since he seems to be under the misapprehension that repression can only be demonstrated if an event cannot be brought to conscious attention at all. Holmes also falls into the mistaken assumption, as do Pope and Hudson, that repression is an entirely involuntary process, whereas I have shown earlier in this chapter that Freud considered it to contain both voluntary and involuntary elements.

It seems to me that a further mistake which Holmes makes is to assume that it is always the original memory of actual events (in the sense of specific experiences) which

is repressed, kept out of consciousness so that the individual has no awareness of these events at all; for example, when discussing physiological arousal in ‘repressors’ he says, ‘if they had actually repressed the material and were unaware of it, they would not have been aroused’. Freud’s repression paper (Freud 1915) describes repression as operating both on memories and also on the accompanying emotions. Sometimes actual memories are repressed and sometimes it is the meaning which those events have which is kept out of consciousness.

This is where the Headed Records model provides a most helpful way to describe more accurately the information-processing which underlies repression. Holmes’ model would imply that there is a single Record of an event which is stored non-consciously and that a control Record contains instructions not to make the Record conscious if it causes emotional distress.

Figure 11. A Headed Records illustration of Holmes’ concept of repression



An alternative model and one which I have outlined in the preceding discussion of the effects of emotion on the Headed Records retrieval cycle, is that it is not always the primary Record containing information about the event itself which is kept out of consciousness, but it may be the secondary Records which contain information from the primary Record as well as information from various other sources, such as current experiences and other existing Records. Control Records may prevent conscious attention

either to the primary Record or to secondary Records if it is these which contain additional meanings which would cause distress if they were to become conscious.

The essential point is that the memory of an event is not contained in one Record only but may also exist in multiple secondary Records; Holmes has missed this because underpinning all his analysis of repression is an assumption that it operates on a single store of information about an event, in spite of his acknowledgement that subjects think more about intense experiences than neutral ones and in doing so, modify their attitudes to them. He seems to have failed to draw the conclusion that thinking about an event means that new mental representations of that event are formed and that repression may operate on any of these new representations as much as on the original representation.

In the Headed Records model, it becomes evident that one Record of an event may be retrieved, so providing a conscious memory, but another Record of the same event, in which the information is integrated with other significant information, say from childhood experience, is not retrieved, so that the full meaning of the event is not available to conscious awareness.

Clinical illustration

A patient had already told me, soon after starting therapy, that on three occasions (at least) at school when she was about six years old, she had been encopretic. She had also told me in a different session some time later that she had been sexually abused by her grandfather when she was five or six years old, but that this had stopped when the family moved when she was age seven; she had conscious Records of both these childhood experiences. However, very recently she had linked the fact that her grandfather's sexual abuse of her took place when she went home at lunchtime and no-one else was in the house, with the fact that her loss of bowel control always occurred just before lunch. The encopresis could be interpreted in many ways, as an expression of her feeling that something 'dirty' was happening, as an attempt to stop her grandfather abusing her by soiling herself, as an attempted communication to her school of her distress (a cry for help), but whatever the meaning attributed to the encopresis, the timing strongly suggests that it was a direct consequence of the sexual abuse and so that a secondary Record,

containing information linking the two experiences, must have been formed at that time. However, whilst she could retrieve the Records of each of these separate childhood events quite clearly, this secondary Record, which gave emotional meaning to the encopresis by relating it to the sexual abuse, was repressed for many years and was only retrieved and made available to consciousness when she was in therapy as an adult. Her awareness of the connection between the two experiences also enabled her to become aware of the secondary emotional Records, the sense of powerlessness and humiliation involved in resorting to a baby-like loss of bowel control in order to prevent sexual abuse.

I will now return to Holmes' definition of repression and examine it in the light of the Headed Records model of repression which I have outlined:-

1) 'Repression is the selective forgetting of materials that cause the individual pain'. I think I have demonstrated that this is too narrow a definition of repression because it is based on the concept of 'forgetting' rather than that of avoiding paying conscious attention. I argue that it is often secondary Records which contain the painful meaning of an event of which the individual is not aware even when the primary Records are retrieved. However it is important to note that actual events (primary Records) may be the focus of repression as well and there is evidence that some people are unable to recall past trauma for which there is documented evidence (Williams 1994)

This part of the definition can therefore be rephrased to clarify that Repression is either:-

- i) the avoidance of conscious attention to the primary Record of an event.
- ii) the avoidance of conscious attention to secondary Records of an event, containing information which causes the individual pain, accompanied by conscious retrieval of primary Records of that event.

Two points of clarification are needed here. Firstly I am defining repression as the retrieval of a Record (whether primary or secondary) but the avoidance of conscious

attention to that retrieved Record, in contrast to dissociation, discussed in detail below, which is defined as the failure to match a Description with the Heading, either as a result of a distortion in the pattern of encoding of information in the Heading and the Record at the time of formation, or as a result of highly specific information in the Description which therefore fails to match the Heading when retrieval is attempted (see discussion of dissociation below). There are two main reasons for this:-

Firstly, in Freud's paper on repression, he is absolutely clear that "the essence of repression lies simply in the function of rejecting and keeping something out of consciousness" (Freud 1915, p86). In his later discussion of primal repression and repression proper, Freud suggests that unconscious attention is paid to a repressed Record; he says:- "We may imagine that what is repressed exercises a continuous straining in the direction of consciousness, so that the balance has to be kept by means of a steady counter-pressure" (Freud 1915, p90). His description of repression proper as an 'after-expulsion' also suggests that non-conscious attention is constantly being paid to the material which might cause pain if it emerged into consciousness.

This brings me to my second reason for distinguishing between repression (as retrieval of a Record but the avoidance of conscious attention to it) and dissociation (as non-retrieval of a Record caused by the failure of a Description to match the Heading.) The problem lies in the use of the term 'retrieval' which is often equated with conscious awareness. However one of the central features of the Headed Records model is that retrieval of a Record is not by any means the same as conscious attention. In this model there are two stages, firstly retrieval into the interpreter buffer and then further processing which may often (but not necessarily) include conscious awareness and processing of the information in that Record. In this model retrieval means precisely, and nothing more, than the matching of a Description with the Heading of a Record which results in the copying of that Record into the interpreter buffer. As I have explained above, control Records may contain instructions that the information in the retrieved Record will not be made conscious if it causes distress.

2. 'Repression is not under voluntary control'. This part of the definition is not an essential part of repression, either as Freud originally conceived it nor in terms of a Headed Records model. There may be control Records which prevent conscious attention being paid to a Record which would cause anxiety or distress as I have described above. Such control Records may themselves be available to consciousness or may be operating out of conscious awareness or a combination of both.

3. 'Repressed material is not lost but instead is stored in the unconscious and can be returned to consciousness if the anxiety that is associated with the memory is removed' This part of Holmes' definition also seems inadequate, in that 'repressed material' may be information contained in secondary Records and not in the primary Records of an event, a distinction which Holmes consistently fails to make.

In examining Holmes' definition of repression and redefining repression using Headed Records, I have begun to highlight the crucial distinction between non-retrieval of a Record (dissociation) and the fact that conscious attention is not paid to a Record which has been retrieved (repression).

In the laboratory research which Holmes quotes on physiological arousal in 'repressors', he appears to be discounting the possibility that non-conscious attention can be paid to information, or Records, of which the individual is not consciously aware. In fact, in such a situation, where an anxiety-producing Record has been retrieved but is not conscious, it could certainly produce physiological arousal without conscious awareness of the Record. Research by Myers and Brewin (1995) has been carried out which defines repressors as those who are characterised by a disconnection between self-report and physiological measures of distress and by difficulties in recalling negative autobiographical memories;

On the other hand, a Record which has not been retrieved could not produce physiological arousal, so that Holmes seems, without really clarifying what he means, to imply that repression would, in Headed Records terms, be equated with non-retrieval of a

Record. Once again it is his failure to spell out the information-processing model of memory which he is using, which gives rise to this confusion.

This distinction between non-retrieval and the absence of conscious awareness demonstrates that repression means that a Record is retrieved, but that it remains non-conscious. This would seem to correspond more closely to Fonagy and Target's view that the lifting of repression involves the 'change of understanding and feeling in relation to childhood experience' Non-retrieval would seem to fit better with the concept of dissociation which I will examine later.

Authors such as Bowers and Erdelyi support the view that repression involves avoidance of conscious attention to painful or distressing material; Erdelyi explicitly criticises the fact that the 'simplistic laboratory model of repression that conceives of repression as leading to impoverished (factual) memory is still widespread' (Erdelyi 1990, p20), suggesting that modern psychology has long since moved beyond the classic Ebbinghausian focus on mere forgetting, thus substantially undermining the kinds of experiments conducted by Holmes; in Headed Records terms, Holmes' work fails to take into account the way in which factual information becomes integrated and organised by existing emotional Records which give it meaning, and that repression involves this process rather than the remembering or forgetting of factual information.

Erdelyi raises another point which can help to identify more precisely the kind of information-processing which underpins repression; he states that repression may depend upon a prior successful dissociation of fact and affect, with the subsequent selective repression of the affective component of the material. Since my discussion of emotion(above) has shown that emotion has a cognitive component, the dissociation which Erdelyi describes can also, like repression, be discussed in terms of Headed Records, which I will do below.

The idea that repression involves avoiding paying attention to the meaning of an event is not new; George Klein suggested this in 'Perception, Motives and Personality' (1970), where he discusses some experimental studies which demonstrate 'the activation or registration of meanings (call these 'trace systems' or 'schemata') by external stimuli that are themselves too weak or marginal to capture notice'. Klein projected rapidly

alternating images onto a screen at a rate of succession which resulted in the first (A) figure not being seen whilst the (B) figure was seen by the subject, in order to investigate whether the A figure might influence the subject's perception of the B figure even though it has not been seen. The 'meaning' of the masked A figure could be varied to look for the distinctive effects of such meanings upon the consciously perceived second figure. Similar experiments were conducted using words as subliminal stimuli to investigate their effects upon the subject's conscious perception of the projected image.

Klein concluded that meanings can be known at subliminal levels and that they do influence thought in ways which are distinct from those of conscious perceptions. Subliminal registration activates an array of meanings and the concomitant conscious impressions of an image incorporates those meanings; Klein also argued that the influence of these subliminally active schemata can be detected in a person's verbal and non-verbal communications.

Other experiments providing evidence of subliminal perception were given in Chapter 1, selected from a large literature on the subject.

In a Headed Records model, it would be retrieved 'working model' Records which would organise and give meaning to subliminal registrations. It is possible for there to be retrieval of two different Records, each retrieved by different aspects of a given situation and each giving a different meaning to the experience, but with only one of these being conscious, that is, having conscious attention paid to it.

Dissociation

Spiegel and Cardena (1991) review the whole issue of dissociation exploring some of the inconsistencies in the way it is defined and used in the literature. Many cognitive scientists have explored the question of whether consciousness is a unitary phenomenon, but this research often seems to be based on an assumption that any evidence that information-processing has taken place is evidence of some degree of consciousness. Allport (1988), for example suggests that there are frequently discrepancies between different criteria of perceptual awareness which can be shown experimentally, both in neurologically normal subjects and in patients with certain kinds of brain damage;

behavioural responses to information may indicate awareness that information has been presented when the subject has no conscious recollection of seeing that information. Allport suggests that this kind of discrepancy between criteria calls into question our everyday concept of consciousness which is based on an assumption that all the indicators of conscious awareness will be present or absent together.

Churchland also presents evidence which demonstrates information-processing without conscious awareness. For example, she quotes research which showed that when women were asked to choose from identical items of clothing on a table they explained their choice in terms of colour, texture etc, when in fact there was no difference in any of these factors and the only determining factor was that they chose items lying to the right hand side of the table, but with no awareness that this determined their choice (Churchland,1988, p289).

There are also the experiments by Weiskrantz on blindsight and hemineglect and Marcel's work on implicit awareness in normal subjects. Weiskrantz (1986) found that subjects with hemianopia caused by unilateral damage to the striate cortex would, when asked, state that they did not see events in their 'blind' fields, but forced-choice methods showed that they have in fact accurately detected these events. Marcel's work on visual masking in normal subjects showed that perception occurred without conscious awareness (Marcel 1980). These research findings, whether of the kind occurring in normal subjects or characteristic of certain kinds of neurological damage, demonstrate that information-processing goes on outside of and independently of conscious awareness. However, this is not the same as dissociated consciousness, which refers to the fact that consciousness itself may seem divided, with some mental representations only being accessible in one state of consciousness whilst other mental representations are only accessible in a different state (Schacter,1996).

However this research on cognitive aspects of dissociation does not investigate the role which emotion may play in bringing about dissociation of consciousness. This has been investigated by Brewin, Dalgleish and Joseph (1996) who focus on the types of representations forming the basis of traumatic memories. One of their conclusions is that trauma may lead to prematurely inhibited emotional processing and a persistent

dissociative state in which the traumatic events remain unintegrated with that person's other non-traumatic memories and their sense of themselves in the world; the intense negative emotions experienced during a trauma are non-consciously processed and form representations which are automatically rather than voluntarily accessed, leading to flashbacks and physiological and emotional arousal which are not under conscious control. One important aspect of this non-conscious processing is that these non-verbal representations are situationally accessible, in that they are accessed automatically when the person is in a context in which the physical features or meaning are similar to those of the traumatic situation.

At this point I will return to my analysis of the effects of emotion on Headed Records in relation to the concept of dissociation.

There are two ways in which emotion may produce dissociation in the Headed records model (see Chapter 3):-

1) Emotion may distort the usual pattern of formation of Records so that Records are formed of mental and emotional states and Headings are formed of the external events which gave rise to these.

This constitutes the basis for dissociative states, such as PTSD where emotion:-

a) places material about the subjective mental state in the Record which would normally be in the Heading. This would be a result of both arousal and cognitive evaluative aspects of emotion.

b) also places material about external events in the Heading which would normally go in the Record. Thus external events act as Descriptions matching the Heading and retrieving the Record of mental processes linked with extreme emotional distress. This places the retrieval of these Records outside the individual's conscious control, resulting in 'flashbacks', apparently randomly occurring but in fact possibly activated by chance encounters (in fact or imagination) with external events which activate the retrieval cycle. This type of Record may co-exist alongside 'normal' Records of a traumatic event, in which the external events form the Record and the mental processes form part of the Heading (Brewin et al 1996). Brewin et al. highlight the change in the pattern of

encoding of traumatic experiences which occurs in states of high emotional arousal, offering an information-processing account of the kind of dissociative phenomena described, for example, by Freud and Breuer (Freud 1893, p11).

2) An emotional state may need to be re-experienced before a Record can be retrieved; it must be included in the Description formed in order to match the Heading and retrieve the Record.

Although arousal can be re-experienced, emotion is not just arousal but also consists of Headed Records which form the cognitive evaluative aspect of a particular emotional experience.

Arousal of roughly the right kind and intensity may be sufficient as a Description to retrieve a Record whose Heading also contains representations of a roughly similar degree of arousal; in this case, emotion is being loosely equated with arousal when one says that an emotional state must be re-experienced to retrieve a Record.

However some Records may have a Heading which includes representations of a specific mental content which can only be matched by a Description with exactly the same mental content; in this case it is the cognitive aspects of the emotion (the representations of the mental state) which must be re-experienced before the Heading can be matched and the Record retrieved.

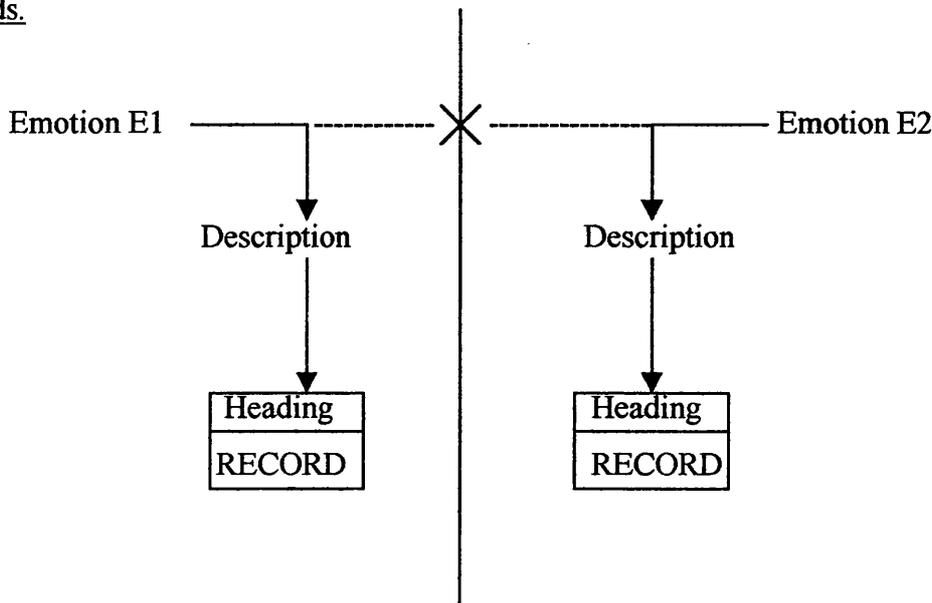
It follows that dissociation will result between Headed Records which can only be retrieved and experienced in one emotional state and other Records which can only be retrieved by a different emotional experience.

The diagram shown below illustrates the role of emotion in creating dissociation.

Emotion E1 forms part of a Description which matches the Heading of Record (1).

Emotion E2 forms part of the Description which matches the Heading and so retrieves Record (2). Record (1) cannot be retrieved by a Description containing Emotion E2 and Record (2) cannot be retrieved by a Description containing Emotion (E1)

Figure 12. To illustrate the role of emotion in creating dissociation between Headed Records.



I would now like to examine the psychodynamic theories which might correspond to this information-processing description of the ways in which emotion can contribute to dissociative states by means of its effect on the Headed Records retrieval cycle. The psychodynamic theories I will investigate are the mainly Kleinian concept of ‘splitting’ and the Jungian concept of the ‘complex’.

The concept of the ‘Complex’

The theory of the complex was introduced by Jung during the early stages of his collaboration with Freud, who was also initially enthusiastic about the concept but later rejected it when his final break with Jung occurred in 1913.

Jung’s concept of the complex was largely derived from his early work on word-association tests, which I will briefly describe.

The subject is tested on one hundred stimulus words having been instructed to react with the first word that comes into his mind as quickly as possible after having heard and understood the stimulus word; The reaction time to each stimulus word is measured with a stop-watch and when the hundred words have been presented they are then re-presented , again one at a time and the subject has to attempt to reproduce his

former answers. In certain cases his memory fails and reproduction becomes uncertain or faulty and Jung concluded that these failures or delays in recall had 'hit on what I call a complex, a conglomeration of psychic contents characterized by a peculiar or perhaps painful feeling-tone, something that is usually hidden from sight'. (Jung CW 18 para 97-106). Jung gives striking clinical examples of the apparent effectiveness of the word association test, one of which involved an apparently 'normal' subject, a man of 35, who produced abnormal reactions to the words 'knife', 'lance', 'beat' 'pointed' and 'bottle'. After completing the test, Jung said 'I did not know you had had such a disagreeable experience', to which the man responded with 'I don't know what you are talking about'. Jung stated that the man had had a drunken quarrel and had stuck a knife into someone, which the subject then acknowledged to be true. (A sceptical reader might raise the possibility that Jung did already know this information beforehand).

Jung concluded from this kind of work that a complex consisted of 'the *image* of a certain psychic situation which is strongly accentuated emotionally and is, moreover incompatible with the habitual attitude of consciousness. This image has a powerful inner coherence, it has its own wholeness and, in addition, a relatively high degree of autonomy, so that it is subject to the control of the conscious mind only to a limited extent and therefore behaves like an animated foreign body in the sphere of consciousness' (Jung 1934, para 200-3)

In this passage, Jung also emphasised that the existence of complexes throws 'serious doubt on the naive assumption of the unity of consciousness, which is equated with psyche, and on the supremacy of the will. Every constellation of a complex postulates a disturbed state of consciousness. The unity of consciousness is disrupted and the intentions of the will are impeded or made impossible. Even memory is often noticeably affected, as we have seen'. Jung constantly emphasised the emotional basis of the complex and he also makes it clear in the passage I have just quoted that he considers the contents of the complex to be mental representations, in this case taking the form of images.

Many of these ideas are strikingly compatible with the findings of contemporary research-based cognitive science in a way in which many original Freudian and Kleinian

theoretical formulations, such as 'drives' the 'death instinct' and 'unconscious phantasy' are not. Jung regards psychic contents as mental representations, images formed in large part from sensory perception rather than generated by unconscious phantasy.

He also recognised that emotion is not merely a visceral or physiological experience but is inextricably bound up with cognition, a view which has been independently elaborated within an information-processing framework by George Mandler (1975, p47). Once again this differs from the Freudian view that instinctual drives are the root source of emotion; Jung criticised Freud on this account, saying that 'Unlike Freud, who after a proper psychological start reverted to the ancient assumption of the sovereignty of the physical constitution, trying to turn everything back in theory into instinctual processes conditioned by the body, I start with the sovereignty of the psyche'(Jung CW6 para 960-87)

Jung's description of the dissociated nature of consciousness has many features in common with the contemporary view of cognitive scientists. However Jung only partially developed an account of the relationship between external reality and the mental representations which form the content of the 'complex'. he said that the complex is 'embedded' in the material of the personal unconscious, but that its 'nucleus' consists of an archetypal core, archetypes being 'systems of readiness for action, and at the same time images and emotions'.

Dissociation and the Jungian concept of the 'complex' examined in the light of Headed Records theory.

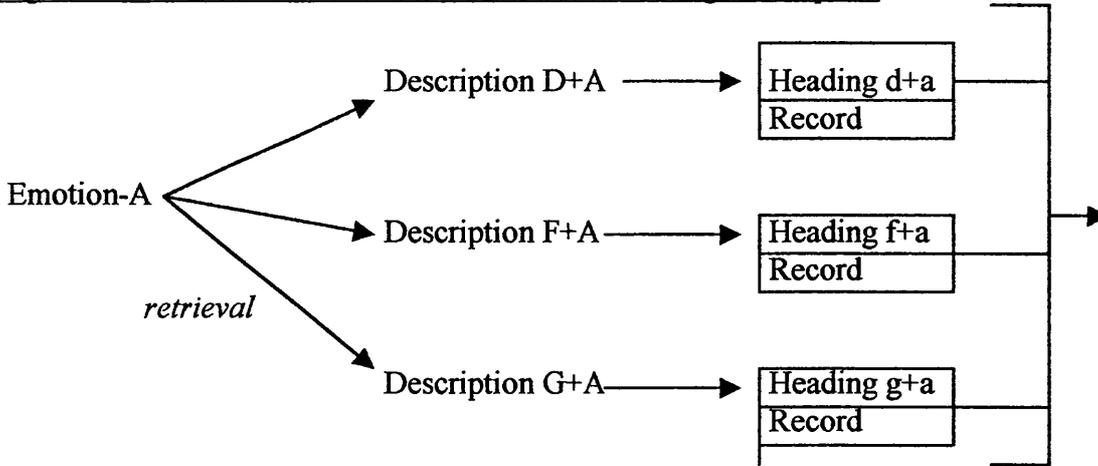
Jung's model of dissociation and complexes can be examined for its compatibility with experimentally-based information-processing accounts of the mind, such as that of Headéd Records. I think that Jung's description of the complex could be identified as those emotional Records which can only be retrieved when the Description contains representations of that person's emotional state similar or identical to those contained in the Heading of the Record. Jung virtually said this himself:- 'The entire mass of memories has a definite feeling-tone, a lively feeling [of irritation, anger etc] Every molecule [of the complex] participates in this feeling tone, so that, whether it appears by

itself or in conjunction with others, it always carries this feeling-tone with it..'. Jung compared this to Wagnerian music, saying 'The leitmotif, as a sort of feeling-tone, denotes a complex of ideas which is essential to the dramatic structure. Each time one or the other complex is stimulated by something someone says or does, the relevant leitmotif is sounded in one of its variants. it is exactly the same in psychic life: the leitmotifs are the feeling tones of our complexes, our actions and moods are modulations of the leitmotifs' and 'The individual representations are combined according to the different laws of association (similarity, co-existence etc.) but are selected and grouped into larger combinations by an affect' (Jung 1907, p34).

The information-processing account to which Jung's ideas seem closest is that of Records which can only be retrieved when the Description contains representations of emotional states which match those contained in the Heading of the Record. This raises the question as to the nature of the match required and its degree of specificity. For the notion of the complex to have a useful meaning the match would have to have some specific cognitive content as well as a general experience of arousal of a positive or negative kind. The model of a complex also implies that a particular emotional state would form a part of each of several discrete Records (and in unprocessed form, part of the Headings of each of those Records); the Records are not linked in any direct way, but, whilst the Descriptions required to retrieve each separate Record will differ to a degree from each other, a particular emotional state could form a key part of several Descriptions and retrieve several Records, whose Headings contain the same emotional content. Whilst each Description only retrieves one Record, the mind is always forming multiple Descriptions in parallel and retrieving their accompanying Records; some of these may have conscious attention paid to them whilst others do not, but all those Records which are retrieved by the same emotional representations in their Descriptions would constitute the Records forming the complex.

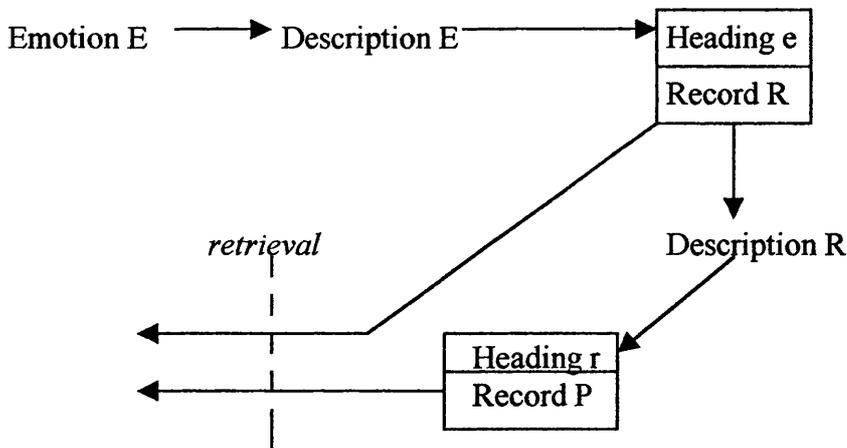
The diagram below shows that emotion A needs to be included in Descriptions in order to match the Headings which contain information (in unprocessed form,a) about emotion A and so to retrieve the attached Records.

Figure 13. To illustrate the retrieval of Records forming a 'complex'



It is also possible to envisage a 'cascade' effect, in which a Record which has been retrieved by a particular emotional state ,E, could itself form the Description for another emotional Record which has not been retrieved directly by E. This is another possible contribution to the complex, as illustrated in the following diagram.

Figure 14. To illustrate a cascade of Record retrieval



[Note- as described in Chapter Two, a Description must match a Heading in order for a Record to be retrieved, but a Heading may contain entirely different information from the information in its Record. Thus E must match the unprocessed information e, but the Heading containing unprocessed information r may be attached to a Record containing information P.

Clinical illustration.

A clinical example might best illustrate the models I have just described:-

A female patient with bulimia has had several weeks in which she has maintained very good control of her eating and has felt emotionally stable without any of the bouts of severe distress and panic which usually lead her to binge. However my return from holiday seems to have immediately activated the severe distress, anxiety and desire to binge. It might be argued that this is the clearest possible evidence that therapy should cease immediately, but she herself worked out that whilst I was away she was able to remain stable by holding an image of me as a benign and supportive parent figure in her mind, an image which was predictable and safe and under her control. On my return, she had to start relating to me as a real person again. The sense of the other person as separate and unpredictable makes her terrified that at any moment she will fail to meet that person's demands and will feel she has failed them. This emotional content acts as a Description which retrieves numerous Records containing beliefs that she has failed, that the person she is trying to please will be angry with her and reject her; the content of these Records borders on the psychotic, lacking any 'as-if' quality, so that she really believes that I might at any moment hit her in a session. These Records are both imaginative constructions of what she fears and actual memories of the many occasions on which her parents hit her if she did something to displease them.

Thus, the emotional experience of dependence on people who are powerful and whom she cannot control retrieves numerous Records containing material about herself as a failure and as the object of hostility and rejection; these Records form a complex, dissociated from consciousness when she is on her own but which dominates her awareness when she is in close contact with people who are important to her. She has known this for some time without that insight producing any noticeable change in this pattern of relationships; however we have both recently recognised that there is another level of assumptions and beliefs which had until now remained unconscious. It has become apparent that whenever she feels that she has failed or might fail, she not only fears rejection for what she has done but also for being the person who has done

those things; she feels annihilated as a person, that she is totally bad, disgusting and unlovable and would be better off dead. The Records of failure in relation to something she has done form a Description which retrieves Records of a sense of failure for being the person she is, Records in which her very sense of identity seems destroyed. It is apparently always these Records which trigger her bingeing, an activity which I have interpreted as a desperate attempt to treat herself as mindless and so without an identity which could be destroyed by rejection.

In psychodynamic terms, I would describe her bingeing as a defensive attempt to 'regress' to an infantile state in which she is only aware of bodily needs and has not yet developed a 'theory of mind' and so does not have to be aware of her own or others' reflective function, which in her experience is totally destructive.

In Headed Records terms, the anxiety generated by the retrieved Records, which contain information that she is totally unlovable and of no value, is so intolerable that there is an intentional imaginative creation of Records containing representations of herself as mindless, with only bodily needs, Records which also contain representations of bingeing behaviour. Thus there is a kind of 'cascade', starting with the anxiety about being with people, which retrieves Records of a sense of failure and of being the object of criticism and hostility; these latter Records then act as Descriptions, retrieving other Records of herself as disgusting and unlovable and these in turn retrieve Records containing representations of herself as mindless, representations which are linked to a compulsion to binge and which can be described as 'defensive' because they allow her to avoid paying attention to the Records containing representations of herself as disgusting and unlovable.

These Records could all be seen as forming the content of a complex, which is dissociated from her consciousness when she is alone and feels emotionally safe, but which is activated by the emotional experience of dependence and the anxiety that accompanies this.

Her bingeing also forms part of a process of repression, diverting her conscious attention away from retrieved Records of herself as bad, disgusting and unlovable by focussing her attention instead purely on her eating behaviour; I would argue that

repression must be involved because after bingeing she does, in fact, end up with the very feelings she most fears, of being bad, disgusting and unlovable, but she can feel that she has caused these feelings by her own behaviour and this protects her from her worst fear of all, which is that someone she depends on sees her that way and that she has no control at all over their perception of her. It is this latter Record which is repressed through the bingeing behaviour.

I suggest that Jung's description of a complex is not that of a pure state of dissociation, but of dissociation accompanied by repression; dissociation describes the fact that certain Records may only be retrieved when the person is in a particular emotional state, which forms part of the different Descriptions which retrieve those Records. Repression is involved in the maintenance of the complex in that, once these Records are retrieved, their incompatibility with the person's conscious sense of self means that as far as possible, conscious attention is not paid to them.

Having examined the Jungian concept of the complex in relation to dissociation and Headed Records, I will now turn to another psychodynamic model, that of splitting and investigate it in a similar way. This is a psychodynamic term mainly used in Kleinian theory to describe a process whereby emotional stress or conflict is dealt with by viewing oneself or others as all-good or all-bad, failing to integrate the positive or negative qualities of self and others into cohesive images. Melanie Klein argued that this process begins in the first months of life, but I will not at this point examine critically the developmental aspects of this theory, although I will summarise Daniel Stern's account of this postulated developmental process.

Stern suggests that psychoanalytic theorists assume that the infant's view of the world during the most intense moments of affective experience is the most important factor in the construction of 'object relations' and that experiences of pleasure and unpleasure are the most relevant, so that the first dichotomy of the world that the infant makes is between pleasurable and unpleasurable experiences. This model also assumes that hedonic experiences override all others and serve as the privileged organising interpersonal event and that infant experience is so hedonic tone-dependent that

pleasurable and unpleasurable experiences cannot be cross-referenced or integrated. Each remains encapsulated from the other.

In Kleinian theory both the 'object' being related to and the 'ego' may be subject to splitting, so that 'it is a good part of the self in a relationship with a good object which is kept separate from a bad part of the self in relation to a bad object. If the split is successfully maintained, the good and bad are kept so separate that no interaction between them takes place....' (Steiner 1993, p7.) Stern also points out that 'good' is equated with pleasurable and 'bad' with unpleasurable.

Stern goes on to argue that this model does seem to describe a particular pattern often seen in adult borderline patients, in which there does seem to be a 'split' with internalization of 'good' and projection of 'bad' representations and emotions. However he suggests that this is a higher order categorization which develops much later in childhood or adult life, rather than being a fundamental differentiation taking place in the first few weeks of an infant's life (Stern 1985, p248-253)

Does this psychodynamic account correspond to any of the information-processing models which cognitive science offers? Unlike repression and dissociation, splitting is not a concept which seems to have attracted much interest or investigation from cognitive science so far, although clinically it does seem an accurate description for a primitive but fairly common way in which many adults relate to and perceive the world and themselves, as Stern describes.

A Headed Records analysis of 'Splitting'.

In order to examine this concept of 'splitting', I will return to the description of the Headed Records model and the ways in which emotion may produce dissociation.

Splitting offers a much simpler psychodynamic model than that of the 'Complex', one that might even be considered simplistic in its division of experience into two opposing categories of hedonic tone-dependent states. It does not allow for varying intensities or types of experience and emotion, which could form the basis for a multiplicity of hedonic tone-dependent experiences, as Stern argues in his model of

RIG's, multiple working models which are based on a wider range of feeling states than the polarised 'good' and 'bad' of Kleinian theory.

In Headed Records terms, 'splitting' could be described as another clinical manifestation of the fact that an emotional state may need to be re-experienced before a Record can be retrieved; the emotion has to be included in the Description formed in order to match a Heading and retrieve a Record. 'Splitting' would require that one of two polarized emotional representations, those of 'good-pleasurable' and 'bad-unpleasurable' form a key part of the Heading of all emotional Records. It would also require that one of these two representations is included in a Description in order for the appropriate Record to be retrieved (See figure 11).

This model can only work if most or all emotional experiences are of this extreme polarised nature; by translating the model into a Headed Records account, it becomes apparent that the concept of 'splitting' does not seem to explain the wide range of intensity and type of emotion which is a normal part of daily life for many people; however, Kleinians do suggest that 'splitting' is not just a pathological phenomenon confined to a psychologically abnormal section of the population, but that it is a fundamental part of the emotional functioning of every human being. There is another aspect to the Kleinian account of splitting which I have not yet discussed, which is that splitting is always accompanied by 'projection' of the 'bad-unpleasurable' representations. What does this mean?

To attempt to answer this question I will return once more to the analysis of the ways in which emotion may interfere with the Headed Records retrieval cycle.

I suggested that dissociation may arise in two ways:-

1. From a failure to retrieve a Record which has a particular emotional content as a key part of its Heading and which therefore cannot be retrieved if that emotion is not included in the Description.

2. From a different effect of emotion, on the formation of Records, so that in certain circumstances of high emotion, Records are formed of mental and emotional states and Headings are formed of the external events which give rise to these. PTSD, for example, could be seen as a state in which material about the subjective mental state at the time of a trauma is placed in the Record and representations of the external events are placed in the Heading. In this case, external events may act as Descriptions matching the Heading and retrieving the Record of extreme emotional distress, which is one form that PTSD takes.

Conclusions and evaluation

In this chapter I have shown that it is possible to analyse psychodynamic mechanisms in terms of the effects of emotion on the formation, retrieval and conscious access to Headed Records. This analysis highlights some of the imprecision and shifting definition of psychodynamic terms, such as repression, as psychoanalytic theories have evolved. Nevertheless, it has been possible to describe the term 'repression' in Headed Records terms, as the conscious attention to the primary Record of an event but not to the secondary Records whose content gives anxiety-arousing significance to that event.

It has also been possible to show that Jung's concept of the 'complex' includes both emotion- state dependent retrieval and also avoidance of conscious attention to Records containing information which may create a sense of self as worthless, bad or unlovable.

A Headed Records analysis of the concept of 'splitting' suggests that polarization into either 'good' or 'bad' emotional Records has a limited capacity to explain the range and variety of emotional experience in children or in adults.

There are limitations to the explanatory value of this Headed Records account of psychodynamic mechanisms; in the previous chapter I pointed out that my discussion of the effects of emotion on the Headed Records retrieval cycle did not investigate how such effects might emerge developmentally. The same limitation applies to this chapter, in that this Headed Records analysis does not clarify the validity, or otherwise, of some of the developmental theories which are thought to underpin the psychological mechanisms

such as repression or dissociation which I have examined here. To give one example, the Headed Records model may show us that the timing of the Oedipus complex does not provide the only explanation for infantile amnesia and may also clarify the nature of the information-processing which produces repression, the mechanism by which the content of the Oedipus complex is supposedly kept out of consciousness. However, the Headed Records account of repression does not take us any further forward in establishing the accuracy of psychoanalytic assumptions about the content of the Oedipus complex, which particular representations will be subject to repression, the universality of the Oedipus complex as a developmental stage and the extent and nature of its emotional impact on a young child.

Similarly, this chapter has not explored the developmental aspects of the nature of 'unconscious phantasy', a concept central to the classical Freudian and, even more so, to the Kleinian model, which postulates that unconscious phantasies arise in the earliest months of life as a direct expression of instinctual drives, libido and the 'death instinct'. The Headed Records model cannot in itself provide evidence to support or refute these developmental theories which explain psychodynamic mechanisms, such as repression or splitting, as defences against such unconscious phantasies. However this limitation is partially overcome in that the Headed Records model can provide an alternative account of the nature of unconscious fantasy which is compatible with concepts such as implicit memory and internal working models, which are supported by empirical evidence. Instinctual drive theory becomes redundant if there is an alternative sound theoretical model for the distortions of perception and memory which are so evident in analytic work, for example, in the transference.

However, from a psychoanalytic perspective, this Headed Records analysis of psychodynamic mechanisms may still seem to be of limited value clinically, in that it gives a generalized and theoretical account of repression or dissociation; one of the central features of analytic work is the gradual uncovering of patterns of past experience which have contributed to such defensive mechanisms. Even psychoanalytic models which place less emphasis on past experience in the causation of psychological distress or symptoms, still require that the analyst pays meticulous attention to the detail of the

transference-countertransference dynamic in order to elucidate the unique content of the patient's unconscious phantasy. A generalized theoretical model such as Headed Records does not help the analyst in the consulting room in this process of discovering which particular representations are subject to repression or dissociation for each patient; these patterns can only emerge in the analytic process, using established analytic techniques, such as free association, transference interpretation and the gradual discovery and creation of coherent meaning for the patient in the narrative of his or her life experience.

In spite of this limitation, the Headed Records model does offer the analyst some assistance in the consulting room; one example would be in relation to the theoretical analysis of repression, which demonstrates that conscious attention is paid to some Records of an event but not to other secondary Records which give a distressing significance to that event. This understanding will help the analyst to avoid some of the pitfalls which arise when memory is thought to consist of a single Record of an event; if this were the case then the logical conclusion would be that the evidence that repression has been overcome would consist of the recall of memories which were previously unavailable. Analysts who attempt to 'recover' memories of abuse are perhaps, partly misled by such a misconception about the nature of memory. I have demonstrated in this chapter that, instead, repression may be understood as the avoidance of conscious attention to some of the many secondary Records which are formed in relation to any event. Another example of the clarification which the Headed Records model offers to analysts relates to their understanding of state-dependent retrieval; an awareness of this information-processing concept may help to sharpen the focus of the analyst's attention on the ways in which the relationship with the patient in the consulting room may replicate past patterns of emotion and relationships and so bring about state-dependent retrieval of Records of those past relationships.

In this chapter, I have analysed selected psychodynamic mechanisms in information-processing terms, but I have not yet explored the psychological changes which take place in analysis in terms of possible changes in the pattern of retrieval of information from memory. In the next chapter I shall move on to an information-processing examination of

the ways in which psychodynamic mechanisms can be modified during psychoanalytic psychotherapy.

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Chapter Five

The Headed Records model and its relationship to the process of psychological change which takes place in psychoanalytic psychotherapy

In the previous chapter I brought the analysis of the effect of emotion on the Headed Records retrieval cycle to bear on some core psychodynamic concepts, those of repression, dissociation, splitting and projection; I identified the information-processing which underpins these psychodynamic mechanisms, relating these to certain key ways in which emotion affects the Headed Records retrieval cycle.

In this chapter I will take this analysis of psychodynamic concepts one stage further by investigating the questions:

Can an information processing account of the effect of emotion on the Headed Records retrieval cycle contribute to our understanding of psychological change in analysis?

How can changes in analysis be described in terms of the effects of emotion on a) the formation and retrieval of Headed Records and b) the pattern of conscious attention to retrieved Records?

The underlying assumptions of analytic therapy, concerning the extent to which psychological change can be brought about, need to be identified and examined, in the light of an information-processing account of memory such as Headed Records.

The range of psychoanalytic theories shows great variety and disparity. Freudian, Jungian and Kleinian theorists would all envisage the goals of analytic therapy differently in terms of the changes which may be brought about in the psyche. Sandler and Dreher emphasize this point, saying 'Consider for a moment, the frequently stated formulation that the aim of analysis is to bring about structural change. Yet the meaning of such a statement will be dependent on whether it is looked at from the point of view of, for instance, ego psychology, self psychology or object-relations theory; moreover we would have to ask which structure is involved. Is change being considered in relation to

superego, ego, mental representations or relations to internal objects?' (Sandler and Dreher 1996, p114)

Sandler and Dreher have given a detailed historical account of the changes that have taken place within Freudian theory and practice in terms of the goals for change in psychoanalysis and have concluded that 'a desirable outcome of analysis will vary from one patient to another, and is not capable of being encompassed by one definition or measured by one single criterion.'

However there is a problem with this pluralistic approach in which there are many stories, any of which may be true at a particular moment, a problem which has been highlighted by Arlow, who argues that the theoretical standpoint of an analyst determines his interpretation of the patient's material:-

'... each will orient himself differently to the patient's productions, selectively attending and responding to those elements that are consonant with his theory of pathogenesis. Each will find a different psychic reality in keeping with the favoured view of what processes or events they believe caused neurotic illness and character deformation. Under the circumstances, therefore the concept of psychic reality furnishes no common ground for discourse. It has become an anachronism.' (Arlow 1996)

This becomes an 'Alice through the Looking-Glass' world where 'When I use a word, ...it means what I choose it to mean, neither more nor less'.

This has been graphically illustrated by a study in which the researchers tried to assess the degree to which an analytic process (AP) could be said to be occurring in analytic sessions (Vaughan et al,1997) . The Columbia Analytic Process Scale was used to assess the extent to which free association, interpretation and working through took place in analytic sessions; although the CAPS had good inter-rater reliability, it was not possible to establish its construct validity because among the senior training analysts involved in the project, no clinical consensus as to the presence of AP could be established. Analysts agreed that it was a vital part of the analytic process but there was 'no meaningful consensual definition of the term AP among a group of training and supervising analysts from the Columbia Center for Psychoanalytic Training and Research'. It is likely that the

criteria which analysts use to identify AP are still too primitive to give an accurate or clear account of that process.

If it is not even possible to agree on what constitutes the fundamental process in psychoanalysis there can be no hope of demonstrating that any therapeutic gain may result from that process rather than from other non-specific factors, such as the intensity of sessions; there is also no hope of investigating the relative merits of different theoretical models in bringing about AP, the analytic process, if analysts cannot even agree on whether AP is taking place. It therefore may not be possible to make a judgement about the validity of one model of psychic reality over another on clinical grounds, in that all models may be clinically useful and appear to account for psychic change at different times. However, the precise nature of the process by which such change is brought about remains uncertain.

Nevertheless, it is possible to examine certain fundamental concepts which relate to the process of change within each theoretical framework, in Headed Records terms. This theoretical analysis can therefore give an information-processing account of the psychodynamic processes underpinning clinical change in analysis, in terms of the Headed Records retrieval cycle.

What is the relationship between Headed Records, mental representations and 'internal objects'? An information-processing account of 'internal objects' in Headed Records terms.

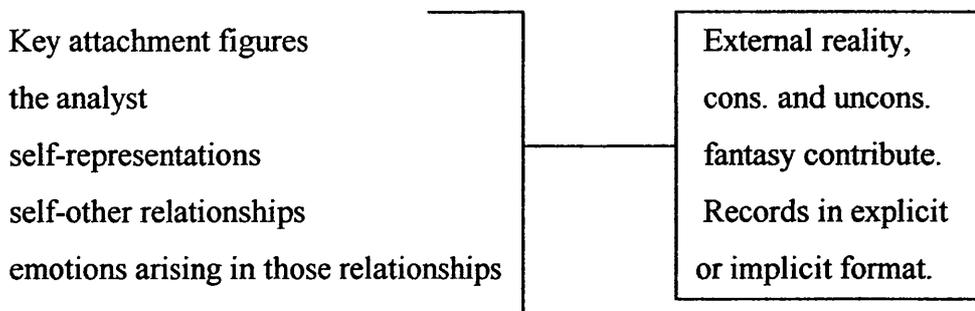
The clinical relevance of the Headed Records model lies in its ability to give an information-processing account of change in analysis and of the mechanisms by which such change is brought about. We can examine the psychodynamic mechanisms which are postulated as the basis for psychic change to see how they relate to this experimentally-tested information-processing account.

In the Headed Records model, the content of Records with which psychodynamic therapists are concerned are those containing particular mental representations. These mental representations are primarily those of a person's **attachment figures**, both past and present and, for a patient in analysis, representations of the **analyst**. Psychotherapists

are also concerned with Records containing **self-representations**, both past and present, and Records containing representations of **self-other relationships**, both past and present. Since a defining feature of any intense relationship is that it activates strong emotions, these Records of relationships also contain information about the **emotions** involved in the experience of the relationship. There will be a vast number of Records formed of interactions with a key attachment figure; some of these will be primary Records formed at the time of one particular interaction, whilst others will be secondary Records, formed on each occasion that the event or person is remembered; it is these secondary Records which include information derived from conscious and unconscious imagination and fantasy, in addition to information drawn from the primary Record.

Primary Records and many secondary Records contain mental representations in explicit format; other secondary Records contain generalised and abstract information in implicit format, as I have described in Chapter Two. I have described these latter as ‘internal working model’ Records; they are not retrieved by a consciously formed Description in explicit format and their content is in implicit format so that it influences perception, cognition, emotion and behaviour whilst remaining itself outside conscious awareness. This type of Record may frequently be retrieved as a prototype Record which organises information about a current event, whilst not being available to conscious awareness itself (see Chapter Two).

Content of Records which are the focus for psychodynamic therapy.



This account of the Records which contain information about self-other relationships can help to clarify the degree of correspondence between the content of these Headed Records and the psychodynamic terms most frequently used to denote the mental representations of an individual's attachment figures and of his/herself in relation to those figures.

Psychoanalysts and psychotherapists of all theoretical orientations usually use the term 'internal object' to encompass the range of self and other representations which form the focus for psychotherapeutic work. These representations (internal objects) are usually thought to be schematic, containing generalised information drawn from both past and present experience and from imagination and fantasy, although the meaning of the concept of internal objects and the extent to which it is used varies from one theoretical model to another (Perlow 1995). For example, in the fully developed Kleinian model, internal objects are the direct mental expression of instinctual drives and are 'experienced' in the form of unconscious phantasy, whereas Sandler has argued that Klein's model of internal object is actually one of mental structures and not of experiences; for example, he considers Klein's concepts of the 'good' and 'bad' breast to be her description of primitive mental structures which organise representations, rather than being representations themselves. Sandler would not consider that this model suggests the infant to have an actual image or any other form of mental experience of the 'good' or 'bad' breast (Sandler 1990).

Sandler, Novey and other representational theorists prefer a model of internal objects as representation or schemas 'an amalgamation of all experiences the individual has of his objects, including his actual interactions with them and their emotional meanings, as well as the distortions of realistic aspects under influences of drives and phantasies. As such, a mental representation of an object refers to a schema, which on the basis of past experience (not necessarily realistic) organizes present experience and provides a context for both present perceptions and for the recall of past memories.' (Perlow 1995,p149-150). This is very different from the Kleinian model which I have just outlined.

This model of internal objects as representations, formed in large part from the internalisation of external experiences and ‘experienced’ in the form of a guide, is increasingly accepted by contemporary Freudian and Jungian analysts rather than the view that internal objects are the mental expression of instinctual drives (Knox, 1999). Developmental psychology research is increasingly calling into question the validity of drive theory, whilst the key role of representations of real experience has support from experimental research (Emde 1992, Stern 1994).

Attachment theory has introduced a further development to these psychodynamic models with the concept of the ‘internal working model’, which I have already described and which offers a more accurate account, in cognitive science terms, than the term ‘internal object’; it is a term which better reflects the functioning of implicit memory and the fact that it is the relationship between self and other, as well the emotions which reflect that relationship, which are represented in memory. Kernberg, a psychoanalyst who does not fully accept attachment theory, has reached a very similar position on the nature of ‘internal objects’, describing them as self-object-affect triads (Kernberg, 1988). However, Kernberg still regards instinctual drives as a major determinant of the content of ‘internal objects’ and it is only in more recent work by contemporary psychoanalysts that instinctual drive theory is finally discarded and a central role is given to an attachment-based model in the formation of unconscious psychic structures.

Peter Fonagy has expanded on the work of authors such as Clyman to suggest that implicit memory is the form in which generalised patterns of experiences are stored non-consciously, determining expectations of current events and relationships, but remaining outside awareness themselves (Clyman 1991, Fonagy 1999). Internal working models can be thought of as one manifestation of implicit memory, containing information about relationships, including representations of self and other and of the emotions involved in those relationships. Internal working models therefore contain a vast range of generalised information about the external world and the subjective psychological state.

I will give an example, drawing on the kind of representation which would be of particular interest to psychotherapists; a young child, age about 5 years, will have mental representations of his mother, containing olfactory, tactile, visual and verbal information

about her physical presence, information about the physical, emotional and cognitive interactions between them and information about his own emotional responses to her presence and absence. At this age, his representations of mother will also contain some information about her relationship with his father, as well as with any siblings and with others outside the family, such as his teachers and the mothers of other children. These representations are derived directly from these personal experiences. All this information is stored in the form of generalised 'rules' about mother, expectations or anticipatory sets about what sort of things she does and how she relates to him; these are internal working models.

Internal working models as a particular category of mental representation, those representations which contain information about attachment figures and relationships can be encompassed in the Headed Records model as I have demonstrated in Chapter Two. These 'internal working model' Records exist separately from Records containing explicit information about specific episodes in the relationship, perhaps about an exciting holiday, or the first time the child learnt to swim with his mother's help, or the time she took him to the doctor to have a vaccination. Representations of more ordinary day-to-day events may also be stored in explicit format. The child's explicit, conscious memories of his mother will be stored as information in these Records of particular episodes, but he will also have information in implicit format in 'internal working model' Records.

These mental representations are stored as information in Headed Records and, according to the current state of the theory, the content of these Records cannot be deleted or altered. Some of these Records will have Headings which can easily be matched so that a wide range of Descriptions can retrieve the Record, whilst others will have Headings which can only be retrieved by one specific Description; this will depend on the control structures determining retrieval, such as the task specification and the degree of specificity required in the match between the Description and the Heading. Once Records have been retrieved they may or may not have conscious attention paid to them, either in whole or in part; retrieval is an all or none process, but conscious attention may be paid to part of a Record, not necessarily to the whole Record.

A key point to be made here is that up until now, the concept of the internal working model has lacked specificity; it has had no clearly defined meaning which is agreed by clinicians and researchers who use the term. The precise nature and form of the information contained in internal working models has never been clearly defined. This lack of specificity has meant that any description of therapeutic change has had a degree of circularity about it:- observable clinical changes in therapy are assumed to be based on changes in internal working models, but the evidence for change in internal working models lies in change in the clinical picture.

This impasse can be broken by a more precise and specific information-processing account of 'internal working models', including the nature and format of the information they contain and the processing involved in their formation and retrieval. The analysis in this thesis of internal working models in Headed Records terms does provide the specificity which links therapeutic change to specific information-processing mechanisms, such as a change in the nature of control Records or of a task specification; although in this thesis, such specificity is still untested, it lays the theoretical foundation for empirical testing of specific hypotheses arising from this model, which was not possible with the previously generalised concept of the internal working model. I will now move on to describe some of the information-processing steps which underpin the process of therapeutic change in analysis.

A information-processing account of the process of change in analysis.

In the previous section I made the point that Records can never be deleted or altered; this means that according to a Headed Record model, changes in the way information is encoded, stored, retrieved, organised and consciously perceived cannot be brought about by modification of the content of any particular Record, but may be brought about in the following ways:-

a) Increasing the opportunities for retrieval of Records.

This may arise in two ways:-

i-State dependent retrieval - creating the conditions in analysis which create a Description which matches the Heading of a previously dissociated Record.

ii- creating new task specifications which allow retrieval of a Record in place of a previous task specification which did not allow such retrieval. There are different types of task specifications (see discussion in Chapter 3, page 97) and the type of task specification referred to here is a control Record which specifies long-term goals. Creating a new task specification of this type is therefore creating a particular new Record (see c. below) but it is a Record whose content determines the retrieval of another Record.

These mechanisms can be described as ways of overcoming dissociation because constraints on the process of retrieval have been removed (new task specification) or specific conditions required for retrieval have been created (state dependent retrieval) (see Chapter 4, fig.12 for an account of dissociation in Headed Records terms).

b) Altering control structures allowing conscious attention to be paid to existing Records which have been non-conscious.

This would correspond to the psychoanalytic concept of overcoming repression, which I described in Chapter Six (p206) as an increase in the availability of primary and secondary Records to conscious awareness. Some of these Records may have been subject to a prior state-dependent retrieval, but once retrieved, conscious attention has not been paid to them; they were both dissociated and then, once retrieved, repressed. Other repressed Records may not have been subject to a prior dissociation.

c) Forming new Records -which can then form the basis for new ways of perceiving oneself and other people. The new Records formed in analysis will initially be primary 'explicit' Records then secondary 'explicit' Records. Over the course of the analysis, as particular patterns of experience with the analyst are repeated on numerous occasions, implicit 'internal working model' Records will be formed which create new patterns of unconscious expectations about relationships, including the relationship with the analyst

(see Chapter Two, page 52-3). These new Records can then be retrieved as prototype Records which organise new information about other relationships. This provides a new range of meanings which can be used to interpret current experiences.

A fuller description of these terms with clinical illustrations

a) Increasing the opportunities for retrieval of Records.

i. -State-dependent retrieval.

In an earlier chapter I gave a description of the Headed Records model and the evidence which supports it. One important feature which emerges is that of state-dependent retrieval, which means that a Record can only be retrieved by a situation which forms a Description containing enough similar information to the state in which the Record was formed.

The importance given to the formation of a transference is one crucial feature which distinguishes psychoanalytic therapy from other forms of treatment such as cognitive-behavioural therapy. Freud said that ‘The first aim of the treatment consists in attaching ..(the patient) to the treatment and to the person of the physician’ (Freud, 1913). How is this brought about?

The very fact that a patient comes to a therapist seeking help is sufficient to place the therapist in a position of authority in the patient’s eyes. In Headed Records terms, this combination of a needy patient who attributes authority and the power to help to the therapist is sufficient to bring about retrieval of ‘internal working model’ Records of child-parent relationships, the nature and content of which will depend upon the patient’s particular pattern of childhood experience. The analytic situation is one in which, in the absence of sufficient ‘objective’ information about the analyst’s personality, interests and attitudes, Records of childhood experiences in relation to parents are retrieved in order to give meaning to the patient’s perception of the analyst.

The analyst is someone whom the patient has turned to for psychological help and to whom he/she begins to reveal at least some of his or her most private thoughts and

feelings. This act of trust permits psychological and emotional vulnerability to develop which act as a Description which retrieves 'internal working model' Records of similar emotional dependence and hence similar attachment patterns in past child-parent relationships. These Records provide the meaning for the patient's present perception of the analyst and also form an anticipatory set for future perceptions although they remain non-conscious. Strong attachment feelings therefore emerge, although the pattern of attachment may be insecure, with many negative emotions, rather than positive and secure, depending on the nature of the patient's attachments in childhood. Records of past patterns of behaviour are also retrieved, as well as Records of thoughts and feelings, so that the patient starts to behave towards the analyst in the same way that he/she did to his/her parents.

This experience of attachment may also be sufficient to bring about state-dependent retrieval of specific autobiographical memories, Records which could only be retrieved when the state of attachment acts as a Description and matches the Heading of a Record containing similar experiences of attachment in childhood. These would be secondary Records in explicit format and provide useful illustrative material about the autobiographical past, even though their recall does not in itself bring about lasting psychological change. Conway has described such autobiographical memories as 'focal episodes' which represent the core meaning of emotion concepts (Conway 1990, p142). Using a schema model, Conway and Bekerian (1987) have provided experimental evidence to support the suggestion that emotion schemas facilitate direct access to personal memories.

Clinical Illustration.

A female patient with bulimia and many features of borderline personality disorder has formed a strong transference to me, with an insecure pattern of attachment which varies between avoidant and ambivalent/ resistant attachment. She recently came to a session in an agitated and distressed state, worried and angry about perceived work failures on her part and anticipated hostility to her from colleagues.

She wanted me to reassure her and to make her feel safe again but found herself feeling increasingly distressed because I seemed distant and uninterested in her; she thought that I was angry with her for being a nuisance and making such a fuss. She developed the strong idea that I was going to hit her because I wanted her be quiet. She had involuntary memories of childhood occasions on which her parents had hit her when she was crying because they wanted her to stop making such a fuss.

She was too agitated to reflect on these feelings at the time, but in the next session she was calmer and was able to reflect on the fact that her distress had recreated childhood patterns of expectations in relation to me so that she really believed that I would treat her in the same way that her parents had when she was distressed as a child.

In Healed Record terms her distress was an emotional state which retrieved 'internal working model Records' of child-parent interactions which were the prototype Records which organised her perception of me, so that I seemed as cruel and insensitive as her parents had been. This emotional state also retrieved autobiographical memories of parental cruelty towards her; these memories had an involuntary 'flashback' quality to them because her present emotional distress brought about automatic state-dependent retrieval of these Records.

For this patient, the state-dependent retrieval of the child-parent 'internal working model' Records made them immediately and vividly real to her in relation to me, without her being aware that her perception of me might be distorted. She really did expect me to be angry with her and to attack her and thought that my attempts to reflect on her experiences with her were a pretence and that I really disliked her and wanted to be rid of her. However, if she can find a way of explaining her own distressing emotions to herself, it goes some way towards helping her to manage them better.

I therefore found that my interpretations were more acceptable to her when they showed how her past experience might be distorting her present perception of me; without this kind of explanation she felt criticised by any attempt of mine to describe the immediate emotions she was feeling in relation to me, because it has become clear that for her to experience any strong emotion makes her feel 'bad', 'a nuisance', unlovable and that she will be punished. As a child, her parents would regularly punish or reject her

for showing emotion towards them, either positive or negative. They seem to have wanted a doll, not a real child and this pattern of experience forms the basis for an internal working model which determined her assumptions about my reactions to her. She believed that if I noticed her emotions, that I would reject and punish her just as her parents had done; identifying this pattern helped us both to understand why she became so acutely distressed whenever I described what I thought she might be feeling. Once I had understood this, it was possible, for example, to see why her pleasure at seeing me after a holiday break would so quickly turn to extreme anxiety and distress. She thought that I would reject and despise her because she was pleased to see me again.

As these patterns emerged over and over again in the therapy, the extent to which her perception of me is distorted by these child-parent Records became more and more apparent. My patient was able to see that she expected me to attack her for showing any emotion, just as her parents had done. This created the opportunity for her to compare her expectations with her actual experience of me so that new secondary Records could then be formed out of repeated interactions between us (see below). However, state-dependent retrieval of the childhood 'internal working model' Records is the only way in which they can be experienced in the present because they are in implicit format and so cannot be recalled as a conscious declarative or explicit memory, but can only be recognised through their distorting effect on a current experience.

ii-creating a new task specification.

It may not always be possible to distinguish clinically between a change in task specification which allows conscious attention to a previously repressed Record (see b) below) from a change in task specification which permits retrieval of a previously dissociated (non-retrieved) Record. This distinction may remain purely theoretical in so far as verbal reports, which indicate conscious awareness, are relied on to provide information about the content of Records. However changes in behaviour patterns of which the patient seems consciously unaware may indicate that a new task specification has allowed retrieval of procedural Records whose retrieval had previously been prevented by a different task specification.

Clinical illustration.

A female patient in analysis has always appeared very committed to hard work, both in the analytic sessions and also in the accounts she gives of her daily working life. In the analytic sessions she has always been very positive in her attitude and keen to gain a greater understanding of herself.

There has been a rather striking absence of any negative attitude to analytic work or to the pressures of her extremely busy career and she never seemed to want to relax or rest.

However, recently there has been a fairly striking change, following a short holiday break; she found herself reluctant to shoulder the burden of her rigorous work schedule again and began to postpone some tasks, sitting for periods of time doing nothing and feeling unable to manage or function effectively. In the analysis she also demonstrated a similar change in behaviour, becoming reluctant to reflect on painful issues. She was either silent for quite long stretches, feeling vulnerable, passive and sometimes very helpless. It seemed as though any analytic work was too much of a struggle and she either agreed passively with any interpretation I made, remained silent or made some remark that indicated that she did not feel capable of making the effort to understand what she was feeling.

Her childhood was very unhappy with a chronically ill mother and a violent father, neither of whom looked after her emotionally. From a childhood characterised by a sense of vulnerability and helplessness, she developed a tough independence and a determination to survive which led to a successful career and an identity as someone competent and self-sufficient, who never felt unable to cope. In Heated Records terms, it seems as though a task specification was in place which prevented retrieval of Records of any sense of vulnerability, passivity or helplessness or of any behaviour reflecting such feelings. Occasionally, a tearful vulnerable side of her would emerge in the analytic sessions, when, for example, she described the terror and helplessness she had felt when

she was the victim of a rape attack. However, even then she fairly quickly reasserted her competent, self-sufficient attitude, telling me that she had done a great deal of work in her previous therapy on the fact that her own behaviour, in walking through a deserted park late at night, had contributed to the rape; she needed to feel that she had put it all behind her and that she was back in control psychologically.

However, the analytic work and her holiday break seem to have contributed to a change in task specification so that Records of more vulnerable and helpless feelings and behaviour could now be retrieved and she started to act in the uncharacteristically passive and helpless way which I have just described. The change to a rather passive pattern of behaviour in the sessions preceded her conscious awareness of her greater sense of vulnerability, suggesting that previously dissociated procedural Records could now be retrieved.

b) Paying conscious attention by altering control structures.

In a previous section (chapter 4) I described the concept of repression in terms of the Headed Record model; one form that repression takes is whilst one Record of an event may become conscious, other Records which give added meaning to the event may remain outside conscious awareness because they arouse anxiety and there are control structures which prevent conscious attention being paid to Records which arouse anxiety. This process depends upon a subliminal, non-conscious attention to the anxiety-arousing Record, a process for which George Klein has provided empirical evidence (Klein, 1970, p242).

Psychotherapy provides an opportunity for the patient to alter the control structures which determine whether conscious attention is paid to anxiety-arousing Records.

How might analysis and psychotherapy bring about such a change in the control structures relating to anxiety-arousing Records? I think this may be answered by differentiating Record, Ri, which contains anxiety-producing information from the emotional Record, Ra, that is then retrieved, the Record containing information about the

anxiety experience itself; the relationship between these two Records may be clarified by a clinical illustration:-

Clinical illustration

A patient had given a seminar in the early summer one year, whilst she was in the early stages of a severe clinical depression, accompanied by acute anxiety and suicidal ideation, which required hospital admission two weeks later. After several months in hospital she was discharged and returned to work. In the early summer the following year, she again had to give the same seminar and could not understand why she became so anxious just beforehand. In her therapy session the day afterwards, she said that she had taught this seminar many times before but that this time she felt she taught it really badly because she was so tense. She then realised that the seminar retrieved memories of the depression and hospital admission the previous year, a link of which she had not been conscious until the therapy session. The information that the seminar preceded her hospital admission could be thought of as the information Record Ri, which retrieved Record Ra, the emotional Record containing information about her depressed, anxious and suicidal state of mind the previous year. Her lack of conscious awareness of this link did not prevent Ri from retrieving Ra, so that she became acutely anxious but without knowing why she felt that way. The Records, Ri and Ra, which gave meaning to her anxiety, were temporarily repressed.

In an earlier section I described the nature of emotion as a combination of physiological arousal and cognitive evaluation, following George Mandler's view of emotion as a combination of these two components (Mandler, 1975 p119). In a Headed Records model, the cognitive component of anxiety can be envisaged as a Record, Ra, containing information about the physiological state of arousal (i.e. 'these bodily sensations are what I define as panic') and also other cognitive elements, for example a sense that survival is at risk by an attack from the external world, as well as automatic responses such as 'freezing', or seeking a safe parent figure.

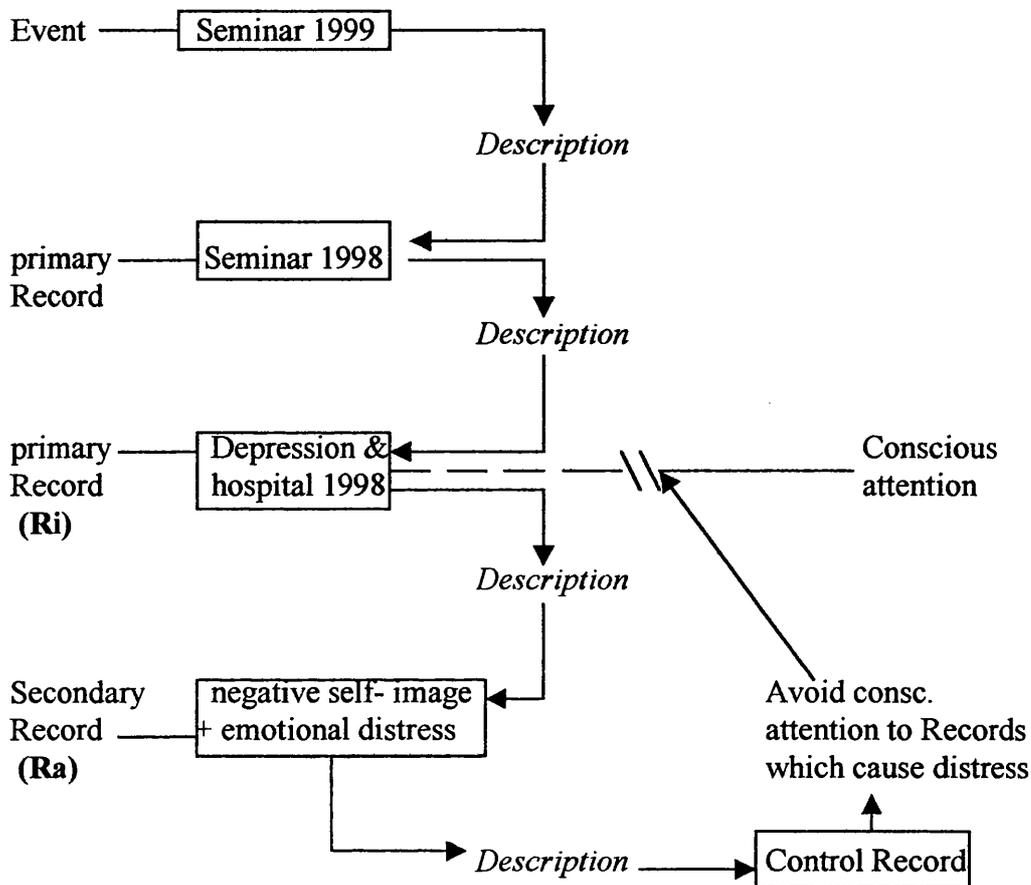
For my patient, the event Record, Ri, acted as a Description which led to automatic retrieval of the affective Record, Ra, containing information about her emotions, namely the suicidal depression of the previous year. Retrieval of this Record causes acute mental distress, which can only be avoided by preventing retrieval of the event Record Ri, which retrieves Ra. The information in the event Record Ri, consists of the information that the seminar (which she is about to give again this year) preceded her depressive illness; she can only avoid Ra by forgetting (not paying conscious attention to) the fact that the seminar preceded her depression.

Psychotherapy could change the task specification relating to Ra, for example by changing the instruction that conscious attention must not be paid to Ra. For the patient I have just described, it seemed to be possible for her gradually to use therapy to recognise that her depression the previous year had not been catastrophic, that she had recovered reasonably quickly, that she had been able to return to work without too much difficulty and that she was now on new medication which seemed to be keeping her mood much more stable. Focussing on these positive features of her recovery enabled her to pay more attention to the memories of her depression without becoming acutely distressed; she gradually ceased to see the depression as catastrophic and life-threatening, but instead as an illness from which she had recovered and could do so again.

This greater capacity to pay attention to Ra then made conscious attention to Ri, the event Record, less anxiety-arousing; my patient was able to think about the seminar which she had to give this year without the link to the depression of the previous year causing her so much distress.

The diagram below illustrates the process whereby a Control Record prevents conscious attention being paid to Records containing information about distressing mental states.

Figure 15. To illustrate the retrieval of information in the clinical example (above)



The control structures existing before the start of psychotherapy might contain instructions-

- that any situation which retrieves Ra is a threat to survival and must be avoided.

This would reflect the fact that Ra contains information that survival is at risk.

If a Record Ri retrieves Ra it would not have conscious attention paid to it; not paying conscious attention can be considered to be a means of attempting to avoid Ri because it retrieves Ra and is therefore classified as a threat to survival, in the same way as a physical danger might be.

Of course, avoiding a physical danger is usually an effective response to a survival threat, whereas avoiding conscious awareness of Record Ri may not prevent non-conscious

retrieval of Ri which in turn produces non-conscious and automatic retrieval of Ra; the event Record automatically leads to an affective Record. Control records may contain an instruction which blocks conscious attention to the affective Record and in order to achieve this, conscious attention to Ri, the information Record, has to be avoided as well. This could be envisaged as a model for phobic anxiety states and panic attacks.

Developmental considerations

In the previous section I have expressed attachment and attachment behaviour in Headed Records terms, suggesting that certain Records may contain emotional information relating to separation from a key attachment figure (Ra). Ra would be a fairly primitive Record reflecting the fact that separation from the key attachment figure could place the infant in a life-threatening situation. Bowlby suggested that:-

‘[Attachment behaviour] can be conceived best, I believe in terms of a set of control systems- systems that are mediated by certain conditions, for example, isolation or alarm, that when active mediate one or more of those forms of behaviour that I am classifying as attachment behaviour, and that are inactivated again when the attachment figure is in sight or grasp....’ (Bowlby 1973)

Attachment behaviour such as crying or seeking proximity to the safe parent, behaviour which enhances the chances of survival, could be accompanied by the formation of a primitive ‘danger signal’ Record, ‘Ra’, which would be retrieved by any unpleasant experience. ‘Ra’ would contain representations of the experience of distance from the safe attachment figure, of the emotion of fear which accompanies that distance and also of any identifiable threat (for example, a stranger or a dog barking). As the child grows and becomes more able to ensure his/her own survival, new ‘anxiety’ Records might be formed ‘Ra1’, ‘Ra2’, which contain more complex cognitive information and which may also contain representations of oneself as competent to manage in certain anxiety arousing situations. In these Records anxiety is represented as unpleasant but not a survival threat and therefore not always to be avoided. .

Patients who come into therapy may do so because of anxiety. For them, unpleasant experiences may retrieve primitive anxiety Records 'Ra' rather than 'milder' anxiety Records 'Ra1', 'Ra2', in which anxiety is experienced as unpleasant but not as an indication that survival is at risk. Any event (including the retrieval of Records such as 'Ri') which acts as a Description and retrieves 'Ra' is to be avoided, according to the control structures for 'Ra'.

Psychotherapy might modify the patient's experience of the state of anxiety creating new Records which contain the information that, though unpleasant, anxiety is not a threat to survival. Records such as 'Ri1,2', etc. which act as Descriptions and retrieve 'Ra1,2' etc. are not therefore always to be avoided.

How might psychotherapy bring about the creation of new Records in which anxiety is not a threat to survival? The patient's reflections and the therapist's interpretations provide new meanings for past events, interpersonal relationships and object relationships. A discussion of the significance of new Record formation in bringing about change in analysis is given below but in this context these new generalised Records containing information about the self (the person's own mental processes), interpersonal attachments and internal objects (mental representations of attachment figures), provide new meanings for memories of past events. For example, in place of a memory, 'Ri', which previously retrieved 'Ra', new meanings may take the form of a new Record 'Ri1' and 'Ri1' may not retrieve Ra.

c) Forming new Records.

The final common pathway by which change in analysis can happen is the formation of new Records containing new versions of the relevant mental representations. However it may be necessary for state-dependent retrieval and paying conscious attention to occur first, so that sufficient information about the already existing unconscious mental representations is available to conscious awareness and they can therefore be drawn on in the formation of new Records.

On the other hand, the case illustration given below highlights the fact that many primary Records which are retrieved may arouse unmanageable anxiety so that conscious processing of some of the information in the Record is emotionally painful for the patient. As indicated above, this may mean that conscious attention is only paid to part of the retrieved primary Record; for example, the patient may describe his mother and her behaviour but may not be conscious of the part of the Record which contains information about the emotional impact of her behaviour on him and the damaged self-representations which he has as a consequence of his mother's attitude to him.

The patient may therefore only be able to pay conscious attention to those parts of a Record when they have been incorporated into a secondary Record, formed during the analytic process, secondary Records which contain enough 'good' representations of 'self-analyst' relationships for the patient not to feel overwhelmed by the negative self-representations which originated in the primary 'self-mother' Records.

The crucial point here is that new Record formation may be necessary before conscious attention can be paid to some of the information in retrieved Records.

Clinical illustration.

A male patient, who works in publishing, described his frustration with the fact that he is stuck in a lowly sub-editing job when his writing skills and previous experience equip him for a more senior editorial position. However, he feels unable to take the opportunities which arise for him to write occasional pieces which might further his career; recently he was listening to a colleague telling her editor that she could not think of anything to write about a topical issue about which my patient knew a great deal and had written about occasionally himself. However when he was alone with the editor he did not take the chance to offer to write the piece himself. When we analysed the anxiety which he felt, it emerged that he feared that offering to write the article would lead him into a kind of trap; that he would have no control over the extent to which the other person could make demands on him, so that he would feel totally taken over and

enslaved. This would feel as though he no longer existed as an independent psychological being, as though he would no longer have a mind of his own.

This kind of experience has happened before and I identified this as a fear of psychological annihilation, a survival threat which is experienced as just as terrifying as physical annihilation. The roots of this phobic avoidance of relationships in which he might 'sell his soul' lie in his relationship with his mother who needed him to perform for her sake, to be successful at school and in other ways, and seemed to live through him, particularly from the age of seven when his parents divorced because his father had an affair with another woman. His mother did take him over and he experienced his relationship with her as profoundly claustrophobic.

In this situation it was not the editor's behaviour which had acted as a Description and retrieved Records of his relationship with his mother; in this case it seemed that the prospect of performing a task for an organisation which he felt did not sufficiently value him had acted as a Description and retrieved Records containing representations of himself trying to meet his mother's expectations but at the same time feeling inadequate and unloved. The identification of this anxiety, that he might be psychologically obliterated in a relationship, has enabled him to begin to distinguish the situations where that fear might be appropriate, as with his mother, from those relationships where it is not.

A further episode recounted by the same patient illustrates this; he was asked to step in to do a more responsible editing task, in the absence of the editor who normally was responsible for this task. This required him to learn a whole new computer software package and use it after only 20 minutes instruction. In the course of the day he therefore telephoned the senior editor in charge of the whole section, a woman whom he knew quite well and regarded as a friend, with questions about technical issues. He rang her three times in two hours and the third time he did this she was clearly irritated and told him that he was very demanding. His immediate response was to say nothing but to feel utterly humiliated and psychologically 'annihilated', in that he felt she had proved to him that he was utterly useless because he could not perform in the way she required - as though she did not see him as a separate human being with a mind of his own, whose

feelings and anxieties should be taken into account, but whose only value to her lay in his performing the required task for her. This exchange with her had acted as a Description which retrieved the Record of his relationship with his mother, including his perception of his mother as someone who was only interested in his performance and who never took his mind, his thoughts and emotions into account, an experience which made him feel as though he did not really exist. This part of the episode can be described in information-processing terms as state dependent retrieval, with the woman editor's behaviour being sufficiently like his mother's to act as a Description and retrieve Records of mother-self relationships; these Records contained representations of his own sense of humiliation linked with his sense of being 'invisible' as a real person to his mother.

He sat down for a few minutes after the conversation with the woman editor and thought about the exchange which had just happened with her; he was able to pay conscious attention to the Records of self-mother interactions which we had explored in his therapy; these Records were not the Records formed at the time of anxiety arousing experiences with his mother, but were secondary Records formed during the therapy, Records which were less anxiety arousing than the initial Records because they did not contain representations of the immediate physiological aspects of the anxiety he felt when actually with his mother.

His thoughts about his therapy with me acted as a Description and retrieved Records of therapy sessions in which he had talked about his relationship with his mother and in which I had made comments and some interpretations; a crucial aspect of this interaction with me in the therapy was that my comments and interpretations always contained, by their very nature, the implication that I was interested in his mind and his emotions, so that he felt that he existed for me as a real person, unlike his experience with his mother (I should point out here that this point was only reached after several years of therapy during which he often did experience me as being like his mother). My attitude, conveyed implicitly, formed part of the content of new Records, Records in which representations of his relationship with his mother were combined with representations of my responses to him and of his sense of having a real identity as a psychological being when with me.

The secondary Records containing representations of himself as a person whose cognitive and emotional processes are recognised and valued by others (in this case, me) could then be retrieved and act as prototype Records, organising his perception of the interaction with the woman editor, rather than the more threatening primary Records of self-mother relationship which had initially given meaning to that event. He was then able to evaluate further the exchange with the editor and to retrieve Records of his previous experience of her, containing the information that she was often irritable and depressed and unable to respond emotionally to other people's anxieties. The essential process for this patient was that of retrieving Records containing information that the representations of his own mental processes (his thoughts, judgements and emotions) have value and particularly that they have equal value to the thoughts, judgements and emotions of other people; previously any conflict with another person had retrieved Records containing a 'rule' that the other person's perception of him defined him and the relationship, rather than the representations of his own mind which seemed to him to have no validity. This rule seems to have been part of the primary Record of self-mother relationship.

Conclusions and evaluation.

In this chapter, I have discussed the ways in which change may be brought about in analysis in terms of the Headed Records model. Three main mechanisms have been investigated; these are:-

- increasing opportunities for retrieval of Records, by changing the task specification or by creating conditions which bring about state-dependent retrieval.
- making Records available to conscious attention.
- forming new Records which can then act as prototype Records in new situations.

This information-processing analysis has also clarified the nature of the internal representations which are the focus of analytic work, showing that they frequently consist of 'internal working model' Records.

I have also shown that psychological change in analysis may depend upon complex interactions between the mechanisms which I have identified as the basis for such change; for example, paying conscious attention to Records which arouse intense

anxiety may feel unbearable until the information in those Records has been drawn on and incorporated into new Records which are less anxiety-arousing.

It is this last point which helps to highlight a limitation in the methodology which I have used to investigate psychological change in analysis; this Headed Records analysis may suggest that change is based upon the interaction between several different information-processing mechanisms which, between them, result in more information being retrieved, more accessibility of that information to conscious attention and new meanings being attributed to past and present experiences. However, as in the previous chapter, the analytic clinician will not find this helpful in explaining why therapy brings about change in some patients in analysis, nor the precise circumstances which facilitate such change, even though this chapter has described the information-processing steps which underpin such change.

Furthermore, this model does not offer more than general guidelines to analysts about how to facilitate psychological change in their patients. Questions remain unanswered about which kind of analytic interventions, in which particular emotional states, may facilitate particular information-processing mechanisms and so bring about therapeutic change. These questions could provide the theoretical framework for an extensive programme of research which might be able to link clinical outcomes to their underlying information-processing mechanisms.

However the psychoanalytic clinician's possible criticism of the value of this model can be answered to a limited extent; to a psychotherapist who is familiar with the Headed Records model, it may be possible to analyse which mechanism may be active at particular moments in analysis and understanding this may help such a therapist to modify his or her technique accordingly; for example, at times in an analysis when state-dependent retrieval of past trauma threatens the patient with overwhelming psychological distress, the analyst may need to help the patient to draw on prototype Records of other, less destructive relationships including the relationship with the analyst. This would not be an avoidance of the distressing memories, but would help the patient to begin the slow process of constructing new 'internal working model' Records of self-other relationships

which include information about the past traumatic patterns but which allow the patient to develop the sense that other less destructive patterns of relationship exist.

Some further clarification of these questions may come about by examining the models for change in analysis which are proposed by differing psychodynamic theories and analysing them in terms of the information-processing account which I have given so far. It may be possible to use the guidelines which psychodynamic theories offer to analysts to help them to facilitate change in analysis, identify the information-processing which underpins those psychodynamic guidelines and so reformulate them in information-processing terms; the major advantage of this approach would be that these guidelines would then be applicable to any analysis, regardless of the psychodynamic theory which any particular analyst may draw on. This is the task which I will therefore undertake in the next chapter.

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Chapter Six

A Headed Records analysis of selected psychodynamic mechanisms which are thought to underpin clinical change in psychoanalytic psychotherapy

In this chapter I will investigate some psychodynamic models postulated as the basis for psychic change, relating them to the information-processing accounts of mechanisms which underpin such change, which I have examined in the previous chapter. I will attempt to answer the question:-

Using the Headed Records model, what information-processing analysis can be given of selected psychodynamic accounts of the mechanisms which are thought to underpin clinical change in psychoanalytic psychotherapy?

The models I have chosen to examine are:-

Freudian - the topographical and structural models

Jungian- the concepts of Integration and Individuation

Kleinian- achieving the 'depressive position'.

Attachment theory - changes in 'internal working models' and in 'reflective function'.

These particular models have been chosen because they are each major landmarks in the elaboration of psychoanalytic theory; this is a personal choice and others might consider Kohut's self-psychology as equally significant, for example. However I have selected those models which I consider to represent key changes of position in relation to drive theory and the role of instinct in the formation of mental contents.

Freudian theory is the starting point of the whole of psychoanalytic theory; a description of the topographical and structural models includes the key features of Freud's mature psychoanalytic theory. Jung's analytical psychology is investigated because it was the first and most radical permanent departure from psychoanalysis, rejecting the sexual nature of libido and focussing on dissociative mechanisms rather than repression. In contrast, Melanie Klein consolidated the central role of instinctual drives in

her model and is widely accepted as the pioneer of object relations theory. Attachment theory is included because it is the only model which integrates research evidence from cognitive science and developmental and ethological studies to update our understanding of psychic reality; it offers a model of psychic functioning in which internalisation of real relationships is central to the formation of the internal world, rejecting the notion that unconscious phantasy arises directly from instinctual drives.

Freudian a) The topographical model

The topographical model was first described in 'The Interpretation of Dreams'; Freud conceived of the mind as divided into the systems *Perceptual-Conscious, Preconscious and Unconscious* and he continued to rely on this model until about 1916 (Freud 1900). The topographical and structural models overlapped to some extent until 1923 when the structural theory was fully spelt out in 'The Ego and the Id', in which Freud described the mental agencies of the Ego the Id and the Superego (Freud 1923). However Anna Freud, for example, never entirely discarded the topographical model and said that:-

‘I must say that in my writing I never made the sharp distinction between the two that later writers made, but according to my own convenience I used the one or the other frame of reference. I definitely belong to the people who feel free to fall back on the topographical aspects whenever convenient, and to leave them aside and to speak purely structurally when that is convenient.’ (Sandler and Freud 1985, p31)

The curative power of analysis, in the topographical model, was not now to be achieved through catharsis, but rather by the interpretation of instinctual wishes and phantasies that had been repressed into the system Unconscious, and the conflicts with which they were associated. The aim of the analytic method was to bring the ‘latent’ instinctual wish to consciousness and to overcome the resistance to its acceptance’ (Freud 1910, p148). For Freud at this time, this making the unconscious conscious by means of analysis was inextricably bound up with the overcoming of infantile amnesia:-

‘The task which the psychoanalytic method seeks to perform may be formulated in different ways, which are however, in their essence equivalent. It may, for instance, be stated thus: the task of the treatment is to remove the amnesias...Or the formula may be

expressed in this fashion: all repressions must be undone. The mental condition is then the same as one in which all amnesias have been removed. Another formulation reaches further; the task consists in making the unconscious accessible to consciousness, which is done by overcoming the resistances' (Freud 1904 p252-253.)

In this version of Freudian theory, the central material which is repressed is that of the Oedipus Complex which is 'the desire of the 4- to 5- year old child for some form of sexual intercourse with his mother' (Freud 1900, p256). In analysis, the verbalisation of the modified form of these repressed wishes in the transference brings about feelings of relief and leads eventually to the subsequent discovery of the childhood wishes that had been revived in the transference.

In the topographical model, infantile amnesia is the result of the primary repression of the loving and hostile feelings which a child experiences towards its parents in the Oedipus complex. This repression develops with the decline of the Oedipus Complex and it is intentional, aimed at keeping this anxiety-producing material away from consciousness. However, infantile instinctual, including Oedipal, wishes are assumed to persist in the unconscious in crude and undisguised form (Sandler et al , 1997,p103) The ego may 'allow' memories in distorted form, *screen memories* which provide the means for overcoming the amnesia; "with a thorough analysis everything that has been forgotten can be extracted from them" (Freud 1915-16, p 201).

In this model, change in analysis is brought about by the overcoming of the dynamic repression of the Oedipus complex, so that the childhood incestuous and hostile impulses are re-experienced and resolved in the transference. The verbalisation of sexual phantasy towards the analyst and the analyst's acceptance of this brings about a feeling of relief and leads to the discovery of the childhood incestuous desires, which had been revived in the analysis. It would therefore be useful at this point to examine the concept of infantile amnesia more fully in information processing terms.

A Headed Records account of infantile amnesia.

In the Headed Records model, apparent forgetting results from the failure to match a Description with a Heading and so retrieve the accompanying Record. I will now

investigate how this might explain infantile amnesia, which is assumed to be a universal phenomenon, dating from the age of three to four years. There are various non-psychodynamic explanations for such amnesia; some authors have suggested that the late maturation of the hippocampus might contribute to infantile amnesia since it is known to play a part in adult episodic memory. However Usher and Neisser point out that if two and a half year old children can recall events that took place six months earlier, their episodic memory systems must be in place, so that immaturity of relevant nervous systems does not provide a satisfactory answer (Usher and Neisser, 1993).

Usher and Neisser propose that the inaccessibility of childhood memories results from the changes in cognitive structure which accompany development. They suggest that because of these changes, the experiences of childhood do not fit adult 'schemata' and so can no longer be brought to mind. A key part of such schemata is the 'life narrative', the ways in which adults think of their lives in terms 'of a series of well-defined periods and milestones that constitute a rich retrieval structure and thus facilitate recall'. Young children do not have this schema and so do not and cannot think of their experiences as comprising a personal narrative, nor can it be used in later life to facilitate recall of experiences that occurred before it developed.

In my account of the Headed Records model, I gave a summary of some of the evidence which suggests that the schema model has inadequacies as an information-processing account of forgetting. Usher and Neisser's proposal can be re-formulated in more precise information-processing terms by using the Headed Records model. I would suggest that Usher and Neisser are implying that in early infancy Records are laid down which consist mainly of external experience; the 'life narrative' which Usher and Neisser refer to would not be included in early Records; it would gradually be formed later from a 'cascade' of Records, with each new Record containing increased information about 'the self' in relation to the external events, drawn from a previous Record.

Morton (1995) suggests that Records of events contain some information about 'self' as a component in their Headings; the retrieval of event Records is restricted by the specification of 'self' in the Descriptions for the Records and the Record will only be

retrieved if the 'self' specification in the Description matches the 'self' specification in the Heading .

What does such information about 'the self' consist of? It is around the age of three years that a child is able to have a reliable capacity to mentalise, to have a mental representation (or Record) of her own mind, with its capacity to think, imagine, phantasize, evaluate and find meaning in experience.

I would note here that there is some contradictory evidence about the age at which children develop a 'theory of mind', the capacity to be aware of self and other people as mental and emotional as well as physical beings (Bremner1994, p209). Some researchers believe that some aspects of awareness of other people's minds develop as early as the first year of life. Carpenter et al.(2000, p315) conducted experiments that showed evidence that infants aged 18 months and under showed understanding that others have intentions and that those intentions may differ from their own. However Perner et al.(1987), conducted experiments which involved showing children a Smarties container, ascertaining that the child expected it to contain Smarties and then showing the child that it contained a pencil. The child was then asked what her friend, who has not seen the actual contents would expect to be in the tube. Children under about 3 years say that their friend would expect the tube to contain a pencil, whereas over the age of 3 years, they understand that the friend would expect to find Smarties in the tube. Perner et al. concluded that 'theory of mind' may only emerge fully by about 3 years of age, because it is only then that children understand fully that others have thoughts and beliefs and that these may differ from their own. It is likely that the awareness of one's own and others' mental and emotional states is a gradually developing capacity, with some aspects emerging before others. For example, the capacity to understand that mental states are intentional and produce actions may be an earlier developmental achievement than the awareness that the mental state of one person may cause emotional distress in another. Annette Karmiloff-Smith suggests that cognitive development is governed by a series of 'representational redescription', whereby representations are initially stored in implicit, schematic format and then re-encoded into more explicit format finally emerging in a form which is consciously accessible and can be communicated in language. Experiments

which show very young infants with awareness of intentionality in other people may be demonstrating knowledge which is still predominantly in implicit format or in an explicit format which is still not consciously accessible, whereas the full emergence of reflective function could be considered to depend on such awareness being stored in representation which are conscious and in explicit format (Karmiloff-Smith 1999, p132-133).

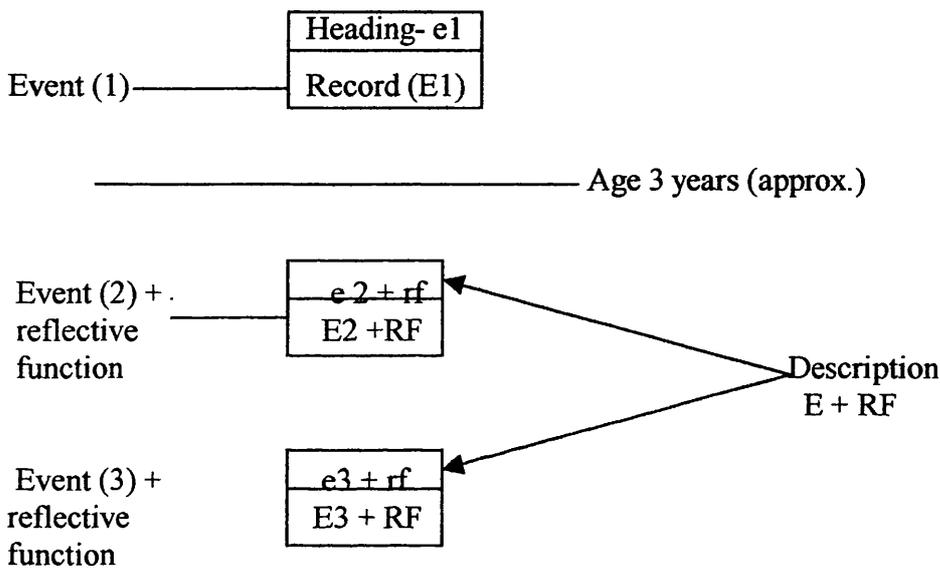
Records laid down after the development of some degree of 'theory of mind' would have information about the child's mental processes combined with information about external events. The Headings for such Records would be likely also to include information about 'self', unprocessed information about mental processes which were taking place at the point the Record was formed. Before the age of (about) three years the Records and the Headings would not include such information about the 'self', but only information about external events and probably also bodily sensation or emotional arousal. However these early Records and Headings of bodily and emotional experience would lack the additional information about the child's own mind recording and evaluating these sensations. If, after the age of about three years, Headings and Records increasingly include such information about 'reflective function', the Descriptions formed from that age onwards might only match a Heading which also contained such information. There would have to be a control Record which contained a rule forming a task specification to this effect. Once reflective function has been included in one Record this Record can become the prototype Record (as described in Chapter Two) which is retrieved and organises a new experience. As this process is repeated, 'internal working model' Records of reflective function develop which contain cumulative information about the child's own reflective processes and those of his key attachment figures. Retrieval of these Records makes this information available to the child enabling him to develop an awareness of his own mental processes, which could be considered as the core of a sense of self.

Records formed before the age of three years would not have Headings with information about reflective function and so could not be retrieved by a Description which includes such information. This would provide a possible reformulation of

infantile amnesia in terms of the Headed Records model, as illustrated in the diagram below.

Figure 16. A Headed Records model of infantile amnesia

(headings contain unprocessed information about an event (e) and reflective function(rf), Records contain processed information (E) and (RF))



Note-Record (1) is not retrieved by the Description [E+RF] because there is no [rf] in the Heading. The Headings of Records (2) and (3) are matched by the Description and so they are retrieved.

Once a child has a 'theory of mind', a capacity to form Records containing information about his or her own mental processes, this can form the basis for the formation of imaginative or 'phantasy' Records containing information about what might be going on in the parent's mind.

Do these observations about the Headed Records model help us in evaluating the topographical model idea that :-

'psychoanalysis was the appropriate treatment only for those patients with neuroses, whose pathology was rooted in the Oedipal phase, and who consequently had

the so-called infantile neurosis which was repeated in the transference in the form of a transference neurosis. The aim of treatment involved the 'resolution of this transference neurosis'. (Sandler and Dreher 1996, p83)

Oedipal phantasies may be considered to form the content of Records, but only after the age at which a child is capable of forming Records which contain information about mental processes, both the child's own and other people's. This capacity for 'reflective function' develops at about the age of three years (although it is probably a gradual process of development over several years as described above) and this is therefore compatible with Freud's view that the Oedipus complex arises and is worked through between the ages of three and five years.

A central tenet of the Headed Records model is that Records cannot be altered once laid down. Records of infantile Oedipal phantasies cannot be 'dissolved' or 'resolved' but would continue to exist throughout life, even if they cannot be retrieved.

Analysis cannot therefore delete these early Records but can only provide a relationship in which new Records of interpersonal experience are formed. The act of exposure involved in revealing the most private personal information to the analyst creates a sense of vulnerability towards and dependence upon the analyst who is therefore increasingly perceived as a parent figure; the analysand's self-representations would be of his/herself in a state of childlike dependence on the analyst.

This would recreate the emotional conditions in the analysis which could then form a Description which would match the Heading and retrieve the Record of the childhood Oedipal material (state-dependent retrieval, see above). However, it does not seem to be the case that specific childhood memories of Oedipal phantasies are retrieved in analysis, but rather, that 'internal working model' Records of generalised Oedipal-type relationships are retrieved and determine the way the analysand perceives the analyst, and that this structuring of the analysand's perception is mainly non-conscious, at least initially (see discussion of internal working models, Chapter Two).

As the analysis progresses, the analyst's interpretations diminish the anxiety aroused by these Records and so enable the analysand to direct attention towards them (paying conscious attention) and gradually to build up a series of new Records whose

content reflects the changing relationship with and perception of the analyst, who can be increasingly related to as an individual rather than as a generalised parent-figure (creating new Records).

However none of this work depends upon the overcoming of infantile amnesia, which in Headed Records terms represents an earlier developmental stage than the age at which the Oedipus complex develops and exists as an entirely separate process from it. Although Freud thought that infantile amnesia meant that almost all events prior to the age of five years or thereabouts were repressed and so forgotten, Usher and Neisser have found experimentally that some events from the first few years of life can be recalled and that infantile amnesia is far from total. Quite a lot can be recalled from three years onwards, so that repression associated with the resolution of the Oedipus complex does not provide a satisfactory explanation.

I would prefer to refer to Oedipal patterns of attachment, rather than to the 'Oedipus complex'. This reflects an idea, which seems to be gaining ground, that the manifestations of attachment may change with growth and development. In one of a recent series of articles reviewing the concept of internal working models, Bretherton takes Bowlby's notion of a goal-directed partnership' to suggest that the nature of attachment itself may change with development and that a more sophisticated kind of attachment may become possible when the child's attachment plans become infused with 'some insight into his mother's goals and motives' (Bretherton 1999, p346, Bowlby 1969, p267-268). In the same series of articles, Nelson argues that 'one could expect changes not only in the quality of the attachment relationship itself, but also in the understanding of that relationship under different conditions of discursive interactions during the childhood years (Nelson 1999).

A key part of development for a small child is the growing awareness that his or her parents have a sexual relationship with each other which excludes the child and this awareness would form a very important part of the insight into mother's goals and intentions to which Bowlby refers, and to the change in quality of the attachment relationship which Nelson proposes. This awareness and the accompanying desires and fears of the Oedipal stage could therefore be considered as a developmentally-driven

modification of the attachment relationship. New internal working models would be formed, containing new representations of the key attachment figures, their relationships with each other and new representations of self in relation to each parent and these new internal working models would underpin the Oedipal patterns of attachment which I have suggested.

In information processing terms, these Oedipal patterns develop with the child's increasing capacity to hold a theory of mind from the age of three onwards and so to create Records containing imaginative information about the possible contents of the parent's mind; It would seem that working through Oedipal phantasies in analysis has more to do with this process and nothing to do with overcoming infantile amnesia which requires an entirely different information-processing account.

b) The structural model.

The structural model was the third and final way in which Freud conceptualised mental functioning. Sandler et al (1997, p184) conclude a review of the historical and conceptual development of Freud's metapsychology with the observation that 'The structural model provided the basis for the so-called classical psychoanalytic thinking for many years after Freud's death in 1939, as reflected in the works of the ego psychologists Hartmann, Kris and Loewenstein, and in the developmental psychoanalysis of Anna Freud'.

In the structural model, the ego is constantly evaluating mental contents, especially instinctual impulses and wishes arising from the Id, in terms of their acceptability to consciousness or the possibility that they might result in a threat from the superego.

The superego is formed at the time when the child is attempting to master the conflicts of the Oedipus complex 'The child, realising its longings for the exclusive possession of each parent, finds itself in an intolerable conflict of loyalty, love and hate. This confusion of feelings requires the development of a strong controlling mental agency, which in effect mutes or brings about repression of the urges towards the parents' (Sandler et al 1997, p175).

The parent who would punish the Oedipal longings is internalised, meaning that a mental representation is formed of that parent, a representation which carries complete authority for the child. The ego screens Oedipal impulses and the memory of those impulses, in the light of the superego prohibition and so keeps them out of conscious awareness.

According to Arlow and Brenner:-

‘The structural theory takes account of the fact that intrapsychic conflict is much more than a problem of accessibility to consciousness as the topographic theory assumes it to be.... The purpose of technical intervention is no longer synonymous with the recovery of the amnesic material, important though such recovery is... The therapeutic task aims at analysing defences, resolving their automatic operation and permitting the integration of previously warded-off instinctual derivatives and the memories associated with them into the normal parts of the ego’ (Arlow and Brenner 1964, p53-54)

This account includes two main concepts :-

a)Analysing defences, so that they no longer function automatically (i.e. unconsciously)

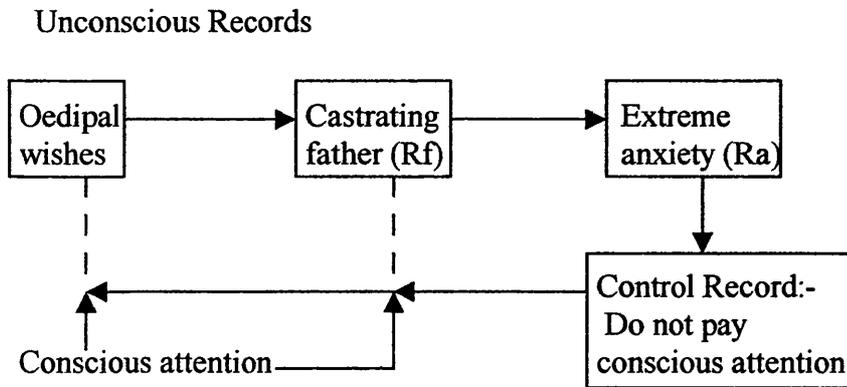
b)Greater integration- of previously ‘warded –off instinctual derivatives and the memories associated with them into the normal parts of the ego’ (Arlow and Brenner, 1964, p54)

In Healed Records terms, these processes can be analysed in the following way:-

a)Analysing defences, so that they no longer function automatically.

In Healed Records’ terms, this means altering control structures so that anxiety records are not experienced as indicating a threat to survival (see above). The diagram below illustrates the fact that Records which contain information (say Oedipal wishes) which might lead to retrieval of an anxiety Record, ‘Ra’, would automatically not have conscious attention paid to them. ‘Ra’ would previously have been retrieved by the unconscious mental representation of a (phantasied) terrifying castrating father, ‘Rf’, a Record itself retrieved by the unconscious Oedipal impulse,as illustrated in the diagram below:-

Figure 17. To illustrate the Oedipus Complex in Headed Records terms



During analysis new, less severe, anxiety Records Ra1, Ra2, may be formed- How? James Strachey talked about the analyst being an ‘auxiliary super-ego’ for the patient, who does not respond punitively to the patient’s most anxiety-arousing fantasies (Strachey 1934). The patient gradually forms mental representations of this non-threatening response and these moderate the degree of anxiety aroused by previously threatening thoughts or impulses, this lesser degree of anxiety taking the form of new Records ‘Ra1’, ‘Ra2’, etc.

b) Greater integration -this suggests that the underlying mechanisms needed to bring this about are state-dependent retrieval of Records and the subsequent formation of new Records. I have summarised the way in which analysis may bring about such state-dependent retrieval by means of the transference to the analyst, the deliberate use of which is an essential and distinctive feature of psychoanalytic therapy.

The major problem which arises here is the role that so-called ‘instinctual drives’ are thought to play in the formation of mental representations and also in their repression from consciousness. It is possible to give an information-processing account of this model, but it is an inaccurate account in allocating a role to instinctual drives in the formation of complex cognition, memory and fantasy. In Headed Records terms, this model requires Records to be formed without the environment providing any of the information which is stored in that Record; the mental representations are assumed to arise spontaneously out of the operation of innate mechanisms, the instinctual drives, an idea for which there is no empirical evidence.

This structural model then requires reality based information to be integrated with 'previously warded-off instinctual derivatives and the memories associated with them' (see Arlow and Brenner above). If there is no evidence for the existence of Records containing information derived directly from instinctual drives, then this structural model cannot give an accurate information-processing account of the ways in which change may be brought about in analysis.

A Kleinian account of change in analysis

Another account of the way in which psychic change comes about in analysis has been offered by Melanie Klein.

Melanie Klein suggested that in earliest infancy perceptions are of parts of people, *part objects*, which are polarised into good or bad. At about four to six months of age, these parts are brought together so that the mother can be perceived as a whole person with good and bad aspects. This was termed the achievement of the 'Depressive position' and could only be reached by the infant's renunciation of the phantasy of the perfect all-satisfying mother (Klein 1935, p267). Klein also argued that a similar process occurs in analysis, where the analyst is initially perceived at times as either totally good or totally bad and she suggested that this arose as a result of projection, whereby the analysand supposedly attributes to the analyst some of the contents of his own mental processes. It might be argued that this is simply a misperception on the analyst's part, influenced by his or her own theoretical attitudes, but there is overwhelming clinical evidence, detailed in case histories, that some analysands do at some phases in analysis perceive their analysts in polarised ways, whether idealising them without any critical capacity or denigrating everything about them

Post-Kleinian developments

Post-Kleinian theorists such as Bion have introduced the idea of a constantly shifting pattern of relationship between part-object and whole-object relationships (Bion 1963). Bion argued that the development of new ways of thinking requires a dismantling of previous views and theories, a fragmenting process which involves a move to the paranoid

-schizoid position (Ps) in which relationships are to part-objects. 'The re-forming of a new set of views and theories is a synthesizing move reminiscent of the depressive position (D)' (Hinshelwood 1989, p387). Creative effort and, by implication, change in analysis, can be viewed as a constant shifting between the paranoid schizoid and depressive positions. Bion described this by means of a shorthand, Ps-D. Bion's account can be described as the coexistence of 'part-object' and whole-object' Records, with a constantly shifting retrieval of one or the other, probably of a state-dependent kind.

This modification of Kleinian theory is in keeping with current views of Kleinian psychoanalysts.

Clinical illustration.

A female patient described relationships between herself and members of her family which showed a pattern of strong uncritical alliances to some members and equally strong enmity to others. Those people she related to positively were always described in ideal terms and those she was hostile to were never given any redeeming features at all. The same pattern emerged in relation to a previous therapist, of whom she was highly critical, and to me whom she initially idealised, constantly telling me how much better I was as a therapist than the previous person she had seen. This idealisation also had seductive features, in that from time to time she seemed to invite me to accept her idealisation without reflecting on it and wanted me to admire her uncritically in return. The whole picture changed when she started to invite me to be her friend and to continue to see her socially after she had finished her therapy; when I treated these invitations analytically, commenting on her sense that she only had a part of me and her wish to know me as a whole person, she clearly felt very rejected. She rapidly turned against me, telling me that I was cruel, clinical and unfeeling and that I was a great disappointment to her. Any attempt to reflect with her on her change of attitude only infuriated her more and she fairly soon decided to end therapy, I had become totally bad, without any redeeming features in her eyes, having initially been uncritically idealised.

Clinical observation of this phenomenon in analysands does not, however, provide support for Klein's view of its developmental origins. However, without accepting the Kleinian account of the developmental origins of the polarised perception of the analyst, her model for the way in which change takes place in analysis can be reformulated in information-processing terms. Firstly, the unconscious phantasies may be re-defined as Records. It is possible to redefine unconscious phantasies as Records because, in the HR model, there is no restriction on the type of information in a Record, so that it may consist of very detailed sensory information which, in the Kleinian model, is assumed to arise directly from instinctual drives to form unconscious phantasy.

Secondly it then becomes apparent that the notion of integration of a Record of a 'good part-object' with a Record of a 'bad part-object' requires careful analysis in Headed Records terms; Records cannot be modified or added to and there is no connection between Records except via the Heading, so two different Records cannot be directly integrated. However, the 'bad' and 'good' Records can provide information for the formation of a new Record of a 'whole' object, with mixed 'good and 'bad' features. At a certain developmental stage an infant might be able to form a Description 'what would an object with 'good' and 'bad' features be like?', although this would be formulated in non-verbal terms, for example by a process of visual imagination; it also requires the capacity to retrieve both 'good' and 'bad' Records at the same time to provide the information needed to form such a Description. These 'good' and 'bad' Records would each, of course, be retrieved by its own distinctive Description, because each Description only matches one Heading and retrieves one Record at a time.

The concept of a 'whole-object' Record suggests that it would be additional to the 'part-object' Records and that the nature of a Description formed would determine which type of Record is retrieved. The goal of analytic therapy would need to be formulated in terms of the creation of new 'whole-object' Records (creating new Records) which would co-exist with 'part-object' Records rather than modifying and integrating the latter in order to replace them with the former. Bion's modification of Kleinian theory is compatible with this model in proposing that polarised 'part-objects' can exist alongside 'whole objects'.

Psychotherapy might create conditions in which the retrieval of 'whole object' rather than 'part-object' Records is facilitated; the patient experiences the analyst as sometimes 'good', sometimes 'bad' and a whole range of emotions, sometimes conflicting and contradictory, are aroused during the course of an analysis. More and more 'whole object' Records, each containing positive and negative representations of the analyst are formed; over time these will become more generalised and implicit in content, a process which I have described in Chapter Two in the section on the formation of 'internal working model' Records. These 'internal working model' Records are the prototype records which organise the patient's perception of the analyst. One of the key features of the Headed Records model is that a Description retrieves the most recent Record whose Heading it matches, so it will become more and more likely that 'whole-object' Records are retrieved. This would be an example of two information-processing mechanisms being necessary to bring about change in analysis; sufficient new 'whole object' Records of the analyst need to be created, a process which goes on in parallel with repeated state-dependent retrieval of 'part-object' Records, the appropriate state being created by the transference. The constant shifting between these two kinds of prototype Records would fit Bion's model of Ps-> D.

However, it is possible to give an information-processing account of the formation of secondary Records in which imagination, fears, wishes and defences alter and distort the information which is stored about external events, without relying on instinctual drive theory as the source of unconscious phantasy. Unconscious fantasy can be accounted for purely through the process of formation of secondary and ultimately 'internal working model' Records which store imaginative information in implicit format and which influence present perception whilst remaining unavailable themselves to conscious awareness even though the Headed Records model does not directly disprove instinctual drive theory, it does offer an alternative account of unconscious phantasy.

A Jungian model for change in analysis

Jung referred to two processes of psychic change, one of which he called 'integration' and the other 'individuation'.

Integration is essentially the process of making unconscious contents conscious and, on the whole, Jung seemed willing to accept a Freudian account of this process, although he emphasised the fact that repression is not the only mechanism by which psychic contents are kept out of consciousness:-

'Modern psychologists, too, tend to regard the unconscious as an ego-less function below the threshold of consciousness. Unlike the philosophers, they tend to derive its subliminal functions from the conscious mind. Janet thinks that there is a certain weakness of consciousness which is unable to hold all the psychic processes together. Freud on the other hand, favours the idea of conscious factors that suppress certain incompatible tendencies. Much can be said for both theories, since there are numerous cases where a weakness of consciousness actually causes certain contents to fall below the threshold or where disagreeable contents are repressed' and:-

'Neurotic contents can be integrated without appreciable injury to the ego, but psychotic contents cannot' (Jung 1939, paras 489-524)

With these statements, Jung seems to accept both dissociation and repression as mechanisms which can keep psychic material out of conscious awareness and his concept of integration could therefore be considered to refer to processes which overcome dissociation and those which overcome repression. State-dependent retrieval and a change in task specification both increase the opportunities for retrieval and are mechanisms for overcoming dissociation; paying conscious attention to secondary Records, which may have been consciously avoided because they have aroused painful emotions, overcomes repression.

The concept of 'Individuation' is more problematic, largely because it can be described by certain Jungians as a spiritual goal for life, rather than as a psychological mechanism:-

‘Individuation is a spiritual undertaking. It is the conscious response to an instinct not recognised in biological thought, an innate and powerful drive towards spiritual realisation and ultimate meaning. As such it involves the whole person, who in the process of emerging into wholeness is progressively transformed- not into something different, but into the true Self: out of its potential and into its reality’.(Young-Eisendrath and Dawson,1997, p99)

However Jung himself was somewhat more precise in his meaning, when using the term ‘individuation’. he said: “I use the term ‘individuation’ to denote the process by which a person becomes a psychological ‘in-dividual’, that is, a separate, indivisible unity or ‘whole’. It is generally assumed that consciousness is the whole of the psychological individual. But knowledge of the phenomena that can only be explained on the hypothesis of unconscious psychic processes makes it doubtful whether the ego and its contents are in fact identical with the ‘whole’”.

and later in the same section:-

“Conscious and unconscious do not make a whole when one of them is suppressed and injured by the other. if they must contend, let it at least be a fair fight with equal rights on both sides. Both are aspects of life. Consciousness should defend its reason and protect itself and the chaotic life of the unconscious should be given the chance of having its way too- as much of it as we can stand..... This, roughly, is what I mean by the individuation process. As the name shows it is a process or course of development arising out of the conflict between the two fundamental psychic facts....

“How the harmonising of conscious and unconscious data is to be undertaken cannot be indicated in the form of a recipe...Out of this union emerge new situations and new conscious attitudes. I have therefore called the union of opposites ‘the transcendent function’. This rounding out of the personality into a whole may well be the goal of any psychotherapy that claims to be more than a mere cure of symptoms” (Jung 1939, paras 489-524).

How can the notion of an equal conflict between conscious and unconscious information, leading to new attitudes be expressed in terms of Headed Records? It is clear that Jung does not simply mean that unconscious content is made conscious, that

repression is overcome. He emphasises the integrative nature of the concept of individuation, the fact that a harmonising process needs to take place between conscious and unconscious material.

New attitudes could be taken to mean that new Records have been formed, with information drawn from pre-existing Records. Jung's model suggests that conscious perceptions and attitudes are organised and given meaning by Records which cannot be consciously accessed and that unconscious material is similarly organised by Records which are available to conscious awareness.

In my previous discussion of the effects of emotion on the Headed Records retrieval cycle, I have established that there are several ways in which Records may be unavailable to conscious awareness. These are:-

- 1) Repression- Secondary Records which give a painful meaning to an event and so arouse anxiety or distress are consciously avoided, although the Primary Record is available to consciousness; an example is that of the patient mentioned above who could recall that she had given a particular seminar a year ago (the Primary Record) but was temporarily unable to recall the fact that the seminar took place just before her admission to hospital for severe depression (the Secondary Record).
- 2) Dissociation (or splitting)-state dependent retrieval.
- 3) Implicit format- the information in the Record is stored in the form of generalised patterns, 'internal working models' rather than as discrete representations of individual events; such representations in implicit format cannot be accessed by explicit memory and can only be indirectly experienced consciously through their effect on attitudes and behaviour in the present.

The concept of individuation would include the effect of psychotherapy on all of these mechanisms; repression would need to be overcome so that conscious attention is paid to unconscious Records, dissociation would be overcome by state-dependent retrieval and Records in implicit format would be re-enacted and experienced in the present, so that the analysand would gradually become aware of their effects.

Jung argued that individuation required what he called 'the transcendent function', which 'arises from the union of conscious and unconscious contents' and that

‘The tendencies of the conscious and the unconscious are the two factors that together make up the transcendent function. It is called ‘transcendent’ because it makes the transition from one attitude to another organically possible without loss of the unconscious’ (Jung, 1958, paras 131 and 145), statements which support my suggestion that, in information-processing terms, new Records have been formed with information drawn from both conscious and unconscious pre-existing Records.

These descriptions of the way in which change can be brought about in analysis are fairly generalised and it is not always clear precisely what Jung meant. However, Jung is more specific in his description of the particular nature of the psychic contents which need to be integrated into consciousness. He described ‘split-off’ clusters of unconscious contents, which he called complexes and which I have described in Chapter Four (Jung 1934, para 200-203). In essence, he was describing dissociated groups of representations accompanied by emotion, so that a particular emotion would be accompanied by a particular pattern of thoughts, attitudes and behaviour. In Headed Records terms, these complexes can be described as a range of Records, cognitive, emotional and behavioural, which are retrieved in a particular emotional state but are not otherwise retrieved- retrieval is state-dependent.

_____ Like Freudian and Kleinian analysts, Jungians place great importance on the transference and the re-experiencing and integration of dissociated mental contents (complexes). ‘Classical’ Jungian analysts see this as much less related to childhood memories and mental representations and tend to regard the content of ‘complexes’ as manifestations of the archetypes which are thought to be innate unconscious structures in the psyche, each of which produces its own pattern of spontaneous mental imagery. Archetypes are seen by many Jungians as biological phenomena which have arisen by the process of natural selection because they enhance the chances of survival (Stevens 1982, p16-18). However, there is a tendency to see archetypes as specific ‘collective’ mental imagery, to fail to differentiate between the ‘archetype- as-such’ and the imagery which they may give rise to.

This model has striking theoretical similarities to the Kleinian account of innate unconscious phantasy derived from instinctual drives. Both concepts, of unconscious phantasy and of a collective unconscious, objectify mental processing and attempt to turn it into innate mental structures such as instinctual drives or archetypes, which are then considered to be real entities rather than symbolic descriptions. Both models assume that these postulated innate structures can give rise to complex cognition and emotion independently of any environmental input. One significant difference is that Klein eventually thought that there were two drives, the life and death instincts, which she thought gave rise to polarised unconscious phantasy of an extreme positive or negative nature, whereas in the Jungian model, there are thought to be a number of constellations of innate structures, the archetypes, each of which may produce characteristic imagery.

In this model change in analysis is brought about by integrating dissociated 'archetypal' fantasy with information stored about personal experience. In Heated Records terms it gives rise to the same problem as the one I have explored in relation to the Freudian structural and the Kleinian models, namely that it requires some Records to be formed which contain mental representations which have arisen directly out of some innate 'archetypal' process. There is no experimental evidence that Records are formed in this way and it is a model which is increasingly shown to be incompatible with developmental accounts of human cognitive processes.

A 'developmental' Jungian model of the complex

On the other hand 'developmental' Jungians, mainly based in London, regard personal experience as making an essential contribution to the formation of mental contents. Real experiences as a baby, in childhood and in adult life provide the material which may be taken in and stored as information in the psyche; Michael Fordham made clear that this is a learning process and used the terms deintegration and reintegration to describe this interaction of internal and external reality, describing these terms in the following way:-

'In essence, deintegration and reintegration describe a fluctuating state of learning in which the infant opens itself to new experiences and then withdraws in order to

reintegrate and consolidate those experiences. During a deintegrative activity, the infant maintains continuity with the main body of the self (or its centre) while venturing into the external world to accumulate experience in motor action and sensory stimulation' (Fordham 1989).

Jung described the phenomenon of a cluster of dissociated representations, grouped together by a common emotion, as a complex, as I have explained above. A 'developmental' Jungian account of a complex would require that the mental representations in a complex should be formed as a result of real experience, rather than arising spontaneously from some innate mechanism. In this model there are therefore many similarities between the concept of the complex and that of the internal working model; both constitute unconscious patterns of expectation which organise present perception whilst remaining outside awareness themselves.

Complexes can be regarded as dissociated 'internal working model' Records, which I have already described as being stored in implicit format. In analysis internal working model Records do not themselves become directly available to conscious attention; such Records are in implicit format and so they pattern conscious awareness rather than being the focus of it themselves

In the 'developmental' Jungian model, change in analysis begins with the patient's re-enactment of patterns of thought, emotion and behaviour and the analyst's interpretations of these in terms of the underlying internal working models. This process provides information for new Records to be formed which contain representations, in 'explicit' format, of the analytic experience itself, including the relationship with the analyst. They provide information from which new 'internal working model' Records can be formed.

An attachment/ mental representational model of change in analysis

All of the theoretical models investigated so far have evolved and changed in recent years. In 'What do Psychoanalysts want?', Sandler and Dreher demonstrate, through a historical review of the psychoanalytic literature on the subject of aims, that the classical Freudian concept of the transference neurosis has been challenged and for many analysts

is regarded as at best only one variety of transference. They say that 'A result of the critical evaluation of the concept is that a long-standing 'officially' stated aim of psychoanalysis, namely the aim of resolving the patient's transference *neurosis*, has to be questioned'. (Sandler and Dreher 1996, p102)

They go on to explore the increasing diversity of aims formulated by the varying psychoanalytic schools and note that, paradoxically, the greater variety of theoretical formulations of aims has been accompanied by a surprising degree of agreement amongst analysts as to the evaluation of the analysand's progress and a degree of underlying similarity of the different approaches clinically. Weinshel (1990) argued that one of the areas of agreement has been a gradual movement towards a more modest conceptualisation of psychoanalysis, whose aims have become increasingly realistic and more in harmony with clinical observations. Sandler and Dreher illustrate this with a summary of the range of the goals of contemporary psychoanalysis:-

'Psychoanalytic 'cures' are rarely spoken of. Psychic conflict cannot be completely eliminated, nor is the idea maintained that a 'complete' analysis is possible. Transferences cannot be completely eliminated or resolved. While insight is aimed for, it is no longer regarded as an absolutely necessary requirement, without which the analysis cannot proceed. The retrieval of repressed childhood memories is no longer the main aim of the analytic work. On the other hand, over the years, analysis is now regarded as aiming to bring about intrapsychic changes which would result in improved resolution of the patient's main conflicts. While analyses are never complete, and transference can never be completely resolved, the analysis can still be seen as successful. Instead of aiming at insight, attainment of the capacity for self-observation is to be aimed for'. (Sandler and Dreher 1996, p114-115)

However, as my analysis so far of Freudian and Kleinian models makes clear, instinctual drives are still thought to play a key role in the formation of mental representations by all Kleinian and by many Freudian analysts. I have also indicated that Jungian metapsychology demonstrates a similar strand of belief in innate mental structures with complex cognitive content, the archetypes. The Kleinian concept of unconscious phantasy based on instinctual drives and the Jungian concept of the

collective unconscious based on archetypes both falsely assume that complex mental representations may arise directly from innate unconscious structures; the role of actual events and experiences in forming mental representations is given second place and this crucially determines the analyst's view of the way in which change in analysis may be brought about.

Clinical illustration.

A patient who has started analysis with me had previously been seen for about six months by a Kleinian analyst who had warned him when he started to see him that he would be working with him on a trial basis initially, because the analyst felt that the patient was so psychologically sick that he might feel unable to work at the intensity and for the 10 or 15 years that analyst thought would be needed to bring about lasting psychological change. The reason for the analyst taking this view was that the patient had confessed that he had for many years indulged in certain sexual practises, accompanied by sexual fantasies, of which he was deeply ashamed and which he felt had horrified and disgusted the Kleinian analyst. From my patient's description it seems as though his perception of the analyst's reaction may have been accurate because he apparently told the patient that he was so perverted that he was unsuitable to undertake any mental health placements which he was planning as part of his own training in a field of mental health and that if he attempted to ignore this advice he would contact the placement organisers and inform them that he was unsuitable to work with patients. He did eventually decide that the patient was beyond his capacity to help him and terminated the analysis after six months. He made it clear to the patient that he regarded his sexual practices and fantasies as evidence of a 'violently anti-developmental attitude' and from other remarks that he quoted, it was clear that he regarded his sexual activities as a manifestation of extreme unconscious innate sadistic phantasies arising from the death instinct ('ph' is used to denote this specific Kleinian use of the word phantasy). In this Kleinian model, any other positive aspects to his life could be regarded as irrelevant in the face of such an (apparently) powerful innate destructive instinctual drive which a Kleinian would regard as unmodifiable precisely because it is regarded as innate.

He then started in analysis with me, feeling humiliated and rejected by his experience with the previous analyst; it had clearly been a traumatising experience to be told he was beyond help and to experience his real disgust towards him. He finally summoned enough courage to tell me that the sexual practises consisted of the infliction of a certain amount of pain on himself, particularly in the genital area, but without any degree of lasting injury or mutilation and that the fantasies were of sexual activity between one woman who enjoyed being sexually dominated and abused and another woman who dominated her. My patient felt that he was an observer in these fantasies but identified with the submissive woman's fantasied enjoyment of the experience. My impression was therefore that there was a mild degree of perversion in these sexual activities but that they were not strikingly abnormal. It is, of course, possible that he did not tell me the full story, but he seemed so convinced that these practices really were appalling that I think he did tell me the worst.

My first impression was to see them as a manifestation of an avoidant pattern of attachment, in that they effectively prevented any real sexual intimacy with his wife because he was so preoccupied with his fantasies during the sexual act that he could not relate to her lovingly and she realised that his mind was elsewhere; the fantasies also demonstrate a complex pattern of wish-fulfilment and defences, in which being dominated is an experience that can be enjoyed without pain in spite of humiliation. He himself had experienced a childhood of humiliation and sadistic abuse from his father who resented him and was in constant competition with him. An important aspect of his fantasies is that they represent his wish to be really desired and at the same time his ambivalence about this, in the image of total submission combined with enjoyment and humiliation. Some of this reflects his experience of his mother who seems to have been intrusive and seductively manipulative. From an attachment theory perspective, this man is therefore far from untreatable, although it will be slow work to help him to identify his attachment needs and fears and to help him to see that his enactment of them sexually is a way of avoiding intense emotion in an intimate relationship in which he relates fully to another person.

The key to such work is in the transference to me as his analyst; the gradual recognition of the internal working models which pattern his expectations of me are already becoming apparent, in that he constantly seems to expect and almost invite humiliation from me. He lies on the couch with his arm nearest to me held up defensively on a cushion placed so that his face is completely hidden and as though he is warding off an expected physical assault from me. He always offers the worst possible view of his own actions and behaviour.

In this attachment theory model, change will come about as new 'internal working models' are gradually formed, which contain more positive self-images and involve fewer mechanisms for warding off intimacy. It is real experience, real psychological and physical trauma, not instinctual drives, which has produced this deeply defensive and avoidant pattern of attitude and behaviour; it is real interpersonal experience which can gradually make these patterns conscious as they are re-experienced and can also provide new interpersonal experiences which gradually form new internal working models.

This clinical description highlights the fact that attachment theory is the only psychodynamic model in which concepts of innate structures such as archetypes or instinctual drives are finally discarded. Whilst I have demonstrated that it is possible to give an information processing account of the ways change might be brought about in an analysis conducted according to instinctual drive theory, the incompatibility of instinctual drive theory with contemporary developmental accounts of cognitive functioning remains. There is accumulating evidence to suggest that mental representations do not arise directly out of innate drives or structures and that the environment always provide the material out of which mental representations are formed (Holt 1989 p129-140). In a wide ranging review of research evidence, Bucci concludes:-

'The assumption of a unified process that is unconscious, nonverbal, associated with regressed or pathological forms, or with altered states, and characterized by contents of wish fulfilment, that is with the features that Freud associated with the primary process, is essentially disconfirmed by these research findings' (Bucci 1997, p106)

It is therefore an attachment theory account which is most useful in this attempt to integrate psychodynamic and cognitive science models of the effect of emotion on memory. I have already discussed some of the key concepts of attachment theory in relation to Headed Records and I will now describe the ways in which change may be brought about in analysis, bringing a Headed records model to bear on an attachment theory account of this process.

The two key ways in which change is thought to arise in the attachment model are:-

- an increase in reflective function.

- a change from internal working models which give rise to insecure attachments and negative self-representations to internal working models which provide the mental representational basis for secure attachments and positive self-representations.

In the analytic situation, the patient reveals considerable personal information, often of an emotionally painful nature and often reflecting negative self-perceptions; this disclosure, together with the lack of objective information about the analyst's personality, attitudes and interests, leads the patient to draw on 'internal working model' Records of his/her childhood patterns of relationship to parents in order to give meaning to his/ her perceptions of the analyst. Thus, a patient whose pattern of attachments was insecure in childhood will bring the same pattern of insecure attachments to the analytic relationship and will start to relate to the analyst in the same way as he/she did to his/her parents. This may also form the necessary emotional state which brings about state-dependent retrieval of specific autobiographical memories, with accompanying emotions. These are secondary 'explicit' Records (see Headed Records, Chapter Two) which function in analysis as illustrations of the interpersonal patterns of relationship which are actively re-lived in the analysis as secondary 'internal working model' Records are retrieved. The secondary 'explicit' Records may also provide useful historical evidence for the analyst which can enable her to identify more accurately the pattern of interpersonal relationship with the patient which she experiences in the analysis.

Peter Fonagy has argued that it is not the retrieval of these historical Records (in explicit format) which brings about change in analysis, but rather that ‘Therapeutic work needs to focus on helping the patient identify regular patterns of behaviour and phantasy based on childhood fantasy and experience, for which autobiographical memory can provide no explanation’; he argues that implicit memory stores patterns of relating as psychic structures organising behaviour saying ‘it is these structures and not the events that give rise to them that need to be the focus of psychoanalytic work’ (Fonagy 1999).

In Headed Records terms, Fonagy’s ideas suggest that autobiographical Records, containing information in explicit format, are illustrative of past experiences but that the retrieval of, and conscious attention to these ‘explicit’ Records does not in itself bring about change; instead it is the retrieval of ‘internal working model’ Records and the formation of new internal working model Records which brings about intrapsychic change.

This differs from Conway (1990) who has conducted experiments which demonstrate that ‘emotion concepts are represented in memory by exemplars and the exemplars are primarily autobiographical memories of emotional experiences’. However Conway’s experiments involved verbal reporting and could only demonstrate what is stored in ‘explicit’ or ‘declarative’ memory; they did not investigate the role of implicit memory in storing information about past emotional experience.

I would suggest that the frequent rehearsal of autobiographical memories in analysis does play a key part in bringing about change in analysis, but not in the way that Freud initially envisaged, through the overcoming of repression. Instead I would suggest that the recollection and frequent description in analysis of an increasing number of autobiographical memories allows them to be compared and integrated with each other into a meaningful narrative; this frequently requires the capacity to imagine the state of mind and intentions of the people involved in the past events which are being described, in order to render them meaningful (most stories told about the past in analysis are about relationships). The analyst assists the patient in this imaginative process (‘what do you think might have been going on in your mother/father’s mind when she/he did that?’) and

so the recollection of autobiographical memories contributes towards the development of reflective function.

Increase in reflective function.

One of the purposes of analysis has been defined by Sandler as an 'increase in the capacity for self-observation and self-understanding (Sandler and Dreher, 1996, p115). In attachment theory, a variety of terms have been used, based on the concept of a 'theory of mind' (Baron-Cohen 1993). The capacity to reflect on one's own and other people's mental processes has also been called 'meta-cognitive monitoring', mentalising and most recently the generally agreed term seems to be 'reflective function'.

A Headed Records account of increase in reflective function can be given. Each time that an autobiographical memory is talked about in an analytic session, the Record of that event, in explicit format, is retrieved and becomes the focus for conscious attention. The first time this happens it may be the primary Record of the event which is retrieved, or it may be secondary Records which are retrieved if the patient has already spent quite a lot of time thinking about the event.

However in analysis the memory is usually used as part of a process of finding meaningful patterns in past experience. The intentions of people involved in a past event, the way their behaviour may illustrate their attitudes both on that and other occasions, form an important part of analytic work. Each time this is explored in the analytic sessions, new secondary Records are formed, containing information drawn from the primary and earlier secondary Records and also including information about the reflective work which has gone on in the analysis.

Representations of the communications of both patient and analyst which demonstrate reflective function will be incorporated into secondary Records which are continuously being formed in the analysis. Representations of the imagined mental functioning of the people involved in the past event will also be incorporated into secondary Records. Eventually, new 'working model' secondary Records will be formed, containing schematised information about self-other relationships as mutually reflective. These Records provide the basis for an increase in reflective function which analysis may bring about because these new

‘working model’ Records contain representations of mental processes such as thoughts, feelings and intentions (one’s own and other people’s) as well as representations of physical events and interactions.

Change in internal working models

Research on patients undergoing psychotherapy has shown that one measurable change which takes place is that there is a significant shift from insecure to secure patterns of attachment in the patient population. One tool which has been used to identify such changes is the Adult Attachment Interview (Fonagy, 1995, p267). Information, whether in the form of a perception, a memory or a fantasy, is organised by prototype Records which are retrieved and which give meaning to that information. The AAI reflects the ‘internal working model’ prototype Records which organise patterns of attachment.

In analysis, new secondary Records are constantly formed which allow new meaning to be given to information; state-dependent retrieval, changes in task specification and paying conscious attention to previously repressed Records increase the information available to be included in these new Records being formed. These mechanisms have been described in detail in the previous chapter.

If the secondary explicit Records being formed in analysis have a consistent type of content, the information in these Records may be drawn on to form a secondary Record in implicit format, containing information in a schematized and generalized form, reflecting the patterns of experience common to all the relevant explicit Records. In the previous paragraph I described how the formation of new ‘internal working model’ Records gives an information-processing account of increase in reflective function and the same process underpins the shift during therapy from insecure to secure patterns of attachment. The consistency of the analyst’s responses to the patient, the sensitive attunement and reflective function of the analyst all contribute to a pattern of relationship which the patient can experience as secure and reliable and in which he can become increasingly confident of his own worth. These repeated self-other experiences, initially stored in secondary ‘explicit’ Records contribute to the formation of secondary ‘internal working model’ Records which contain generalized representations of secure patterns of

attachment, derived from the repeated analytic experiences. These 'internal working model' Records in implicit format can then act as prototype Records which organize the perception and experience of new relationships, so contributing to secure patterns of attachment (Stern 1998). These internal working models and their associated secure patterns of attachment are reflected in the responses given on the Adult Attachment Interview.

One of the key features of borderline personality disorder, which is discussed in the next chapter, is that there are multiple, but inconsistent internal working models of self-other relationships, leading to marked swings and inconsistency in attitudes, moods and behaviour. Borderline patients seem to have experienced such inconsistent and unpredictable care in childhood that they have not had the opportunity to develop consistent internal working models of relationships. For example a child may have experienced a parent as being in a very anxious and emotionally needy state on some occasions and then cold rejecting or possibly violent at other times; this might particularly be the case when a parent has been misusing drugs or alcohol. (Fonagy et al 1996, Patrick, Hobson, Castle, Howard and Maughan 1994)

Conclusions and evaluation

As a result of examining the major psychodynamic theories which attempt to account for psychological change in the analytic process, I have shown that the information-processing which is implied by each of these theories can be clarified, using the Headed Records model.

As the previous chapter has shown, the three processes whereby change may be brought about in analysis are:-

-increasing the opportunities for retrieval by either state-dependent retrieval or by altering the task specification, both of which overcome dissociative states.

- paying conscious attention to the information in certain Records which overcomes repression.

-forming new Records, partly as a result of the two previous processes which make information available for inclusion in new Records.

In this chapter I have demonstrated that all psychodynamic models for change in analysis can be more precisely defined in terms of the three mechanisms suggested by the Headed Records model; their problematic aspects can also be made more apparent when analysed in information-processing terms.

An analysis of key aspects of classical Freudian theory in Headed Records terms demonstrates that there are other ways of conceptualizing infantile amnesia and the Oedipus complex and that there may not be any direct information-processing link between these two clinical phenomena; the working through of Oedipal fantasy in childhood is likely to depend on and develop in parallel with the child's increasing capacity for reflective function, the ability to attribute intentions, thoughts and emotions to himself and to others. On the other hand, an information-processing analysis of infantile amnesia suggests that it results from the failure of a match between a Description which includes reflective function information and the Heading of a Record which was formed before the capacity for reflective function developed. Whilst both infantile amnesia and the development of the Oedipus complex therefore depend on reflective function, infantile amnesia can be seen as a retrieval failure, whereas the development of the Oedipus complex can be described as the formation of new 'internal working model' Records which reflect the child's growing awareness of and fantasy about their parents' emotional and sexual relationship and attitudes.

In Kleinian theory, new 'whole object' Records may be formed which contain conflicting information about the 'object' and in that sense are more complex Records than earlier 'part-object' Records, each of which only contains information about 'good' or 'bad' aspects of the object. In the Headed Records model, the earlier Records would continue to exist, unmodified, alongside new Records.

In Jungian theory, the models for change in analysis lack precision and an information-processing analysis can clarify concepts such as individuation in Headed Records terms. Identifying the similarities between Jung's concept of the complex and that of the internal working model provides the basis for a better understanding of Jungian models for the process of change in analysis.

It may be the case, however, that many analysts, whether Freudian, Kleinian or Jungian, would remain critical of this attempt to give an information-processing account of their respective theories for change in analysis; the implication of this investigation has been that all theories contain valuable accounts of the nature of change in analysis and that no one theory can be demonstrated to be more accurate or superior to any other. Furthermore, the view that I put forward throughout this thesis is that the accuracy of psychodynamic models for change in analysis depends upon the extent to which they can be described in information-processing terms; analysts and psychotherapists might argue that the information-processing models which I have described here are not necessarily any more accurate than psychodynamic theories which have been formulated on the basis of actual clinical experience. Much of this information-processing account of the effect of emotion on memory lacks empirical evidence as yet to support it, even though there is experimental evidence for the Headed Records model itself.

I have addressed these criticisms in the conclusions and evaluation section of Chapter Two, pointing out that clinical material can be used as evidence for many different theories, depending on the way a particular analyst chooses to structure a case history. In relation to the argument that there is no more empirical evidence to support an information-processing account of change in analysis than there is for psychodynamic models for such change, the model I am offering is a theoretical extension of the Headed Records model which has a sound empirical foundation; psychodynamic models as yet lack such an experimental basis.

I have also demonstrated that all psychodynamic models can be more precise if described in terms of the Headed Records model, in that the actual mechanism for change can be seen to have three components and it is possible to analyse which mechanism may be active at any particular point in analytic work. Understanding this may help analysts to modify their technique accordingly; for example, a patient suffering intense flashbacks because the analytic relationship has resulted in state-dependent retrieval of Records of an abusive parent may need the analyst to facilitate the formation of new Records containing information that the analyst is a safe person to be with. The analyst might do this by a deliberate highlighting of the differences between his/herself and the abusive

parent figure. On the other hand, a patient who has repressed childhood memories of his or her relationship with parents may need an analytic experience in which conscious attention can be paid to the ways in which the patient experiences the analyst as similar to the parents. In any one analysis there is likely to be a frequent shifting from one mechanism to another.

I have shown that it is possible to give a clear information-processing account of changes brought about in analysis without relying on any concept of innate complex cognitions of the kind proposed in instinctual drive theory and in classical Jungian archetypal theory. However, I have not been able to use the Headed Records account of changes in analysis to establish whether complex innate cognition makes any contribution to psychological change in analysis; I have been able to offer an alternative account of such change but the Headed Records model cannot in itself demonstrate or refute the existence of unconscious fantasy arising directly from instinctual drives or from archetypes. It can only show that the concept of innate fantasy is not necessary in an information-processing model for change in analysis.

So far this thesis has taken theoretical concepts as a starting point and has used clinical material for illustrative purposes. In the next chapter I shall focus on a chosen pattern of clinical symptomatology and analyse this clinical picture in terms of the underlying pattern of information-processing, based on the effect of emotion on the Headed Records retrieval cycle. The information-processing picture which emerges from this analysis will then be discussed in terms of its implications for clinical practice and the kinds of interventions which may or may not be therapeutically effective with this kind of patient.

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Chapter Seven

An examination of borderline personality disorder in terms of the Headed Records model.

In this thesis so far, I have only used clinical examples to illustrate the theoretical analysis of the effect of emotion on the Headed Records retrieval cycle. I now want to take clinical phenomena as a starting point and attempt to answer the question:-

Can the theoretical model I have elaborated help our understanding of borderline personality disorder, by showing the information processing which underlies this particular pattern of clinical symptoms?

I have chosen borderline personality disorder for this investigation, because one central feature shown by patients with this diagnosis is an impaired ability to process representations of mental functioning itself (Fonagy 1991,1999). Such patients not only have painful memories of their past, in the form of mental representations, to which they may consciously and unconsciously avoid paying conscious attention, but the processing by which certain information is stored, retrieved and consciously related to has also become distorted. The information affected by these distortions is that concerned with personal identity, the mental and emotional functioning of oneself and others and relationships (emotional attachments).

This clinical picture is therefore ideally suited to study in terms of a theoretical model, that of Headed Records, which allows a precise information-processing account of the ways in which emotion may alter and distort the retrieval of Records containing such representations.

I will start with a description of the diagnostic profile of BPD, as defined by DSM 1V criteria (American Psychiatric Association 1994). I will then describe the clinical accounts given by psychiatrists and psychoanalysts who have been working to understand this clinical picture.

I will then describe some of the distortions in the mental processing which may underlie the clinical picture, drawing on evidence from research based on attachment theory. I

will then relate these clinical phenomena to the Headed Records to attempt to identify the disturbances in the retrieval cycle which may correspond to the clinical description.

Borderline Personality Disorder.

The psychiatric model of borderline personality disorder offers a descriptive account of symptomatology with a general rather than a specific account of causative factors, suggesting that preexisting biological vulnerability (in the form of impulsivity and affective instability) is amplified by psychological and social stressors, particularly trauma such as sexual abuse or early separation from parents.

As defined in DSM-IV, the central features are:-

impulsivity,

affective instability

unstable self-image, aims and preferences,

chronic feelings of emptiness

tendency to become involved in intense and unstable relationships

efforts to avoid real or imagined abandonment.

self-destructive acts or threats are common, often in response to a fear of

abandonment

transient psychotic like episodes or dissociative states may occur in response to

stress.

DSM-IV states that 2% of the general population and 20% of psychiatric in-patients suffer from BPD, although British authors regard this as too high a figure and suggest that Borderline Personality Disorder is in danger of being used indiscriminately as a synonym for personality disorder (Freeman 1994). Outcome studies have demonstrated that there is no predictive value in over-refined classification of personality disorder into sub-categories (Tyrrer et al 1990). However, Rutter suggested that it may add to our understanding of personality disorder if we group together those diagnostic categories whose abnormality derives from a pervasive difficulty in establishing and maintaining adequate social relationships, including the borderline, the antisocial, the histrionic and

the narcissistic (Rutter 1987). Fonagy and Higgit point out that the term 'borderline' is often used in designating this cluster of patients (Fonagy and Higgit 1989).

Gunderson and Singer look at the history of the diagnosis of borderline personality disorder, pointing out the continuing disagreement over its definition and whether it really does constitute a diagnosis which can be distinguished from schizophrenia (Gunderson and Singer 1975). They also point out that there is no clear agreement amongst psychiatrists as to whether the term 'borderline' refers to a patient, state, personality organisation, character, pattern, schizophrenia, condition or syndrome. A further source of confusion which Gunderson and Singer highlight is that there is little communication between the different professional groups studying borderline personality disorder, psychologists, psychiatrists and psychoanalysts, saying that 'the independence of these three groups no doubt grows out of a traditional suspicion each group holds for each other's methodologies. In any event, the psychologist tends to focus on intrapsychic structure, the psychoanalyst upon theory and therapy, and the general psychiatrist upon diagnosis, prognosis, and outcome'.

Gunderson and Singer attempt to bring some clarity to this confusion by reviewing all three areas of literature, the psychiatric, the psychological and the psychoanalytic. They conclude that there are six features which most authors, across the professional spectrum, identify as characteristic of most borderline patients and these are:-

1. The presence of intense affect, usually of a strongly hostile or depressed nature.
2. A history of impulsive behaviour, which may take many forms but is usually self-destructive, such as self-mutilation or drug dependency.
3. Social adaptiveness often based on a rapid and superficial identification with others but which masks an underlying disturbed identity.
4. Brief psychotic experiences, with a paranoid quality. The potential for such experiences is constantly present and may emerge in unstructured situations or relationships.
5. Psychological testing patterns which show bizarre, illogical or primitive responses on unstructured tests such as the Rorschach.

6. Interpersonal relationships which vacillate between transient superficiality and intense dependence accompanied by devaluation, manipulation and demandingness.

In a later paper, Gunderson et al describe a semi-structured diagnostic interview which they have developed to provide a reliable method for researchers and clinicians interested in identifying the syndrome of borderline personality disorder. (Gunderson et al. 1981). This interview continues Gunderson's attempt to integrate different professional perspectives on borderline patients; it focuses on five areas of functioning that most characterise these patients, social adaptation, impulse/action patterns, affects, psychosis and interpersonal relations. There is a heavy emphasis on historical information 'in keeping with the view that the borderline diagnosis represents enduring behaviour patterns or character structure, rather than a symptomatic reaction.'

This emphasis on an enduring pattern of attitudes and behaviour underlies psychiatric models of the kind preferred by Gunderson, who considers borderline personality to be a category of personality disorder rather than an atypical variant of affective psychoses or schizophrenia (Gunderson 1984, p13). Psychoanalysts such as Kernberg also emphasize the persistent nature of borderline phenomena, although he prefers to see this as a form of personality organisation as I discuss below. Both the psychiatric and psychoanalytic accounts of BPD emphasize the pattern of stable instability, meaning that the instability is a consistent and predictable feature of borderline functioning.

Psychoanalytic accounts of borderline personality disorder

Psychoanalytic models of borderline personality disorder focus much more on aetiological factors, exploring the kinds of object relations which characterise borderline functioning. One of the most influential psychoanalytic theoreticians in this area is Otto Kernberg, who considers borderline personality disorder to be a description of a level of psychic functioning described as borderline personality organisation, the key features of which are 'identity diffusion' combined with intact reality testing; intact reality testing is the key factor differentiating borderline from psychotic functioning Kernberg (1984).

By 'identity diffusion' Kernberg means that some mental representations of self and significant others are dissociated from other such representations; such a person will have multiple and contradictory self-perceptions, show inconsistent and contradictory behaviour and have 'shallow, flat, impoverished perceptions of others' (Kernberg 1984, p12). He suggests that, in particular, 'good' and 'bad' images or representations of self and other have not been integrated into a comprehensive internal whole, but remain separate and contradictory. Kernberg presumes that 'this failure to integrate 'good' and 'bad' aspects of the reality of self and others is due to the predominance of severe early aggression activated in these patients: Dissociation of 'good' self-plus-object representations from 'bad' self-plus-object representations in effect protects love and goodness from overriding hate and badness' (Kernberg 1984, p12-13).

The key feature here is the lack of emotional integration or consistency because self-object- affect triads of a positive nature are dissociated from self-object affect triads of a negative nature; positive emotional experiences will retrieve self-object affect triads in which positive representations of self and other are combined with pleasant emotions, whilst experiences which activate negative emotions will retrieve negative self-object-affect triads

As Perlow points out, Kernberg does not explain why he assumes that mental representations, formed by the process of introjection should be organised on the basis of their affective quality, particularly their positive or negative affective quality; Kernberg assumes that no special mechanism is needed to effect this separation and that it is the natural mode of organisation of representations, under the influence of libidinal and aggressive drives (Perlow 1995, p105). Kernberg states explicitly that he regards Freud's dual instinct theory as the basis for the organisation of affects, writing that 'the model I am proposing conceives of the self as invested with both libidinal and aggressive drive derivatives integrated in the context of the integration of their component self-representations. This model solves the puzzling question of how psychic-structure formation, self development, and instinctual development correlate' (Kernberg 1984, p234).

Kernberg does acknowledge some of the controversial issues in psychoanalytic theory concerning the origin of internal objects and the developmental processes contributing to object relations, controversies arising from developmental and neuropsychological research which has demonstrated the infant's capacity to communicate to its mother and the key role of affect in this process. (Stern 1985, Lichtenberg 1981).

However Kernberg dismisses the possibility that internal objects mainly reflect the infant's actual experience of its mother and asserts that polarised affects, love and hate, organise and structure all early experience and form the basis for polarised 'good' and 'bad' internal objects:- 'Affects, operating as the earliest motivational system, are therefore intimately linked with the fixation by memory of an internalised world of object relations' (Kernberg 1984, p235).

The flaw which I perceive in Kernberg's logic here is that he draws unjustified conclusions from research which shows the limbic cortex stores affective memory and that both the cognitive and affective aspects of past experience can be reactivated. His unquestioned but unsubstantiated assumption is that libidinal drive integrates pleasurable affective memory structures; aggressive drive is assumed to integrate unpleasurable affective memory structures. The two sets of memory structures are assumed to build up separately, so forming two unconnected, parallel series of gratifying or frustrating experiences and their corresponding 'good' and 'bad' internal objects. This then provides the theoretical basis for his concept of identity diffusion in which the two kinds of internal objects and their corresponding self-other representations are poorly integrated and contradictory.

Other analysts build on this model, seeing projective identification as the central mechanism underlying borderline functioning, describing an analytic patient for whom the analytic session becomes a 'place where he could evacuate the bad aspects of himself and his tormenting and hated internal objects' (Gabbard 1991, p628).

In contrast, Peter Fonagy does not regard drives as the significant issue in the development of abnormalities in the processing of mental representations in borderline patients. His view is that insufficiently precise terms such as borderline should be replaced by concepts which correspond more exactly to models of mental function (Fonagy 1982).

Instead of Kernberg's assumption that the root cause of borderline states is the intensity of destructive and aggressive impulses, coupled with a relative weakness of the ego structures available to handle them, Fonagy describes a transactional development model; 'infant temperament and negative parental reaction are seen as leading to avoidant attachment, which in its turn may bring about maternal withdrawal, further aggressive attention seeking, impulsive and unsystematic disciplinary practices, oppositional behaviour and ultimately aggression' (Fonagy 1999)

He offers new ways of thinking about concepts such as projective identification and other pathological organisations shown in borderline functioning, relating these to the patients' difficulty in taking account of their own and others' mental states as the basis for understanding and predicting behaviour. This is the capacity to have a 'theory of mind', the 'collection of intuitive ideas which all of us possess concerning mental functioning and the nature of perceptual experience, memory, beliefs, attributions, intentions, emotions and desires. Understanding and correctly anticipating the other's expectations and ideas is far more important than appreciating the physical circumstances and mechanical aspects of human interaction' (Fonagy 1991). The reflective capacity to attribute beliefs, intentions and desires to another person develops at about the age of 3 1/2 onwards, becoming fully developed at about 6 years of age, but Fonagy et al. suggest that this process depends upon the availability of parent figures who themselves have this capacity to empathise with and imagine what might be going on in the child's mind (Fonagy et al 1995). Such parents are able to respond to a child's intentions and wishes, recognising that the child's behaviour reflects and communicates these. Through this process the child comes to understand that intentions and wishes are causal in the particular sense that they have an emotional impact on another person and thus that they are real (I have discussed the relevant developmental aspects, with particular reference to the evidence for the age at which 'theory of mind' develops in chapter 4) . Parents whose own reflective capacity is impaired will not to respond appropriately to the child's communications and do not provide the reflective interpersonal experiences the child needs to develop an understanding of his own mental states.

There may also be a defensive denial of an awareness of the thoughts and feelings of others in children who have been subject to emotional, physical or sexual trauma. Fonagy suggests that the development of a theory of mind depends upon a growing awareness of the mental state of one's primary attachment figures and that it is therefore essential that those figures are sufficiently thoughtful and benign.- 'Individuals whose primary objects are unloving and cruel may find the contemplation of the contents of the mind of the object unbearable'. In consequence, the representation of mental events, of the child's own and others' mental states, does not develop.

Fonagy then elaborates on the implications of this for understanding the abnormalities in mental processing which underlie borderline personality disorder; without the capacity to conceive of the contents of one's own, as well as the object's mind, the borderline child or adult may be protected from the intolerable anxiety and pain of experiencing himself as the object of hostile intentions from those he loves and depends on. The price is that he is incapable of self-reflection and of attributing meaning to his own feelings and other people's behaviour, which can only be directly experienced and cannot be reflected upon or thought about. Fonagy originally described this as a failure of the capacity to mentalise and more recently as a failure of reflective function and whilst he does not claim that this provides a complete explanation for all aspects of borderline personality disorder, he does show that it may contribute to our understanding of the symptomatology (Fonagy 1991, Fonagy et al.1995).

He suggests that in borderline functioning, the failure of reflective function is self-imposed and partial, brought about by 'a defensive disavowal of the mental existence (in terms of psychic functioning) of the object. Such disavowal is undertaken in the face of anticipation of unbearable psychic pain and *consists of the obliteration of the significance of things whilst retaining their perception*' (my italics).

The 'significance of things' consists of the information which is stored in memory and which, when retrieved, provides a framework which organises and gives meaning to a current event and current perceptions. In the Headed Records model, this information is retrieved when current experiences form a Description which which matches a Heading so that the Record is then retrieved and may be brought to conscious

attention. In order to obliterate the significance of things, this process of matching and retrieval must be altered in some way and in the next section I will examine the particular pattern of changes to the retrieval cycle which might account for some of the clinical features of borderline personality disorder.

A central feature of Fonagy's model is that the child's capacity for reflective function depends upon the 'internalisation' of the parents' states of mind 'not simply in terms of the products of their mental functioning but also in terms of the processes which give rise to them'

In information-processing terms, internalisation does not mean that some psychological material actually passes from one person to another, although it often seems as though psychoanalytic psychotherapists believe that it does; even the term 'internal object' rather carries the connotation that some foreign body has been incorporated into one person's psyche from another's. Internalisation is a description of the consequences of interpersonal experiences, but it is an account of the information-processing which goes on within one person's mind as a result of that two-person interaction.

Repeated experiences of a child's key attachment figures results in the formation of schematised patterns of interpersonal interaction, patterns which are stored in implicit format, which is not accessible to conscious awareness (Fonagy 1999). This schematised record of interpersonal experiences is what is meant by 'internalisation'.

I have used the term 'internalisation', having explained that this does not mean that any psychological material or process is inserted into one person's mind from another's. This distinguishes the concept from Bion's description of the process whereby the 'mother's mind needs to be in a state of calm receptiveness to take in the infant's own feelings and give them meaning. The idea is that the infant will, through projective identification, insert into the mother's mind a state of anxiety and terror which he is unable to make sense of and which is felt to be intolerable' (Hinshelwood 1989, p404). The maternal reverie makes sense of the infant's mental state and the infant takes this back inside (introjects) and so develops a capacity to reflect on his own states of mind.

Bion's model suggests that mother and infant experience communication as though psychological material somehow passes between them; he describes this as an experience that thoughts and feelings are inserted from one to the other to explain the way that communicator and recipient might feel but he does not provide an information processing account to explain this experience.

In contrast, an attachment theory account of internal working models and patterns of attachment is a description of the information-processing, within one person's mind, of interpersonal experience and so does provide a possible explanation for the experience of internalisation.

Patterns of Attachment

Those people fortunate enough to have consistent and loving parents who are themselves capable of reflective function, grow up in a family where relationships are based on recognition of each others' states of mind and attuned responses to them. The child experiences her key attachment figures as appropriately responsive to her verbal and non-verbal communications and this experience of reflective, understanding parents is 'internalised', creating internal working models or schematic patterns of relationship which are reliable as models for anticipating other peoples' behaviour in most interpersonal situations which that child experiences. This has been described by Bowlby as a pattern of secure attachment (Bowlby 1988, p10).

I would emphasize here that one of the key features of Attachment Theory is that it is a memory model which gives an account of the ways in which experiences of key relationships are registered and then organised and stored in memory. The key features of this memory model are:-

- that experience of real relationships is 'internalised' .
- the representations of these relationships are stored as schemas, or working models and that 'the form these models take is in fact far more strongly determined by a child's actual experiences throughout childhood than was formerly supposed'

- that whatever representational models of attachment figures and of self an individual builds during his childhood and adolescence, tend to persist relatively unchanged into and throughout adult life.

- as a result, any new person to whom an attachment is formed becomes assimilated into an existing model and perceptions of that person are organised by the existing model, even in the face of evidence that the model is inappropriate.

-the influence that existing working models have on current perceptions operates outside awareness.

-inappropriate but persistent representational models often co-exist with more appropriate ones.

- the stronger the emotions aroused in a relationship the more likely are the earlier and less conscious models to become dominant.

-(Bowlby 1979, p117 and p141).

Bowlby did not himself develop research tools for evaluating these hypotheses objectively but I will now describe some of the research which has helped to elaborate on these key features of attachment theory and their relevance to borderline personality disorder.

The initial and fundamentally important research tool was developed by Bowlby's close colleague Mary Ainsworth who devised the 'Strange Situation' as a means of studying mother-child interaction and as a standardised assessment of the response patterns shown by small children to brief separation from their mothers (Ainsworth et al. 1978); the Strange Situation consists of a twenty minute session in which a mother and her one-year old child are placed in a playroom with the experimenter. The mother then leaves the room for three minutes and then returns and after a short period both mother and experimenter leave the room for three minutes so that the child is alone in the room. Finally the mother returns to the room. Video recordings provide the basis for rating the child's response to separation and reunion. Four patterns of attachment are consistently found, one of which is secure and three of which show insecure attachment.

This kind of research was developed further by Mary Main who devised the Adult Attachment Interview as a method of assessing parents' attachment status, in terms of the degree of coherence of their narratives of their own childhood relationships with their parents. Rating on eight scales shows four patterns of attachment of the parents, Autonomous-secure, dismissing-detached, preoccupied-entangled and unresolved-disorganised (Main and Goldwyn 1993).

Fonagy sees coherence as the central feature of parents who are classified as 'secure-autonomous' on Mary Main's Adult Attachment Interview, the large majority of whose children show secure attachment :-

'The coherence of the parent's perception of his past derives from his unhindered capacity to observe his own mental functioning... This coherence is the precondition for the caregiver to be able to provide an 'expectable' or 'good enough' environment for the infant...A child may be said to be secure in relation to a caregiver to the extent that his or her mental state will be appropriately reflected on and responded to accurately' (Fonagy et al 1995).

Research evidence has been accumulating that those people who show characteristics of borderline personality disorder have not had the pattern of safe and reliable parenting which results in secure attachment and that there are particular features of childhood experience and relationships which predispose to borderline personality disorder. Herman has found that 75% of patients meeting DSM III criteria for borderline personality disorder reported physical or sexual abuse (Herman 1986). Westen et al (1990) demonstrated that borderline patients often have a history of sexual abuse from multiple perpetrators and that the abuse typically occurs in a context of neglect and deprivation by primary care-givers; this research does not resolve whether sexual abuse or the overall neglect and deprivation is the main contributor to borderline personality disorder in later life. Fonagy proposes that the characteristic feature of those people diagnosed as borderline is that they defend against 'the intolerable prospect of conceiving of the mental state of their tormentors by refusing to recognise this, through a defensive disruption of the process of depicting thoughts and feelings' (Fonagy, Steele & Steele 1991). As a result their representations of themselves and others will lack accurate

and detailed impressions of cognitive and affective content. The representations may accurately reflect physical events but they will not provide sufficient information about emotional and interpersonal events.

A useful addition to understanding borderline personality disorder comes from work on internal working models in patterns of insecure attachment. Parental internal working models powerfully influence the subsequent patterns of attachment between infant and mother. Holmes summarises this succinctly: -

‘Insecure infants..... especially if avoidant, tend to have mothers who found holding and physical contact difficult, who were unresponsive to their infant’s needs and not well attuned to their rhythms. These mothers tended to be dismissing about their relationships with their parents and to be unable to tell a vivid or elaborated story about themselves’ (Holmes 1993 p116). The parents’ inability to give an autobiographical account which has emotional depth reflects their insecure and unintegrated internal working models of relationships and correlates with insecure attachment in their children.

The London Parent-Child Project provided empirical support for this hypothesis; it showed that expectant parents’ mental models of attachment, as measured by Mary Main’s Adult Attachment Interview, predicted subsequent patterns of attachment between infant and mother (75% concordance at 12 months) and between infant and father (72% concordance at 12 months) and also indicated that each parent transmits his or her internal working model independently of the action of the other parent (Fonagy et al 1991, 1994, Steele, Steele & Fonagy 1996).

Bretherton suggests that the internal working models of insecure individuals are not integrated in a consistent way so that communication between different levels in a ‘hierarchy’ of internal working models is distorted and restricted (Bretherton 1990). Change in situation-specific working models does not generalise to core working models or assumptions, for example about the individuals sense of being loved and lovable.

Bretherton suggests that insecure individuals have multiple and contradictory working models of interpersonal relationships and research by Peter Hobson has confirmed this (Hobson 1995, p184). Borderline patients reported both significantly lower maternal care and also significantly higher over-protection than did a

group of dysthymic (chronically and mildly depressed) patients. The contradictory internal working models of borderline patients are reflected in marked but unexplained oscillations of viewpoint concerning the nature and significance of their past experience.

In summary, research evidence on the internal working models and attachment patterns associated with borderline personality disorder suggests that:-

- 1) Borderline patients show a partial and dynamic inhibition of reflective function, to have adequate mental representations of their own and other people's minds (Fonagy). This deficiency is dynamic in that it involves a defensive avoidance of any reflection upon the mental state of abusive or seriously neglectful parents since such reflection would arouse intolerable anxiety in the child.
- 2) Borderline patients show patterns of insecure attachment, predominantly of the 'preoccupied' enmeshed type, with contradictory, confused and incoherent narratives of past experience, particularly past trauma (Hobson).
- 3) Insecure attachment is linked to a failure of integration of internal working models, so that there are multiple contradictory working models; this is also found in BPD (Bretherton, Hobson). The existence of multiple, contradictory working models leads to marked oscillations of viewpoint relating to past experience, linked to equally marked variations in the quality of current interpersonal relationships, depending on which internal working model is activated.

The contribution of the Headed Records model to our understanding of borderline personality disorder.

Can the Headed Records model help us to clarify the nature of the deficiencies and abnormalities in the processing of mental representations which underlies borderline personality disorder? More precisely, can the analysis of the effects of emotion on the

Headed Records retrieval cycle help to identify the information-processing which underlies the clinical symptomatology described in DSM-IV and the distortions of internal working models which psychoanalysts suggest are aetiological?

It may be possible to describe the three major features of mental functioning associated with BPD and which I have summarised above in more precise information-processing terms by analysing them in terms of the Headed Records retrieval cycle:-

Several questions need to be addressed here:-

-What is the nature of the information contained in Headed Records which might play a part in the process of defensive exclusion of representations of mental processes?

-How may emotion modify the retrieval of certain Records and so bring about this defensive exclusion?

-How may multiple and contradictory 'working model' Records be formed?

Headed Records may contain many different kinds of information (see Chap. 2). This may be:-

1) Primary Records of specific events stored in declarative form, usually fairly easily accessible to conscious awareness, even if they contain information about highly traumatic events.

2) Secondary Records in declarative form of these same events. These Records can contain additional information, drawn from preexisting Records, from imagination and from dreams. The contribution of imagination may be conscious or unconscious, consisting of imaginative rehearsal of feared, wished for, or expected outcomes of an event. Imagination also underlies defensive attempts to construct explanations for incomprehensible experiences or to create a (false) sense of control over terrifying and overwhelming experience by attributing its cause to one's own behaviour. These secondary Records may become available to conscious reflection even when they are of unconscious origin; however conscious attention to such Records may arouse intense anxiety in which case it is likely that they may be repressed, meaning that conscious attention is not paid to them when they are retrieved. I have discussed the concept of repression in relation to the Headed Records model in Chapter Four.

In the case of Records of traumatic events, secondary Records are more likely to be repressed because they arouse considerable anxiety, in so far as they elaborate on the meaning of the primary event. For example, a child whose parent has beaten him will attempt to find an explanation for this traumatic event since this probably seems preferable than experiencing it as random violence which has no cause and therefore may occur at any time without any possibility of the child having a set of rules for anticipating it and increasing his chances of avoiding it. However the secondary Records containing explanations (or rules) may in themselves produce anxiety; the child may imagine that he has been beaten because he is bad and so deserves it, or because the parent hates him, both of which would be terrifying thoughts and consciously avoided.

3) Secondary Records which do not contain information about any one event in declarative form, but contain information in the form of generalised patterns of relationships, the procedures or rules governing interpersonal interactions and the associated emotions. These form a network of unconscious expectations which influence attitudes and behaviour when the Record is retrieved, but remain outside conscious awareness. Fonagy has proposed that implicit memory patterns of this kind provide an information-processing account of the internal working models which attachment theory proposes.

How are these 'working model' secondary Records formed? Bowlby suggested that they are formed from actual experiences 'The data used for model construction are derived from multiple sources: from his day-to-day experiences, from statements made to him by his parents, and from information coming from others'. (Bowlby 1973, p317). I have summarised above the key processes which Bowlby considered contribute to the formation and maintenance of internal working models in the discussion of attachment theory as a model of memory.

This concept is also supported by cognitive science research such as that of Johnson-Laird (1989) who proposes that individual episodes of interpersonal experience are aggregated into 'mental models'

We can add that the data from which working models are drawn also includes imaginative fears, wishes and defences, as Bowlby himself fully acknowledged:- ‘At other times ‘imaginary fear is a consequence of generalising from too small a sample. If granny can die today, perhaps mother or father may die tomorrow.’ (Bowlby 1973, p157).

In Headed Records terms, the secondary Records containing generalised rules and procedures for relationships, the ‘internal working model’ Records are therefore created from information drawn from secondary ‘declarative’ Records, which are formed in relation to a traumatic event as part of the child’s attempt to make sense of the trauma. There are probably multiple conflicting and contradictory secondary ‘declarative’ Records associated with each traumatic event, reflecting the child’s conscious and unconscious attempts to make sense of each confusing and frightening event and in the case of borderline patients, the evidence suggests that there have been multiple traumatic events in the course of that person’s life.

The secondary ‘working model’ Records derived from this confusion of information will reflect the contradictory information contained in the declarative Records, so that, instead of a few ‘working model’ secondary Records of interpersonal relationships, all of which contain information of a similar and generally positive nature, there will be multiple and contradictory ‘working model’ Records, some of which will contain painful or negative information about relationships and personal identity.

Clinical illustrations

All the patients described here have a diagnosis of borderline personality disorder in terms of the criteria I have described at the start of this chapter.

1) A female patient describes her fear of initiating any activity particularly if it might show other people that it is something she cares about; she works as a partner in a small company and instead of putting forward her own proposals for projects she finds herself becoming involved in projects proposed by the other partners. She feels depressed and frustrated by her passivity, but cannot seem to change this pattern and cannot understand

how it come about or why she is so afraid of showing people what interests and excites her.

She recognised fairly quickly that she is afraid of a dismissive or contemptuous response from others towards any initiative she might make but has always assumed that such an attitude would be entirely justified because any proposal of hers would be bound to be ridiculous. It took many months for her to link her expectation of a contemptuous response with the fact that as a child her family, particularly her father, would laugh at and treat dismissively any interest or excitement she showed; her preoccupations were not taken seriously but were dismissed as amusing, childish and rather peculiar. This had happened so many times that secondary 'working model' Records had been formed from information in the multiplicity of 'declarative' Records of such events; these secondary 'working model' Records contained information that her interests are always childish and peculiar and that other people will laugh at her for them, but this generalised pattern of expectations had ceased to be linked with any specific conscious 'declarative' memory and had become an internal working model Record of self-other relationships.

For this patient, there are other 'working model' Records of a more positive nature, in that she knew her parents loved her even if they lacked the imagination and empathy to respond with approval and understanding when her interests differed from their own. She recognises the very different states of mind she can be in and describes it in a very striking way as an instantaneous, total and complete volte-face in the way she experiences herself with other people, 'like throwing a switch'; in one state she feels confident secure and cheerful and the world is full of colour and the other state is full of fear and self-contempt and the world literally seems to lose colour and look grey. She is describing the switch from current experience being organised by the positive 'working model' Record of secure self-other relationships to the negative 'working-model' Record whose content is of hostility from other people and self-contempt. She can easily identify the effects of the 'working model' Records on her current state of mind but the content of these Records exists in the form of generalised rules and patterns of relationship rather than specific memories of past events so that it is very difficult for her to make the connection between her present expectations and her past experience.

2) For another patient the negative 'working model' Records are even more persecutory and when her current experience is structured by such Records she becomes deeply depressed and anxious. This patient's childhood experience was of a mother who was very ambitious for her daughter and expected very high achievements from her; the mother was full of praise for my patient when she was successful at school, but became extremely punitive in a sadistic way when she occasionally misbehaved at home. My patient remembers that she and her sister were made to kneel on the floor which had been scattered with small stones, which were very painful to kneel on and other painful punishments were imposed, often for some minor failing. At these times she felt terrified and helpless because she simply did not understand why her mother was being so cruel to her and her confusion was added to because her mother's behaviour seemed to alter fairly suddenly after she read a childcare book which suggested that severe punishment was not helpful to children. This was the same patient who is described below, whose primary school teacher humiliated her in front of the class when she could not do a piece of work. These experiences contrast with a pattern of very high achievement and good behaviour so that she was rarely criticised, particularly after her mother had changed her pattern of punishment on reading the childcare manual.

As a young adult, this patient had had no significant psychological problems until the time when she wrote her first research paper which her supervisor severely criticised in a way which she found painful and humiliating; from then onwards she began to have increasing difficulty in producing written work and would become depressed and lethargic, avoiding going to work altogether at times.

During the therapy she has identified that her depression, emotional withdrawal and difficulty in writing are often triggered by criticism or by the fear of hostility from senior colleagues towards her or her work. She has become aware that she falls into a state of mind in which the world seems to be a dangerous and hostile place and that at any moment she may be attacked. It took her some months to recognise that this fear was the major factor causing her to feel so anxious and depressed and several more months to begin to link this pattern of present expectation with her past experience of an

unpredictably cruel and hostile mother. It was not the specific 'declarative' Records containing information about her mother's behaviour which were structuring her present experience and leading her to expect similar hostility and cruelty from those in authority over her, but 'working model' Records which contain generalised information of a negative and persecutory nature about interpersonal relationships with those in authority over her.

A question then arises as to whether some of these contradictory 'working model' Records will include information about that person's own and other people's mental processes, whilst other 'working model' Records do not, or whether all interpersonal 'working model' Records contain information about mental processes, in which case we need to describe an information-processing mechanism which can explain how defensive exclusion of reflective function might come about.

Possible 'Headed Records' models which might account for defensive exclusion of reflective function.

1) The first possibility is that the capacity for reflective function simply does not develop at all in borderline patients. Fonagy rejects this:- 'I am not suggesting that a borderline level of functioning precludes second-order representations of mental processes' and reminds us that even frank psychotics know that the person they are talking to is a separate person with a mind of their own (Fonagy 1991). However the development of reflective function in borderline patients is probably incomplete and insecure and therefore more easily inhibited as a defensive strategy in the face of psychic pain.

2) A second possibility would be based on a process described by Sandler and Joffe in relation to the concept of regression, which they described, not as changes in the ego but rather as the 'reemployment of previous structures that have been inhibited in the course of development' (Sandler and Joffe 1967, p260). Fonagy clarifies this further saying that:-

‘What may be construed as a developmental arrest may more accurately be viewed as a defensive inhibition of an emergent ego process which thus never succeeds in becoming superimposed upon obsolescent systems. Normally archaic processes remain present but hidden by more efficient ego processes. It is only in response to pathological inhibition or breakdown of the higher order processes that such obsolescent aspects become manifest’ (Fonagy 1991).

We might argue that, faced with the contemplation of the parent’s mind as cruel, malevolent or indifferent, the child re-employs patterns of relating from before the age of 3 years upwards, the ‘obsolescent’ or ‘archaic’ developmental stage at which the infant is unable to form mental representations of the contents of another person’s or his own mental processes. In Headed Records terms this would involve retrieving Records containing ‘working model’ Records of relationships which do not contain any information about mental processes, Records formed prior to the age of approximately 3-4 years.

The difficulty with this explanation is that it requires the borderline person to retrieve infantile Records which exist in a form which may not be retrievable by the adult; Usher and Neisser have offered this as an explanation for infantile amnesia, suggesting that the inaccessibility of childhood memories results from the changes in cognitive structures which accompany development. They propose that, as a result of these changes, the experiences of childhood do not fit adult ‘schemata’ and so can no longer be brought to mind; a key part of such schemata is the ‘life narrative’, the ways in which adults think of their lives in terms of ‘a series of well-defined periods and milestones that constitute a rich retrieval structure and thus facilitate recall’. Young children do not have this ‘life narrative’ schema and so do not and cannot think of their experiences as comprising a personal narrative, nor can it be used in later life to facilitate recall of experiences that occurred before it developed.

I have developed their argument in an earlier section of this thesis, arguing that representations of the child’s own and other people’s mental states form an essential part of the ‘life narrative’ which Usher and Neisser propose and that representations of his own mind are incorporated into Headings (in unprocessed form), Records and

Descriptions formed from the age of about 3 onwards as the capacity for reflective function develops.

If, from the age of 3 onwards, Descriptions of interpersonal events do contain representations of mental processes then they will not match Headings of Records formed prior to this age, which do not contain this information and so these earlier Records cannot be retrieved. In terms of state-dependent retrieval, Records and Headings which do not contain representations of mental processes comprise one state and they cannot be retrieved by the child who has grown older and whose state of mind contains Record and Headings which do include representations of mental processes. They therefore cannot be drawn on as part of a defensive process which would involve re-employing earlier and more primitive mental processes in response to 'pathological inhibition or breakdown of higher order processes'.

This analysis of the process of retrieval of Headed Records would therefore lead us to conclude that 'regression', the re-deployment of earlier and more primitive patterns of relating in the face of breakdown of developmentally later and more complex patterns, is not an adequate explanation for the defensive exclusion of reflective function which occurs in borderline patients.

3) The third possibility is that emotion may alter the formation of Records so that, faced with parental cruelty or neglect, the degree of fear aroused results in primary (declarative) Records being formed which contain selected information about the relationship with the parent, a selection which excludes any representations of the parent's mental processes. Evidence exists for this kind of alteration in selectivity of attention at the time. However research by Christianson and Loftus (1991) suggests that highly emotional events are accompanied by attentional narrowing, with the focus of attention on central rather than peripheral events. There is evidence from research that, for a child, the mental state of a parent constitutes a central event. The simplest illustration of this is the 'cliff-top' experiment, in which a year-old infant is encouraged to cross a 'visual cliff', an apparent steep drop which is actually covered with thick glass so that the infant can crawl across it. When infants come to this edge they look towards the mother to read her face for its

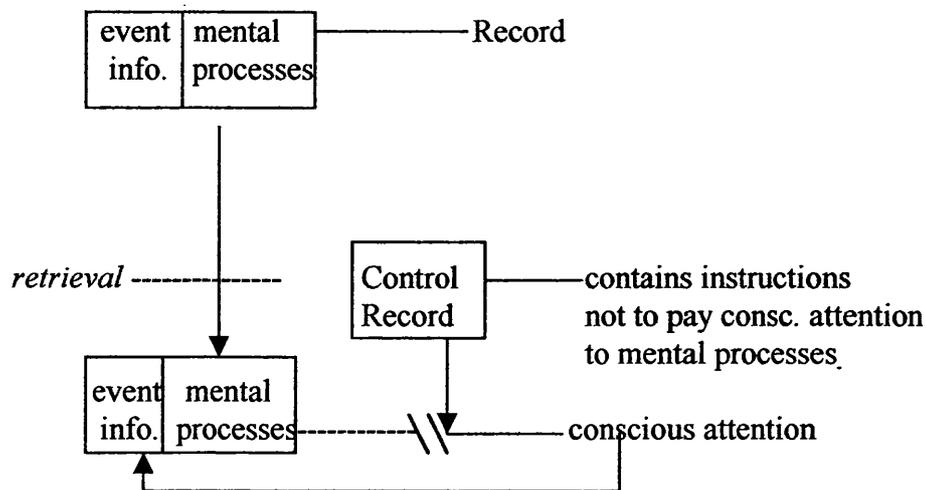
emotional expression. If the mother has been instructed to show fear, the child turns back from the cliff, whereas if she smiles in an encouraging way the child crawls across the visual cliff; it is the mother's state of mind, shown by her facial expression, which determines the outcome (Stern 1985 p132). Evidence to support the argument that the mother's state of mind is the focus of her infant's attention also comes from research showing that a mother's post-natal depression correlates with greater infant insecurity and poorer cognitive performance (Murray 1992). The correlation between a prospective parent's security of attachment as measured by the Adult Attachment Interview and the infant's security of attachment measured by the Strange Situation also demonstrate that the parental state of mind is the central focus of the infant's attention. (Fonagy, Steele and Steele 1991)

It is therefore highly likely that representations of the parent's mental state (as indicated by visual, verbal and other signals) are more likely to be included in the Record formed when the child is frightened, rather than being excluded from it.

4) A further possibility is that conscious attention is not paid to the part of a retrieved Record which contains information about mental processes in any interpersonal relationship. The Record is retrieved in full, but once retrieved, a control Record determines that conscious attention is only paid to information about material events in the Record and that conscious attention is not paid to any information about psychological processes in self or other; the nature of the information in the control Record could simply be that conscious attention is not paid to information which arouses intense anxiety, or it might contain more specific rules about the type of interpersonal information which should be excluded from conscious awareness.

The diagram below illustrates a possible Headed Records model for failure of reflective function; a Control Record may contain instructions that conscious attention should not be paid to a retrieved Record. However the Control Record does not prevent conscious attention to the event information in the retrieved Record, as shown by the arrows in the diagram

Figure 18. A possible Headed Records model for failure of reflective function



Evidence for a mechanism of this kind has recently been produced in unpublished work by Caleb Smith (unpublished PhD thesis, UCL) in which he demonstrates the effect of hypnosis on recall of word-pairs. The word-pairs used are so well known that they do not depend on memory but would be reproduced automatically, such as CAT-DOG.

Stimulus-response time is measured in control subjects, in hypnotised subjects who were told under hypnosis to forget the word-pairs and in subjects told to behave as they think they would if they had been hypnotised and given similar instructions (simulators).

The hypnotised subjects were then tested post-hypnosis; they produced a different word in response to the test word (i.e. CAT) but with a delayed response suggesting that they had not forgotten the instruction given under hypnosis but were monitoring their reactions at a non-conscious level and not 'allowing' the instruction to become conscious. The controls gave a much more immediate response and the simulators showed an even longer delay in response time than the post-hypnotic subjects.

In Headed Records terms the Record of hypnotic instruction was retrieved under test conditions post-hypnosis, but conscious attention was not paid to it. The delayed response time suggested that the retrieved Record was monitored unconsciously by a control Record, established under hypnosis, containing the information that the word

pairs should not become conscious when retrieved. This experiment provides support for the clinical concept of repression.

This could form a part of the process of defensive exclusion of reflective function which is evident in borderline patients; it would probably not provide a sufficient explanation in itself but could constitute the basis for further mechanisms, described in 5) and 6) below, with all three mechanisms operating together to provide a full Headed Records account of defensive exclusion of reflective function.

5) As a result of 4) above, Secondary Records are formed containing information drawn from the conscious content of the retrieved Record and which therefore do not contain information about one's own or other peoples' mental processes. These secondary Records will be formed more recently than Records which do contain information about mental processes, because these secondary Records are formed as a result of the avoidance of conscious attention to information about mental processes contained in the earlier Records.

There may initially appear to be a logical contradiction here in that, earlier in this chapter, I argued that infantile Records which do not contain information about mental processes could not be retrieved in adult life because a Description containing information about reflective function would not match the Heading of such an infantile Record. However, unlike infantile Records, secondary Records which have been formed by a process of defensive exclusion can still have Headings which do contain information about reflective function.

Clinical illustration.

From a female patient's description of her mother's behaviour, it gradually became apparent to me that her mother had been both depressed and very controlling, unable to permit herself or her children to want more than the absolute essentials in life. She had been a deeply religious woman who always taught her children to put others first and they learnt to feel that any desires or needs of their own should be suppressed, that they should

always be content with what their mother gave them and that they were bad if their wishes did not coincide exactly with her own.

At first my patient spoke of her mother as a saintly person and her descriptions of her mother seemed lifeless and empty, so that I was unable to gain any sense of how she related emotionally to her mother or her mother to her.

After some months, my patient happened to describe the way that her mother used to frequently sit writing over and over on a sheet of paper 'give me peace' or other phrases indicating her longing to be free of the demands which other people made on her; when I commented that her mother sounded as though she may have been depressed, my patient began to give fuller and more meaningful descriptions of her mother's state of mind, accounts which gradually helped her to realise how deeply depressed and emotionally unavailable her mother had been for most of her childhood, a realisation which disturbed and distressed her for some time as we explored this.

Her initial description of her mother had been empty of any information about her mother's mental processes and had simply been descriptions of events or patterns of behaviour. These accounts reflected the secondary Records which were empty of psychological content, containing no representations of her mother's mental processes. However after some time in therapy she was gradually able to pay conscious attention to the Records which did contain representations of her mother's depressed state of mind in spite of the distress this caused her.

6) Working model implicit memory Records formed from 4) and 5).

As more and more secondary 'declarative' Records are formed which do not contain information about mental processes, 'working model' implicit memory Records are created which also do not contain information about mental processes because they are formed from the representations contained in these secondary 'declarative' Records.

We thus have a three stage process of :-

- avoidance of conscious attention to anxiety-arousing representations of (usually parental) mental processes in retrieved primary Records.

- the formation of secondary 'declarative' Records formed from the parts of the primary Record which are conscious and which therefore do not include information about mental processes.

- the formation of secondary 'working model' implicit memory Records formed from the secondary 'declarative' Records and which therefore also do not contain information about mental processes in interpersonal relationships.

This three stage process constitutes a Headed Records description of defensive exclusion of reflective function and two of these stages involve the construction of new Records in memory rather than a defensive retreat to retrieval of infantile Records. The clinical manifestations may give the impression that 'regression' has taken place but a careful theoretical analysis using the Headed Records model demonstrates that this is not the case, but rather that new, less anxiety-arousing, meanings for past experience are created by means of the creation of new Records.

A Headed Records account of the 'stable instability' of BPD, particularly the marked oscillations of viewpoint relating to past experience and the variations in the quality of current interpersonal relationships

The defensive exclusion which I have just described may only be partially successful and borderline patients do regularly develop extreme anxiety in personal relationships because they feel threatened, rejected or humiliated by a key attachment figure; indeed these rapid swings from isolated detachment, to intense attachment and then angry withdrawal form part of the picture of 'stable instability' which characterises borderline personality disorder.

Once again analysis in terms of the Headed Records retrieval cycle may help us to understand these clinical variations better in theoretical terms. Although new secondary Records, both 'declarative' and 'working model' may be formed, which do not contain information about mental processes, there may be situations in which it is not these Records which are retrieved but earlier Records which do contain information about parental mental processes. The key is that a Description may be formed which matches

the Heading of the earlier Record, rather than that of the more recent Record. This could happen with recognition rather than recall; the borderline person who is in an argument with someone they love, may be recreating the same physiological sensations and perceptions which form the Heading of the earlier Record, Rm, (which contains information about mental processes), but are not part of the Headings of later Records, Ro, (which do not contain this information).

This results in state dependent retrieval of the anxiety arousing Records, Rm.

Clinical illustration.

I will describe a patient, an academic who is unable to produce written work, even though her career is adversely affected and in danger of being ruined by this failure; her history strongly indicates that 'working model' implicit memory Records of childhood relationships with critical parents or other authority figures play a major part in creating this writing block.

This psychotherapy patient is a woman in her early forties who is doing research in a science field as a senior member of a research team, but who is on short-term funding and therefore effectively is totally dependent professionally on the professor who heads the research team.

She has to write two papers, accounts of experiments which have been completed, the data analysed and the only task left is the writing up which she has to do but is unable to. One paper in particular presents her with difficulty because she did not conduct the experimental work herself but closely supervised a junior researcher, who has given her a very badly written first draft of the paper, which will require a great deal of work on her part to render it acceptable for publication.

The longer she leaves it the worse the problem becomes, so that initially she cannot look at the work, then she cannot go into the office with the computer on which the work is stored, then she cannot go into the office at all and finally she cannot even get out of bed. She knows that eventually at the very last minute, when it is almost too late and when everyone is furious with her, she will finally force herself to sit down and write the papers- this is what has happened on several occasions before. It is important to note

that all the work required for the paper has been completed and the problem is a very clearly defined one of writing it up.

In analysing this problem one key aspect which has emerged is that she herself is angry and upset because she has done very large part of the work, particularly in interpreting the data and supervising the junior member of the team who conducted the experiment and collected the data; however she is named as second author on the paper, with the junior as first author and the professor as last author, which apparently indicates that he has done a large part of the work, when he actually has not. Second authorship usually indicates a fairly minimal role in the work and she feels that this does not reflect her major contribution and will also adversely affect her c.v. She has tackled the professor on this but he will not give way and she does not want to antagonise him too much since she depends on him for further funding. She could give the paper to him to write up but the last time she did this, he wrote it so badly that it was rejected and she had to rewrite it before it was accepted. However factually true or otherwise her perception of the situation is, she is clearly very angry with him, regarding him as controlling, depriving and personally inadequate. She also gives the impression of grandiosity, with rather unrealistic expectations of what she should achieve, such as her feeling that she should be running her own research team, which, in view of her record of time off work and her difficulty in publishing papers, is probably unrealistic.

Whilst talking about this, my patient remembered several past experiences which felt relevant to her, the first of which was the fact that her writing difficulty started when she wrote her first research paper and her supervisor, who was newly appointed himself, was extremely harsh and critical about it in a way which she found very traumatic. She lost a considerable amount of confidence at that point and dates the onset of her difficulty in writing from then, as she clearly remembers that she never had a problem with producing written work before that.

She also recounted to me that all through her childhood, her parents had expected, not just high standards, but that she should be the best at school and so she was, coming in the top three in her year through the whole of her school career. When, very occasionally she performed badly, her parents were not overtly angry with her but she

was acutely aware of their disappointment, particularly her mother's. However she feels that her mother also failed my patient badly, when she divorced my patient's father and married a man who was frequently violent, so that my patient felt constantly angry, frightened helpless and anxious about her mother towards whom the violence was directed.

A further and acute trauma occurred when she was age about 4 and was changed from a class with a teacher she liked to a more advanced class where the teacher was clearly overtly sadistic; she was younger than the others and a little slower in copying letters and words off the blackboard. The teacher would rub the words out before she had finished and would then berate her in front of the whole class when she was unable to reproduce the words on the blackboard. My patient became terrified to go to school, but her mother would insist that she went and seemed unaware of the very real terror that she felt, until one day she was so frightened that she urinated on the floor in front of the whole class. She was in such distress that her mother finally recognised the severity of the situation and removed her.

Her present phobic avoidance of writing would seem to have very clear origins in this experience, in her parents' over-high expectations of her, her own defences of omnipotent and grandiose feelings that she can perform better than everyone else and her terror of humiliation and punishment if she fails. The act of writing seems to create state-dependent retrieval, where the physical task of writing, in relation particularly to academic work which must be produced for critical appraisal, acts as a Description and retrieves the Records of hostile authority figures who want to punish and humiliate her; it also retrieves the Records of her own mental distress which she experienced as a child of 4 and also when she produced her first research paper (both threshold experiences where she may have been trying to perform beyond her actual ability, whereas academic work up to that point was fairly easy for her and did not result in criticism).

Her writing block occurs in a context where she feels belittled by the professor and she feels angry with and humiliated by him, so that these feelings also constitute part of the Description which directly matches the Records of past distressing mental processes. She has directly confirmed this by telling me at the start of the latest session

that she noticed that the tightness she feels in her chest and the sense of panic when she tries to sit at the computer and write, are exactly the same as the sensations she used to feel when she went to school terrified at age 4. It is important to note that my patient has avoided thinking about the childhood trauma which I have recounted above, only describing it to me and linking it with her present symptoms of panic and tightness in the chest, with considerable reluctance, after she had been in therapy for many months.

The only way she can avoid this state dependent retrieval of Records of her own and other peoples' mental processes is not to write and in this way she succeeds in avoiding the state-dependent retrieval of Records which it is intolerable for her to contemplate because they contain information about sadistic and punitive mental processes in her primary school teacher and her first academic supervisor and also about her mother's lack of an empathic response to her distress. It is a very circumscribed defensive exclusion of mentalizing, which seems to have its roots in particular traumatic experiences.

This clinical example provides support for Fonagy's prediction that 'We may expect deficits of mentalizing capacity in cases where traumatic events concerning one or other of the parents compel the child defensively to disregard perceptions related to the thoughts and feelings of the primary object' (Fonagy 1991). It is only necessary to make the additional point that for my patient, her teacher and later her academic supervisor became the 'primary object' in the specific situations described.

Implications of the analysis of borderline personality disorder in terms of Headed Records for psychoanalytic psychotherapy with borderline patients.

I would argue that this analysis in Headed Records terms helps us to develop a better understanding of the ways in which change may be brought about in psychoanalytic psychotherapy with borderline patients. Borderline patients have multiple and contradictory 'working model' Headed Records of self-other relationships and I have suggested that early, childhood Records which contain representations of the parents' minds as cruel or malevolent leads to the 'defensive' formation of later Records which

do not contain representations of the parents' minds. I have indicated that these later Records are formed from selective attention to the information contained in secondary 'declarative' Records (which is what I mean by the term defensive- the avoidance of attention to anxiety arousing material).

The processes of state-dependent retrieval mean that at times the early 'reflective' Records will be retrieved by current events and at other times the later 'non-reflective' Records will be retrieved and will organise current experience. In analysis the analytic situation, the reflective processes of the patient, the analyst's responses and the relationship between analyst and patient will retrieve these different kinds of Records in a pattern which initially may seem utterly unpredictable and confusing to both analyst and patient. The analyst will hopefully help the patient to identify the patterns and so to recognise the content of the 'working model' Records as they are repeatedly retrieved and enacted in the analysis. This will be a very painful process for the patient at times because it means that the patient begins to pay conscious attention to Records containing information about mental processes; the patient's attention may be drawn to these Records by the analyst's interpretation of the analytic material, for example a comment such as 'you fear that I will be cold and rejecting to you if you criticise me, just as your parents were if you challenged them or misbehaved as a child'.

At times like these, when persecutory 'working model' Records are structuring the analytic experience for the patient, he or she will defensively attempt to restructure the analytic experience in terms of 'working model' Records which do not contain representation of mental processes. The patient may become silent so that no mental processes can seemingly take place or may resort to 'acting out', where mental processing is replaced by actions, such as self-injury, drug or alcohol abuse or irregular or non-attendance at analytic sessions. This may also result in denigratory attacks on the analyst and the analytic process as useless, so that the analyst's mental processes and understanding are neutralised and rendered valueless- the analyst's mental processes have no meaning.

Clinical illustration.

A male patient was sexually abused from the age of 11 years by a trusted family friend; he has described how he felt that this was his fault and that he was a wicked person because he allowed the sexual contact to happen. He felt that the man could not be doing anything wrong because he was such a good and trustworthy person and therefore the fact that something 'bad' was happening, something which part of my patient knew was wrong, must be my patient's responsibility and proved what a wicked person he was for being sexual and so apparently causing the man to behave in this way.

I think that right from the start of the sexual abuse, this patient developed a defensive denial of the intolerable truth about his abuser's state of mind and intentions towards him; he protected himself from the awareness of his abuser's intentions by taking responsibility for the 'badness' on himself, so that it was his own mind which was wicked, not the abuser's, who remained as a 'good' person in my patient's mind; he then defended against the intolerable sense of his own mental processes as wicked by a further process in which he concluded that he was not a real person, that he was worthless or that he did not really exist; in other words if he had a mind of his own, with wicked intentions it did not matter anyway because his own existence was insignificant and of no value.

In analysis this pattern is recreated; he fears that I will abuse him but then says that it would be his fault anyway if I did. He becomes aware that the analysis recreates his sense that he is wicked :- 'every time I come to therapy I feel such a bad person; its not too bad the rest of the time, I can feel o.k about myself'. Then he defends against that awareness by attempting to obliterate his own reflective function and its significance, 'I feel that I don't exist when I'm here'. His own mental processes have no meaning and so nothing I say can make any difference; both his own and my reflective function are worthless.

What can the analyst do to bring about change in this situation which often brings about impasse in the analysis?

In the long term the analysis can create new working model Records of relationship which contain information about the analysand's own and the analyst's mental processes but of a benign kind; however before this can be achieved, persecutory

Records of parents' mental processes and of self-other relationships must be retrieved and conscious attention paid to them. Representations of own/other mental processes, which in these Records is persecutory and anxiety arousing, can then be drawn on as new Records are formed of the relationship with the analyst; initially the analyst's mental processes will be experienced as persecutory but if the analyst succeeds in avoiding abusing the patient, representations of mental processes can become part of more benign 'working model' Records and both the analysand's and the analyst's reflective function become less anxiety arousing.

This model of the way change may take place in analysis with borderline patients lends support to the psychoanalytic model for change in analysis which regards the working through of the transference as essential part of analytic process. The skill of the analyst lies in helping the patient to become conscious of persecutory 'working model' Records of relationships which initially structure the analytic experience, by not defensively attempting to be good parental figure; by the process of retrieval and paying conscious attention to these 'working model' Records, the patient is enabled to pay conscious attention to representations of mental processes in relationships, including the relationship with the analyst, representations which had previously been kept out of conscious awareness. The analyst can then, by demonstrating his or her capacity to empathise with the patient, assist in the process whereby new 'working model' Records of a more benign nature are formed which contain representations of analyst's mental processes as attuned and reflective.

Conclusions and evaluation

This chapter has explored an information-processing account of borderline personality disorder, focussing on the dynamic inhibition of reflective function in those individuals exposed to early trauma; a Heated Records analysis demonstrates that this failure of reflective function is not a complete developmental deficit, a total failure to develop representations of other people's minds and mental processes. It seems instead to be the outcome of a process of selective attention to 'internal working model' Records which do not contain representations of mental states rather than to Records which do contain such

information. The fluctuations in symptomatology and behaviour in borderline personality disorder can be seen to reflect the state-dependent retrieval of one or other of the multiple and contradictory 'internal working model' Records of self-other relationships, some of which contain information about reflective function and some of which do not.

I have also shown that although there is a partial developmental failure of reflective function, in that 'internal working model' Records of relationships are contradictory and inconsistent in their representations of mental states, this is a deficit which can be corrected, in theory, in a sustained relationship with a therapist; the therapist's reflective function gradually enables the analysand to create new 'internal working model' Records, which contain representations of the therapist's reflective function and more benign representations of self-other relationships.

However, the question remains as to whether a therapist who works with this model for understanding borderline personality disorder would be any more effective than other therapists who use a different framework as the foundation for their clinical work. Many psychotherapists have argued that there needs to be a modification of classical psychoanalytic technique to meet the needs of certain patients who have experienced very traumatic or dysfunctional childhoods and who show borderline symptomatology (Balint 1968, Casement 1985 p27, Fonagy 1991, Renik 2000), but there is, as yet, only the evidence from individual case histories to support this argument.

However, many of the modifications in technique which are proposed are seen as divergences from classical psychoanalytic practice and have frequently been seen as examples of suggestion rather than the pure interpretation of the psychoanalytic method. This therefore implies that the model for change in analysis offered by classical psychoanalytic theories fails to be effective with some patients who are therefore labelled as unsuitable for analysis, but who may benefit from the adapted approach which is described as psychoanalytic psychotherapy.

In contrast, an analyst using this Headed Records model for understanding borderline symptomatology would base their technical approach on exactly the same theoretical principles as with any other patient; the differences in approach which an analyst might adopt with different patients would reflect the analyst's assessment of

which information-processing mechanisms predominate at a particular point in the therapy. Interpretation would not be the only tool which the analyst might use; the analyst might, for example, encourage the patient to imaginatively explore his fantasies about the analyst and might occasionally make a clear statement about his or her own thoughts or attitudes, in order to facilitate the development of the patient's reflective function and the formation of new 'internal working model' Records of relationships.

This kind of clinical approach would remain unacceptable to certain analysts, particularly those who regard instinctual drives as the source of unconscious fantasy and interpretation as the central psychoanalytic tool; such analysts would remain unconvinced by the arguments which I have offered here. They might also, with some justification, point out that the kind of changes in the analyst's clinical technique which I have proposed here run the risk of blurring the clear boundaries between interpretation and acting out, or worse, the analyst becoming manipulative of the patient. The greater flexibility in analytic technique which the Headed Records model supports places a great responsibility on the individual analyst and on the training and supervision which that analyst receives; there do however, seem to be well-tested guidelines to help analysts avoid becoming manipulative or abusive towards their patients. Physical contact is almost always to be avoided, except to prevent the patient physically harming his or herself or the analyst. Regular involvement in professional development programmes and peer-group discussion, particularly in relation to patients who place the analyst under great emotional pressure, are encouraged. Clear and enforceable ethical codes of practice are necessary and there is a rapid progress towards statutory regulation of psychotherapy, so that sanctions can be enforced against therapists who fail to maintain proper professional standards of practice.

There are many factors which have contributed towards these changes in the psychotherapy profession, but one factor is the greater flexibility in analytic technique which results both from new theoretical frameworks for psychotherapy and also from the extension of psychotherapy to groups of patients, such as those with borderline personality disorder, who were previously thought to be unsuitable. The therapist's reflective function gradually enables the analysand to create new 'internal working

model' Records, which contain more benign representations of self-other relationships and representations of the therapist's reflective function.

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Chapter Eight.

Conclusions.

In this thesis I set out to investigate and compare psychodynamic and cognitive science models of the effect of emotion on memory. In the introduction, my starting point was the fact that psychodynamic theory and cognitive science both consider the mind to be divided or compartmentalized in some way, either in structural or functional terms; I pointed out that in psychodynamic theory such divisions are seen to arise from the effects of emotion, whereas cognitive science offers more fundamental information-processing accounts of all forms of dissociation and/or modularity, not just those which are emotionally based.

An essential premise of this thesis is that psychodynamic models therefore need to be analysed to find out what information-processing is implicit in each of the models under investigation, to give a clear explicit account of that information-processing and to examine the extent to which these accounts are compatible with the cognitive science model which I have chosen for this thesis. In the Introduction, I give illustrations of some of the problems which may arise in clinical psychotherapy practice if the therapist misunderstands, for example, the ways in which the human mind processes, stores and retrieves information from memory; these examples demonstrate that there is direct clinical relevance in giving a clear and accurate information-processing account of psychodynamic mechanisms.

The first part of this task has been to give an information-processing description of each of the concepts under investigation; starting with the concept of memory, I have given my reasons for choosing the Headed Records model rather than others, such as schema theory or network models. In Chapter Two, I have given a detailed description of the Headed Records model for memory, the characteristics of Descriptions, Headings and Records and the steps involved in retrieval of a Record. I examine the different categories of information which may be included in a Record, showing that Records may contain information in various forms such as explicit or implicit; the Headed Records model is one which encompasses all the different forms in which information may be stored in memory. It therefore allows us to investigate the effect of emotion on the formation, storage and retrieval of memories without requiring a separate analysis for each classification of memory, such as declarative-procedural, explicit-implicit, episodic-semantic. In this chapter I have also described the steps by which the type of information stored in secondary Records may become increasingly abstract and schematic as new Records are formed. I have shown that these kinds of Records of personal relationships can be described as 'internal working

model' Records which are in implicit format and which are the prototype Records which structure a person's perception of all subsequent relationships

In Chapter Three, I have then used Headed Records to give an information-processing account of the variety of ways in which emotion can affect memory storage and retrieval. I have shown that emotion can alter the processing of information at each stage of the Headed Records cycle and a detailed account of the effect of emotion on specific stages of the retrieval cycle is given, together with clinical illustrations of each of the mechanisms described.

In order to clarify the ways in which emotion alters information-processing in the Headed Records retrieval cycle, it has also been necessary to give an information-processing account of emotion itself. In Chapter Three, emotion is shown to be a combination of physiological arousal, cognitive content and conscious attention; the cognitive content of emotion can be included in the Headed Records model. The effect of emotion on memory is therefore in part an account of the effect of one kind of Record, an emotional Record, on the processing of other Records.

In Chapter Four, I have used the Headed Records model to give an information-processing account of psychodynamic mechanisms such as repression, dissociation, splitting and projection. The mental processing which underpins these mechanisms (and the accompanying clinical phenomena) is explained and clarified in terms of the effect of emotion on the stages of the Headed Records retrieval cycle. This offers the opportunity for a shared and agreed meaning to these psychodynamic terms to develop across different schools of psychodynamic theory. I have demonstrated that psychodynamic concepts such as repression, dissociation, splitting, and projection can be analysed in terms of key effects of emotion on information-processing steps in the Headed Records retrieval cycle.

Whilst it is possible to give an information-processing description of these psychodynamic mechanisms, some of the assumptions in psychodynamic theory about the developmental origins of these mechanisms cannot be adequately investigated using the Headed Records model. Instinctual drive theory and archetypal theories which postulate complex mental representations arising innately in early infancy can only effectively be examined in the light of developmental studies which offer experimental evidence about cognitive capacities, cognitive development and innate mechanisms in early infancy. This is outside the scope of this thesis.

However the Headed Records model can be used to offer alternative accounts for certain psychodynamic concepts such as unconscious fantasy to that offered by instinctual drive theory and archetypal theory. Until recently, the concept of unconscious fantasy (mental imagery, thoughts and accompanying emotions which do not reflect external reality and which usually have a distorted, extreme and

fantastic quality) has been inseparable from that of innate mental imagery arising directly from instinctual drives or archetypes.

Headed Records theory allows us to understand the information-processing steps which may bring about the distortions of memory and perception which provide the clinical evidence for unconscious fantasy. The HR model describes the ways in which wishes, fears, imaginative reconstructions and dreams about real events can become incorporated into secondary Records of those events; these secondary Records acquire a more generalised nature as each new Secondary Record is formed, eventually forming 'internal working model' Records which provide an account of unconscious fantasy which is compatible with evidence from cognitive science and attachment theory about memory functioning.

This compatibility with other experimentally tested accounts of memory functioning is a strong argument for this model of unconscious fantasy, rather than those psychoanalytic models which depend upon instinctual drive theory or Jungian models which postulate that unconscious fantasy can arise directly from innate mental structures, the archetypes; models which propose that complex cognition can arise directly from innate psychic structures have no empirical support. In particular, the argument that infants have a capacity for innate complex cognition in the earliest months of life remains unproven and is increasingly at odds with developmental research, which suggests that innate cognitive mechanisms are simple orientating structures, such as image schemas.

The Headed Records model is only one framework which can be used to give an information-processing account of psychodynamic phenomena; however, within this framework of the Headed Records model, a complete information processing account can be given of key psychodynamic concepts, such as unconscious fantasy or repression without the need to draw on any other additional explanation, such as instinctual drives, to account for such phenomena. This information processing account of the various effects of emotion on memory is compatible with attachment theory, a psychodynamic model which also does not rely on instinctual drive theory. Attachment theory offers an account of the mechanisms by which internal psychic reality can differ from external reality, through the gradual abstraction of generalized patterns from repeated similar experiences of key attachment figures. Like Headed Records, it is also a representational model and the Headed Records model is used here for the first time to give an information-processing account of the formation of 'internal working models', one of the most central concepts of attachment theory.

In Chapter Five, I give a Headed Records account of the ways in which change may be brought about in analysis. Three mechanisms are described which can

provide the information-processing basis for clinical changes which occur in analytic therapy. These mechanisms are:-

1. Changes in the control of retrieval of Records. This may take the form of change in the requirements for specificity of Description/Heading matches; it may also change the nature of the task specification).

2. Change in the pattern of conscious attention to retrieved Records. New control Records may be formed which allow conscious attention to Records or parts of Records which cause emotional distress.

3. Formation of new Records. These secondary Records of relationships, formed during the process of analysis become new prototype Records which can be retrieved to organise and give meaning to subsequent interpersonal experience.

In Chapter Six, I draw on this information-processing account of the mechanisms which underpin clinical change in analysis in order to examine psychodynamic models for such change. The Headed Records model has highlighted theoretical inconsistencies in psychodynamic accounts of change in analysis; for example, infantile amnesia can be seen to have a different time-frame from that of the development and working through of the Oedipus complex. A Headed Records account of the Kleinian model of change in analysis lends support to a model in which there is a constant shifting between the paranoid -schizoid and depressive positions rather than a permanent move to whole object relations. In a Headed Records analysis of these concepts it becomes apparent that earlier 'part-object' Records can never be altered or deleted and can become available through the mechanism of state-dependent retrieval, just as 'whole- object' Records can.

In Chapter Seven, the theoretical analysis of the effects of emotion on the Headed Records retrieval cycle is used to examine a particular clinical picture, that of borderline personality disorder; using clinical examples, I show that patients who avoid paying conscious attention to the mental states of their key attachment figures form, over a period of time, 'working model' Records which do not include representations of mental and emotional states. These 'non-reflective' Records have been formed as a result of defensive processes, the avoidance of conscious awareness of situations which cause acute anxiety or distress and it is the contemplation of key attachment figures as cruel, indifferent or malevolent which causes such distress; faced with this prospect, a child may defensively avoid awareness of the emotions and intentions of his key attachment figures. However, other 'working model' records which do contain information about mental states may also be retrieved in some situations, and such a patient is constantly buffeted by contradictory assumptions and beliefs as one or other 'working model' Record is retrieved and organises his perception of a current relationship.

In discussing this clinical picture, I show that state-dependent retrieval, avoidance of conscious attention and formation of new Records all contribute to the clinical phenomena shown by borderline patients. The implications for therapy are examined, particularly the central role of the transference in assisting the gradual development of new 'internal working model' Records which contain less anxiety-arousing representations of the mental processes of key attachment figures, including those of the analyst.

Dissociation or modularity?

A theme which has emerged at various points in this thesis has whether dissociation or modularity offers the better explanation for the divisions in the mind; I have argued that apparent modularity, for example, the distinction between explicit or implicit memory, may actually be dissociative phenomena, reflecting the conditions of retrieval. A Description in which the information is in implicit format could only retrieve Records whose Headings (and probably the information in those Records themselves) are also in implicit format. I think that a computer analogy is helpful here; my computer does not have the latest version of Microsoft Word, so when someone sends me an e-mail with an attachment in that Word format, I can open it but I cannot read it, whereas if I had the same version of Word, the formatting process would render it legible to me.

The Headed Records model is a representational view of knowledge

Throughout this thesis I have proposed that Records contain mental representations, although I have extended the range of types of information which can be considered to be representations; representations are usually loosely equated with symbols, in the form of visual imagery or language, symbols which are either the focus for conscious attention or capable of becoming so. This kind of mental representation would be in explicit format.

However, in Chapter Two I described all the different types of information which Headed Records may contain; information may not be in the form of symbols but can still be considered a form of representation. This would include representations in implicit format, for example, internal working model Records; it would also include Records containing instructions to the autonomic nervous system.

There are other models to explain the information-processing involved in storage and retrieval of memories; one of these is a network, or parallel distributive processing model, which is often considered to be a model of cognition without representation. In this model, it is not representations which are stored in memory but

rather, a predisposition to make connections of one kind rather than another. This predisposition takes the form of weighted nodes in a neural network. However, weightings on a neural network can also be considered as a form of representation, but of a non-symbolic nature.

However one question which arises from a representational view of knowledge relates to the status of Records when they are not in use, that is, when they are not in a retrieved state. The difference may simply be that a retrieved Record is the focus for attention (not necessarily conscious) in contrast to the non-retrieved Record; a useful computer analogy would be that a document which is active when in use becomes non-active when another document is opened. Like documents stored in a computer, when Records are retrieved they are, in effect, copied into the processing unit (attentional mechanism) from the storage system.

The relationship between consciousness and attention.

A further issue which arises out of the discussion of the retrieval of Records concerns the nature of attention and the relationship between consciousness and attention. In this thesis I have distinguished between the two, using attention as a concept to describe the availability of information in a Record for further processing once it has been retrieved. Retrieval is a state in which attention is being paid to a Record.

However, this attention may operate entirely outside conscious awareness; consciousness is a secondary process, which some consider to be purely an epiphenomenon. Using the Headed Records model we can see that this is by no means always true. When someone is asked to give an account of an episode, the person consciously chooses the aspects of the episode which they wish to recall, thus determining the nature of the Description which is formed. Conscious representations may also form part of a Description or task specification if the Record which is required contains representations of 'self' that is to say, of one's own mental processes at the time of the episode which is being sought in memory. However this distinction still leaves the nature of attention unclear. Is attention a central executive, a central processing system which selects information from subsidiary systems? An alternative model for attention is usually linked to a network or parallel distributive model for the processing and storage of information. In this model, it is not representations which are stored in memory but rather, a predisposition to make connections of one kind rather than another, so that attention is considered to be attention for action. In this model, attention consists of multiple cumulative comparisons between the 'nodes' in the model, which correspond to items of information. Attention is the sum total of this complex matching and comparative

process, consisting of the detail of this process rather than residing in some central and separate attentional mechanism.

The model for attention which has emerged in this thesis combines some features of a representational view of memory with aspects of a PDP model, in which attention resides in the detailed multiple cumulative comparative process. I have suggested that the matching of the information in a Description with the information in 'fields' of the prototype Record could constitute a sufficient explanation for attention, without requiring a central attentional mechanism. I have argued that information in a new event which matches some information in a prototype record is processed and stored in a Record, whereas aspects of the new event which are not organised in this way by a prototype Record either do not get stored at all or become unprocessed information in the Heading of the Record which is created of the new event.

In this concept of attention, attention resides in the detail of the matching process; the key difference between this and a PDP model is that, although attention is in the detailed comparison process, it is attention to the detail of mental representations, rather than comparative weightings on a hypothetical neural network. Both concepts, that of mental representations and that of weighted nodes in a neural network, are equally abstract theoretical accounts of the nature of attention; the difference is that humans experience mental imagery which seems to offer subjective support for the concept of mental representations (at least those which can become conscious). Because subjective experience more closely corresponds to the concept of mental representations than models for cognition without representation, I have chosen to stay with a representational view of memory in this thesis.

However, I suggest that the Headed Records model, with its detailed account of the process of matching and retrieval of information, does offer us a new way of conceptualising attention within a representational framework, making the concept of a central executive redundant. It seems to create a valuable new link between a representational view of memory and a concept of attention in which attention is 'attention for action' and resides in the detail of the information-processing as it proceeds. This allows us to embed the concept of attention in the processing of information, rather than requiring a separate executive mechanism which cannot easily be described in information-processing terms and which sometimes seems to come close to the concept of a homunculus.

Theoretical models and their function in relation to clinical practice and empirical research

What useful purpose does it serve to develop such a detailed investigation of psychodynamic theory in terms of a specific information-processing model? I think there are two answers to this question; firstly, it might be thought controversial to claim that it can have a direct impact on clinical practice, but I have myself found that this is indeed the case. The Headed Records model provides welcome theoretical support for the idea, common to all depth psychology models, that change in analysis is a long and slow process and that the central therapeutic tool is the transference/ countertransference dynamic. If one of the key mechanisms whereby change in analysis takes place is the formation of new 'internal working model' Records, this provides an information-processing foundation for clinical experience and psychodynamic theory which places the relationship between analyst and patient at the heart of the analytic endeavour. It provides an additional firm foundation for the central role of transference interpretation, whilst also leading me to modify the nature of such interpretations, so that I now make many more interpretations which focus on the patient's patterns of attachment and defences.

The support which the Headed Records model provides for many aspects of attachment theory has helped me to develop a more exploratory, perhaps even playful style in my analytic work; I have recognised that the patient may need the analyst repeatedly to demonstrate reflective function in order to develop it himself, so that I am more likely to explore a variety of possible ways of understanding the material which the patient brings to a session rather than making one definitive interpretation. The knowledge that severe deficits in reflective function can be overcome through the slow construction of new 'internal working model' Records provides a solid theoretical foundation which strengthens the analyst's confidence in the value of long-term analytic work enabling us to tolerate prolonged stretches in an analysis when some of our patients show no sign of reflective function.

Understanding the nature of the matching process of Descriptions and Headings and its contribution to state-dependent retrieval of Records greatly reduces the pressure to find dynamic explanations for the inaccessibility of some unconscious material. The Headed Records model demonstrates clearly that there is a sound theoretical explanation for the concept of repression, in which conscious attention is not paid to certain Records which produce mental distress; state-dependent retrieval shows the therapist that there are times when non-conscious information cannot be accessible except under very specific conditions which allow state-dependent retrieval. Understanding this will prevent a therapist from falling into the trap of constantly searching for an interpretation which will overcome a supposed repression where no such repression exists.

The second benefit of this theoretical approach is that it a much more precise and detailed account of many of the mental structures and processes proposed by differing psychodynamic models; it therefore greatly facilitates empirical research on these models by providing the basis for testable hypotheses which break the circularity in which clinical phenomena are thought to provide evidence for certain mental structures, whilst those same mental structures are defined in terms of the clinical phenomena they give rise to. This has previously been the case for the concept of the 'internal working model' which up until now has lacked specificity but which has been rendered much more precise by defining it as a Headed Record which contains a specific collection of representations in implicit format. Hypotheses can then be drawn up in relation to the pattern of retrieval and the post-retrieval effects of these Records and these hypotheses might be open to empirical investigation. For example, in the Headed Records model there are always multiple, secondary Records and 'internal working model' Records need be no different in this respect. Multiple 'internal working model' Records of each relationship with key attachment figures could be investigated, just as research has already demonstrated specificity of attachment patterns with each parent.

Similarly, the detailed description of the effects of emotion at key points in the Headed Records retrieval cycle gives us a means of linking clinical change in analysis with the information-processing mechanisms which underpin such change; therapeutic effectiveness could be investigated in relation to the formation of new internal working models, altered patterns of state-dependent retrieval or changes in the pattern of conscious attention to anxiety arousing information. The tools for investigating these changes in information-processing would need to be specifically developed in relation to analytic work and it is beyond the scope of this thesis to examine them fully here. However experiments on non-conscious attention, findings from hypnosis experiments demonstrating repression and well-established methods for demonstrating state-dependent retrieval would seem to offer possibilities for this kind of research. I would also like to revive Jung's word-association test as a potential means for identifying and investigating the content of 'internal working models', which I have suggested are very similar to Jung's concept of a 'complex'.

A whole range of research, using tools which can demonstrate state-dependent retrieval, Description specificity and other aspects of the Headed Records retrieval cycle, remains as yet uncharted territory. I hope that the theoretical investigation which I have undertaken in this thesis will contribute in a small way to such a programme.