

PSYCHOANALYSIS AND COGNITIVE- EVOLUTIONARY PSYCHOLOGY: AN ATTEMPT AT INTEGRATION

PAOLO MIGONE, PARMA AND GIOVANNI LIOTTI, ROME

The authors argue that the abandonment of the theory of trauma in 1897 was a trauma for Freud himself, who was led to 'despair', and possibly reacted with an overemphasis on inner fantasies and drive discharge. They suggest that today we are facing a second trauma in the history of psychoanalysis that we might call the 'abandonment of drive theory', i.e. the notion that human beings strive not primarily to reduce sexual and aggressive drives but rather seek objects, assign meanings, test previous beliefs and assimilate new schemes. Our task is to recover as Freud was able to do, giving a new impetus to psychoanalysis. The current challenge is, on the one hand, a revision of the psychoanalytic conception of inherited information, and, on the other, a theory of motivation based on converging evidence from cognitive science, ethology, infant research and psychotherapy research. Many clinical models are current in contemporary psychoanalysis. Only as one example among these models, some concepts used in Weiss & Sampson's 'Control-Mastery Theory' will be discussed in light of cognitive science and evolutionary epistemology within the framework of (a) the 1960 classic, 'Plans and Structure of Behavior' by Miller, Galanter and Pribram (b) Edelman's neurobiological theory and (c) Bowlby's attachment theory.

I have repeatedly been led to suspect that the psychology of the neuroses has stored up in it more of the antiquities of human development than any other source (Freud, 1916-17, p. 371).

Is mental life more similar to the work of a historian, registering and elaborating experience dictated by the environment, or is it more similar to the constructions of a myth-maker, driven by obscure inner forces? Psychoanalysis has dealt with this question since its inception. Its practitioners are still struggling

with it. Some have sided with one or the other of these two extreme responses to the question, while others have suggested that the solution could be better found in a different way of stating the problem. Notable, in this regard, is Rapaport's effort to build a psychological theory that considers both inner drives and outside reality as important factors in the construction of human experience (Gill & Klein, 1964). In this paper the author strives to contribute to the same line of work towards an eventual theory.

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We believe that the clinical and theoretical insights of psychoanalysis must join with the now available and converging lines of evidence coming from cognitive psychology, neurobiology, evolutionary epistemology, ethology, infant research and psychotherapy research. We are well aware of the dangers of combining various disciplines: each one is characterised by a different language, level of conceptualisation, and field of investigation. However, following the path of Sigmund Freud, we agree that psychoanalysis, as part of psychology, should be 'enabled to take its place as a natural science like any other' (1940, p. 158), and, in that spirit, cannot postpone its confrontation with other scientific disciplines. The study of the complex relationship among different areas of investigation must be undertaken, especially if we, like the majority of contemporary epistemologists and Freud himself, reject dualistic views concerning the mind-body problem.

We will try to make more explicit a hypothesis of a theory of therapy and mental functioning that, as we will see, is already implicit in many contemporary psychoanalytic theories. We will try to spell it out in a coherent manner, using language that we hope will be intelligible to various disciplines, from cognitive psychology, to neurobiology, to psychoanalysis, hoping to do it convincingly and usefully for a clearer conceptualisation of clinical theory. Our discussion will deal mostly with the reformulation of the psychoanalytic theory of motivation and a revision of the psychoanalytic conception of inherited information.

In order to pursue this goal, and to remain close to the clinical level, we will also discuss some concepts of one of the many clinical models currently suggested in contemporary psychoanalysis, namely, the 'Control-Mastery Theory'¹ proposed by the San Francisco Psychotherapy Research Group (Weiss,

Sampson & the Mount Zion Psychotherapy Research Group, 1986; Weiss, 1990a, 1993a): the concepts of this theory that we will discuss are those of 'plan', 'test' and 'pathogenic belief'. We do not imply that this clinical theory fully incorporates the ideas we want to present, nor that it is a radically new theory of therapy: other approaches, and the insights of many psychoanalysts in the past as well as in the present have suggested similar formulations. We will use these concepts only as a starting point for our discussion, in order to suggest a conceptualisation of clinical theory in the light of cognitive science, Edelman's evolutionary neurobiology and ethology.

The reasons for selecting this theory as a starting point for our reflections are manifold: it is conceptually simple, taking into account both inborn propensities and environmental influences (such as the idea that pathogenic beliefs stem from traumatic experiences); it is supported by interesting empirical research and is characterised by an autonomous theory of therapy, almost free from metapsychological concepts (Eagle, 1984, ch. 9); its basic tenets, finally, are formulated so as to be easily comparable with some corresponding concepts of experimental and theoretical cognitive psychology.

OLD AND NEW CONCEPTIONS OF GENETIC INFLUENCE

Freud believed that people inherit residues of the experiences of previous generations, according to Lamarck's ideas, which were still widely accepted in his day. He assumed that drives incorporate an essential element of innate ideation, unconscious fantasies, and affective reactions (disgust, shame and morality as innately developing constraints of libido [e.g. see Freud, 1905, p. 177, and the recently

¹ The attention given in this paper to the 'Control-Mastery Theory' of Weiss & Sampson is also due to the fact that this paper was written, in its original form, as a discussion of this theory (see footnote on title page).

discovered metapsychological paper published in 1985], the Oedipus complex including fear of castration, polymorphously perverse sexuality in childhood etc.).² Many psychoanalysts were freed from this particular heritage because it was greatly stressed by Jung in his doctrine of the archetypes. Furthermore, the general dominance of materialistic assumptions in the scientific world up to about the middle of this century acted in such a way that these Freudian ideas were less emphasised.

In his effort to define how psychic reality originates and develops, and what its relations are to external experiences, Freud eventually built a metapsychology in which he came to conceptualise a dual theory of drives (life and death, or Eros and aggression). Starting in the thirties, two major corrections to this Freudian concept of drive have been made (Eagle, 1991).

The first correction came from ego-psychology (Hartmann, 1939), with the proposal of an area of cognitive functioning free from conflict and autonomous from the id, and a largely implicit re-emphasis, via adaptation, on the importance of external reality. But in addition to these changes, the concept of drive subtly changed: increasingly, the assumption of inherited ideas and affective dispositions was de-emphasised, and drive became simply an autogenous welling up of tension demanding discharge with only minimal cognitive content (e.g. the directional distinction among homosexual, heterosexual, aim-inhibited and narcissistic libido). Post-oedipal object choice became largely environmentally determined (learned or opportunistic); castration anxiety and superego restraints were likewise seen as

having external sources. The drives' basic aim was conceived as a discharge to relieve tension, but the object was a mere instrument of it and not desired as such. With a play on words about psychoanalytic jargon, we could say that 'object' relations were 'narcissistic' relations (i.e. as long as other people were merely convenient arrangements for the optimal reduction of tension, the implicit orientation of the intrapsychic viewpoint was indeed narcissistic [Migone, 1994, p. 94]).

The second correction, which was far more important than the first, was offered by object-relations theory (starting with the pioneering work of Suttie [1935], and then with Fairbairn, Guntrip, and other authors of the 'English school', which played a fundamental role in the history of psychoanalysis), where 'object relations' acquired a privileged theoretical status. Furthermore, with the pioneering investigations by Bowlby (1958, 1969) and others, drive theory was reformulated using the conception of different motivational forces. Some of these motives were not derived from the so-called primary drives (libido, aggression, hunger etc.), but were autonomous: object-seeking, attachment, contact comfort, exploration, curiosity, competence-mastery, and so on.

Across the ocean, the 'interpersonal school' (Sullivan and the other neo-Freudian or 'culturalist' authors of the Washington School of Psychiatry) criticised libido theory and emphasised, instead, the importance of 'real' interpersonal experiences for the construction of personality. In recent years, infant research (e.g. Stern, 1985) and motivation studies (e.g. Lichtenberg, 1989) provided further evidence

² We could say that this notion of innate ideation derives not only from Lamarck, but goes back to idealism and Platonism (quite explicitly in Meno, written in the first half of the fourth century BC, where Plato founded the 'theory of reminiscence': through appropriate questioning, Socrates succeeds in showing that a slave, completely ignorant of geometry, can formulate by himself the Pythagorean theorem. Plato explains that this is possible because man's soul has reached knowledge of truth from a preceding life and hence can remember it). In both idealism and Platonism, ideas are at least as real and important as the material world. A different position was held by Locke, who popularised the conception that ideas emerge only from experience, which became part of the materialist-mechanist view of science expressed, in Freud's day, by the positivism of Mach to which we know he was attracted. According to Holt (personal communication), one problem in Freud's psychoanalytic theorising was that he had conflicting commitments to both philosophical assumptions, including a set of quasi-idealistic ones via *Naturphilosophie*, Kant and humanism.

that the child is not regulated only (if, indeed, at all) by two innate instincts aimed at discharge, but by many discrete (although inter-related) motivational systems primarily concerned with interpersonal adaptation. Many came to acknowledge that the eternal conflict between *Eros and Civilization* (as stated in the title of Marcuse's famous 1955 book) that traditionally characterised the psychoanalytic view of human nature was derived from the romantic myth of the nineteenth century, according to which a person could find happiness only once (s)he was freed from all societal constrictions.

Then, if according to Freudian metapsychology all behaviour was motivated by drives that were 'cyclical, selective, displaceable, peremptory, and appetitive' (Rapaport, 1960, p. 187), contemporary theory of motivation has greatly altered this stance. We quote from Jerome L. Singer:

Today we see humans as active explorers of their physical and social environment. We strive not primarily to reduce drives but rather to assign meanings, to form new schemas and scripts, *to experience the excitement of confronting and investigating incongruities between our expectations and new situations*, as well as to experience the joy of eventually assimilating novelty into the earlier clusters of schemas. This cognitive-affective perspective is a far cry from the earlier human models of drive arousal and reduction synthesised by Rapaport (1960). Rapaport himself told me that he could find no place for curiosity in the classic psychoanalytic model. Perhaps it was no accident that the work of Schachtel (1959) and White (1959, 1960), and the emerging emphasis on exploration in childhood appearing in Piaget's work, all signalled a shift in psychoanalysis that was currently taking over in experimental psychology (Singer, 1988, p. 102, *our italics*).

When Freud abandoned his seduction theory, it was a traumatic experience in itself, for which he felt 'despair', and during this process he may have reacted with an overemphasis on inner fantasies and drive discharge. But he was simply trying to build a natural science solidly grounded on empirical observation, and, with an emphasis on fantasy and on the concept of 'psychic reality', he was trying to capture the

human mind's unique ways of functioning, and thus to begin to build a 'psychology' (Freud [1915b, p. 171], for example, appreciated Kant's views about the influence of our inner world on perceptions). He slowly and painfully recovered from the abandonment of seduction theory, but he needed eight years (from 1897 to 1905) to make public his revision. The psychoanalytic movement may need much more time to understand fully the clinical implications of the second trauma in the history of psychoanalysis, which we might call the 'abandonment of drive theory': the realisation that metapsychology (dual theory of drives, concept of drive-discharge, id, etc.) is still unvalidated by scientific research. While the concepts of ego-psychology (such as adaptation) and those of object relations were put forth in the thirties, and the critique of some metapsychological concepts begun appearing in the forties (e.g. Kubie, 1947), and quickly grew to a flood in the sixties and seventies (e.g. Holt, 1965; Ellenberger, 1970; Gill, 1977; Sulloway, 1979), in the nineties we are still discussing their clinical implications. As Weiss argues, a model based largely on Freud's early theory of mind, on impulses seeking gratification, 'still exerts a powerful, perhaps predominant, influence on psychoanalytic thinking' (1993b, p. 12). At the same time, the abandonment of drive theory may have determined some forms of over-reaction within contemporary psychoanalysis, such as the danger of criticising metapsychology *in toto* and saving only clinical theory (e.g. Klein, 1976), as if the latter could exist without a general personality theory, in this way, so to speak, throwing away the baby with the bath water.

The current challenge is to develop a theory of motivation and a theory of therapy that faces up to the challenge of finding scientifically acceptable ways to account for the undeniable facts that somehow, these phenomena show the guiding influence of genetic factors that Freud talked about. True, we now know that some of the concepts and theories he drew on for this purpose are untenable; but we can no longer content ourselves with pointing that

out without finding a better way to frame his insights. As we stated earlier, we will try to do so, using theories and converging evidence from cognitive science, ethology, evolutionary epistemology, infant research, clinical data, and psychotherapy research.

Let us turn now, as an example for our discussion, to the central concepts of Control-Mastery Theory developed by the San Francisco Psychotherapy Research Group (Weiss, Sampson and the Mount Zion Psychotherapy Research Group, 1986; Weiss, 1971, 1988, 1990a, b, 1993a, b, 1994).

THE CONCEPT OF PLAN IN CONTROL-MASTERY THEORY AND IN COGNITIVE PSYCHOLOGY

According to Control-Mastery Theory, human beings have a powerful inborn disposition to understand their reality and to adapt to it.³ The disposition is manifest, from infancy onwards, in the form of unconscious plans guiding behaviour, thought and affects:

A person's most powerful motivation is to adapt to reality, especially the reality of his interpersonal world. He begins in his infancy and early childhood to work at adapting to his interpersonal world, and he continues to do this throughout life (Weiss, 1993a, p. 4).

If environmental—most importantly, interpersonal—influences are adverse to a plan, the person may develop beliefs about the self and the world that are likely to become pathogenic, i.e. to hinder access to the future operations of innately based plans aiming at understanding and adaptation. In psychoanalysis, both a patient's unconscious plans (innately based, aiming at understanding and adaptation) and pathogenic beliefs (developed on the basis of adverse experiences) come under scrutiny (these pathogenic beliefs may of course be responsible for 'pathogenic plans', which con-

flict with the basic adaptive plans). Pathogenic beliefs, in particular, are sooner or later tested in the transference. The therapeutic goal is to detect and overcome the pathogenic beliefs and to further the operations of the patient's plan, both through 'pro-plan' interpretations and through corrective emotional experiences in the transference.

We believe that the concepts of plan, belief, and test in Control-Mastery Theory have an interesting counterpart in the classic book by Miller, Galanter and Pribram (1960), *Plans and Structure of Behavior*, which marked the beginning of the so-called cognitive revolution in theoretical and experimental psychology.

According to Miller et al., behaviour, thought and affects are organised as a hierarchy of plans. The foundation of the hierarchy is a number of inborn plans; these plans at the top of the hierarchy correspond to what was once called instincts. The hierarchy grows and changes as a function of experience and learning. Each plan is conceived as a TOTE unit. TOTE is an acronym of *Test-Operate-Test-Exit*. This means that each plan begins with a Test and ends with a Test. The Test is a comparison or matching process. The entities that are matched in the Test are (a) the perceptual categorisation of the environment at a given moment, and (b) the so-called 'Image' of the plan. The Image is the inner representation of the goal of the plan, which can be either conscious or unconscious. When the Image and the ongoing categorisation of the environment are dissonant,⁴ the plan becomes active (Operate). The operation of the plan is a sequence of actions that modify the relationship between organism and environment and that are related to the Image through an ongoing feed-back process. The purpose of these actions is to eliminate any cognitive dissonance between the Image and the perceptual categorisation of the environment. When the Test reveals full corre-

³ In a way, this inborn disposition resembles Rogers's (1961) concept of 'self-actualisation', although Rogers's concept was more vaguely defined.

⁴ This may remind one of Festinger's (1957) concept of 'cognitive dissonance', although the latter was of course from a different theoretical context.

spondence between Image and perception, the plan ends (Exit), so that another plan can be activated. In fact, the elimination of the cognitive dissonance does not imply a return to a state of inactivity, or a sort of tension reduction (as in Freud's pleasure and Nirvana principles), because another plan is activated according to a postulated inborn disposition towards developing the individual's full adaptive potential.

The TOTE model, as such, is regarded as outdated in cognitive psychology. Other, much more complex theoretical models—e.g. connectionism or Parallel Distributed Processing (PDP)—have been proposed in order to guide experimental and theoretical investigations (e.g. see Clark, 1991). The basic idea underpinning the TOTE concept, however, is still viable and noteworthy. The TOTE model's merit has been to provide the basis for a theory of motivation totally uncontaminated by concepts of instinctual energies in need of discharge ('energy' and 'discharge' are concepts that can still be used in this sort of motivational theory, but only in a metaphorical rather than any real sense). This feat has been achieved thanks to a theoretical formulation in which both inborn motivations and acquired ones are conceived as basically sharing the same functional organisation—an organisation in which the key role is played by the processing of information rather than by drive discharge. Bowlby (1969) and Peterfreund (1971) are among the authors who first applied this type of cybernetic thinking to topics of psychoanalytic clinical concern. Control-Mastery Theory postulates a view of motivational processes that is so much in keeping with the cognitive model first proposed by Miller et al. as to use the same basic terms ('plan' and 'test'), although Weiss & Sampson originally did not relate their theory to the TOTE model.

The merits of this approach to the study of motivation are illustrated by a number of writings both in the psychoanalytic and in the cognitive field. Bowlby (1969, 1979, 1988) has discussed widely how the basic, innate, univer-

sal 'plan' of attachment develops in different individuals, according to the interpersonal influences to which they are subjected. He illustrated various patterns of attachment behaviour and different Internal Working Models of the self and the attachment figures. Gilbert (1989, 1992), in the cognitive field, has similarly reflected on the role played in personality development by another inborn plan—i.e. that related to a type of behaviour ethologists call ritualised aggression—whose purpose is to define a position in the relationship as one of dominance or submission. In a different vein, Lichtenberg (1989) has reflected on the ontogenesis of five motivational systems (psychological regulation of physiological needs, attachment and later affiliation, exploration/assertion, aversion, and sensual enjoyment and later sexual excitement), assuming that they are based on phylogenetically based, innate plans for the processing of interpersonal information.

Evolutionary epistemology (e.g. see Popper, 1990) invites us to consider inborn plans as the outcome of evolution, having developed from natural selection and aiming at adaptation. They are mirrors of external reality, in the same way as, in Lorenz's words (1978), the horse's hoof is, in an important respect, the representation of some characteristics of the ground (flatness, hardness, etc.). Goethe poetically expressed the same concept when he said that the sun could not give light to the eye if the eye itself were not 'solar'. Hence, innate plans represent a gigantic process of information that has been genetically transmitted to us during evolution (Liotti, 1994, p. 44). This innate 'knowledge', this adaptedness or set of innate plans, is continuously challenged by the beliefs that we build from experience, which in some cases are represented by the so-called 'pathogenic beliefs'; under optimal circumstances, innate plans are complemented by adaptive beliefs, based on those experiences that better allow for full developmental expression.

INNATE VALUES AND THE CATEGORIES
OF MEMORY AND PERCEPTION

As we have said, ethology (Lorenz, 1973, 1978) and evolutionary epistemology (Popper, 1972, 1990) provide solid support to the hypothesis that the ontogenesis of the human mind is based on an extensive endowment of innate information. The epistemological status of this innate 'knowledge', of course, is not that of declarative knowledge (explicit or propositional knowledge, 'knowing that', i.e. the type of knowledge that can be easily translated into, and expressed by, language). Nor is it akin to those conscious non-lexical representations of knowledge (e.g. mental images of a quasi-visual type) that seem to be an outgrowth of higher-order consciousness, which, in turn, is contingent upon language (Edelman, 1989). Rather, innate knowledge pertains to the wide mental world of 'knowing how' (Ryle, 1949)—i.e. implicit and procedural knowledge (Tulving, 1985)—and, under given circumstances, it manifests itself as a readiness to acquire new information and to promote developmental steps. It is important here to stress that this innate information is encoded in the genome via generations of evolutionary adaptive change, and not, of course, by Lamarckian direct influence on experience; furthermore, it is not the ideas (or the 'plans') themselves that are inherited, but rather genetic codes, biochemical structures that have the property of guiding the developmental process so that the resulting new organism reacts to an average expectable environment by a recognisable emerging cognitive orientation.

Imprinting in birds (Lorenz, 1935) provides a prototypical example of this innate procedural knowledge. The hatching bird must possess the innate implicit 'knowledge' of the sensori-motor schemas necessary for following an adult in its environs. Even in man, we must assume, innate knowledge consists in knowing how to pursue the values of adaptation, survival, and transmission of one's genes to future generations (e.g. see Slavin & Kriegman, 1992). Of course, man also inherits an enormous,

compared to other animals, species-specific propensity to learn from environmental experiences: this propensity, coupled with the long period of dependency from the caregivers and with the related neoteny of the human species, allows for great individual variations in the form in which innate values are finally pursued by each adult human being. Innate knowledge, it should be emphasised, is not equivalent to knowing *that* those values are of great relevance for oneself and for the conspecifics. It is equivalent to knowing *how* (procedural or implicit knowledge) to pursue the goals that are valuable for survival and reproduction. Inborn procedural (implicit) knowledge may or may not be associated, during cognitive-emotional development, with the conscious representations of self and the world that constitute declarative or explicit knowledge (e.g. sexual attraction for members of the opposite sex is not represented in consciousness by the need to continue the human species, nor does it necessarily imply this awareness).

The tacit nature of innate 'knowledge' and its relationship to the pursuing of inborn values of adaptation and survival is in keeping with Control-Mastery Theory, which assumes that the patient's plan, guiding his or her strivings towards self-righting and healing, is usually unconscious. If we relate the ideas to the basic concepts of evolutionary epistemology, however, we must state that the unconscious nature of the patient's plan should be understood as an instance of cognitive non-conscious processes (procedural tacit knowledge) and not in the terms of the classic psychoanalytic theory of the unconscious (see Eagle, 1987). Nor should it be equated to the concept of 'unconscious fantasy' (Arlow, 1969), which can also include a maladaptive set of beliefs, is highly organised, and follows frustration of a wish. It could have some similarity with Freud's (1916-17, 1918) concept of 'primary fantasies' (*Urphantasien*), if not for the fact that the latter were conceived as transmitted by Lamarckian inheritance, and also as both universal and maladaptive (e.g. fear of castration); with these characteristics, during evolution they shouldn't

have been selected out (for a psychoanalytic discussion of the concept of primary fantasy and of the various definitions of unconscious fantasy,⁵ see Isaacs [1948] and Laplanche & Pontalis [1985]). In our view the concept of plan in Control-Mastery-Theory may be understood, according to evolutionary epistemology, as implicit, procedural knowledge based on an elaboration of innate values of survival and adaptation. These values should be conceived as inherent in the whole structure and functioning of the human organism, not transmitted by any one or a small number of dedicated genes.

In a cognitive-evolutionary perspective, how should we understand the concept of pathogenic belief? The answer is rather complex. A reflection on the processes of integration between inborn dispositions and categories of perception and memory is necessary. Inborn dispositions, in order to become fully operative, must be completed by the perceptual categorisation of the environment to which the organism strives to adapt. In order to clarify this theme, we shall begin by using a prototypical example: Lorenz's imprinting.

If the bird as it hatches does not perceive its mother or an adult bird of the same species but another mobile object, it will follow that object even if it is subsequently put into contact with adult con-specifics. For the process of imprinting to take place, the object perceived by the hatching bird must bear some resemblance to an adult member of the species. For instance, a little duck may become imprinted by a box of a size and a colour not too different from that of an adult duck, moved by the ethologist at a speed not too different from the usual pace of ducks. It cannot become imprinted by a car or a bicycle. The duck's innate procedural knowledge, in order to become operative, must be matched by perceptual categories within a specific limited range (corresponding to the inter-

nal 'Image' of the plan, using Miller et al.'s terminology). The process of imprinting in birds exemplifies the general rule: what appear to be innate representations and plans are better conceived of as self-organised procedures integrating bits of structurally embodied 'knowledge' that must be completed, in order to become fully operative, by instances of perceptual categories (developing into categories of memory) of a given range.

Edelman's neurobiological theory of consciousness expresses this view well. According to Edelman (1989), each human being comes to life with a set of innate procedures, somehow coded in the brain stem and in the limbic system, whose job it is to attribute *value* (evolutionary survival and adaptation value) to each element of the ongoing categorisation of the environment. We can say that Freud (1911), although in different words, expressed the same idea of a basic good-bad distinction by means of his pleasure principle.

Edelman calls these evolved, innately based neurophysiological procedures 'values'. He calls the whole system of innate values the 'biological self'. The values become linked to the perceptual categories that best fulfil them. The neocortex is the main organ for extracting categories from the environment. The perceptual categorisation of the environment effected by the neocortex gives rise to what he calls 'non-self'. The coupling of perceptual categories and innate values is accomplished by a complex process Edelman calls 're-entry'. Re-entry is more than feed-back: it is a complex exchange of parallel signals between the neuronal maps corresponding to perceptual categories and the neuronal maps corresponding to some other function simultaneously activated, like actions or values. In this way, particular structures of memory, called 'value-category memories', are created (incidentally, this process is at the basis of the experiments on 'neural

⁵ According to a Kleinian theory of unconscious fantasy, namely Bion's (1962) theory of 'preconceptions', an unsatisfactory (traumatising) experience with the primary environment provokes the introjection of an 'object that misleads': it is interesting to note that *at the clinical level* this theory may refer to an experience that in many ways is very close to the one discussed in this paper.

networks', a very promising field of artificial intelligence). Value-category memories are continuously matched with the ongoing perceptual categorisation of the environment (this is what Bowlby [1969, ch. 7] calls 'appraising process', and it is where feeling and emotion play a key role). This matching process has some similarity to the phase of Test of the TOTE units: broadly speaking, Edelman's value-category memories correspond to the Images that, in Miller et al.'s terminology, are implied in the Test phases of the TOTE (see the above section of this paper). From this matching process, stems organisation of action and, in Edelman's terminology, 'primary consciousness'. When the perceptual categorisation is completed by the symbol-making and concept-making processes of language—that is, in Edelman's model, when the matching process goes on between the fully developed categories of the social self and the social non-self besides those of the biological self and biological non-self—'higher-order consciousness' emerges.

It should be remarked that innate values, being the result of a long evolutionary history, do not easily change. The categories of perception and memory, however, are always remodelled and ordered in ever-growing hierarchies of increasing complexity (Edelman expresses this idea by saying that the brain is always recategorising its own categories). This evaluation process has an important emotional implication: what is positively valued tends to be considered good and pleasant, even exciting, while what is negatively valued is bad, often frightening or disgusting or depressing. In this way, evaluation leads to anticipation, especially after experience of the consequences of interacting with what was evaluated, anticipations that may be highly charged and can explain the peremptoriness of some motives. Needless to say, this process reminds us of the psychoanalytic theory of internalised object relations, where self and object representations, linked to an affect, make up the building blocks of the psychic structure (e.g. see Kernberg, 1976).

It is interesting to notice, in this regard, that Edelman's neurobiological theory, while it is

noteworthy for its effort at a scientifically updated understanding of memory functioning, does not represent a totally new development in our understanding of psychic functioning: a long time ago, in a letter to Fliess of 6 December 1896, Freud (1950, pp. 234-9, Letter 52) hinted at a similar idea, when he spoke of the 'stratification of the memory traces' that undergo a re-systematisation, a re-writing, on the basis of new experiences. Later, he postulated two different memory systems (Freud, 1900, ch. 7), and implicitly characterised the first of them as having strongly affect-laden memories (which led Rapaport [1951] to call the first such system the 'drive-organisation of memories', which, on the basis of later experiences, is supplemented by the conceptual organisation). In 1914, Freud (1918, pp. 102-103) commented on Jung's idea of 'retrospective fantasising' (*Zürückphantasieren*), and developed the concept of *Nachträglichkeit*. This important concept, which in the *Standard Edition* was imprecisely translated by Strachey as 'deferred action' (while Laplanche & Pontalis [1967] translated it in French as *posteriorité*), implies the retrospective remodelling of our past as a normal reorganisation of personal meanings (Thomä & Kächele, 1988, ch. 3.3; Thomä & Cheshire, 1991): Freud was well aware that our past influences the present as well as that the present influences our past, and this is not irrelevant to his sophisticated concept of psychic reality. Incidentally, Strachey's misleading translation of *Nachträglichkeit* as 'deferred action' may have delayed, at least in part, the solution of the apparently interminable debate about hermeneutics in psychoanalysis (Ricoeur, 1965; Schafer, 1976; Spence, 1982; etc.; for a recent debate showing the range of various positions, see Holt et al., 1995).

Let us now return to the basic concepts of Control-Mastery Theory in the light of Edelman's theory of brain and mental activity, and try to develop a convincing and well articulated idea of the relationships between the patient's plan and his or her pathogenic beliefs. Once revisited in the light of Edelman's model, the

concept of plan, while still tenable in its basic meaning of an innate disposition towards adaptive goals, should not be understood as separate from the 'beliefs' (perceptual and conceptual categories, in Edelman's terminology), pathogenic or healthy, linked to them in the value-category memory. The innate values of a human being may be (partially or wholly) fulfilled by a range of categories of perception and memory. If a given value is matched by a perceived state of affairs falling within a category that is near the limit of the acceptable range—for instance, because the strivings for fulfilling one's values take place in a traumatic environment—an element of the value-category memory will be formed that corresponds to a pathogenic belief. The value is pursued anyway, but in a dysfunctional or maladaptive manner.

The existence of 'maladaptive plans', and the fact that they may coexist or conflict with 'adaptive plans', could remind us of the Freudian concept of conflict, i.e. between different plans, and not only between plans and pathogenic belief. But what makes the plan maladaptive or pathogenic is not its content or meaning, but the inadequacy of the category of perception and memory that has been built up, in the past, in the effort to fulfil the value. Categories and values are not on the same evolutionary and ontogenetic level: there are various types of value-category memories (which, in turn, are at the basis of beliefs, both healthy and pathogenic), according to their ability to fulfil a given value. Maladaptive plans do exist, but in so far as they are unsatisfactory, even to a small degree, then a discrepancy with some innate value already exists, and may be sufficient to activate a Test. The motivational power of the inborn value can be detected as part of the patient's plan even when his or her overt behaviour is organised according to the pathogenic belief. For example—as in those cases sometimes discussed under the rubric of projective identification (e.g. see Sandler, 1988; Migone, 1995b, pp. 624-9)—a patient may always attack and devalue the therapist but continue to come regularly and on time to the sessions: the plan

(the 'good part of the self') is 'projected into the therapist', while the pathogenic belief guides the patient's overt behaviour.

When the analyst confronts the patient's dysfunctional way of pursuing a value, the stage is set for the interpersonal situation called 'Test'. If the therapist acts in such a way as to foster a more adaptive way of pursuing the value than the one allowed by the patient's value-category memory (i.e. the therapist 'passes a test' in the transference, or makes a 'pro-plan interpretation'—we should rather say 'a pro-adaptive plan interpretation'), then a different category—first of perception and then of memory—will be formed by the patient. This corresponds to a first, partial change of the pathogenic belief.

The new category formed by the patient within the relationship with the therapist who is passing a test is matched with the value-category memory on which a pathogenic belief is based. This matching process can be mediated by language, and an insight about the pathogenic belief and the previous, traumatic interpersonal transactions that have led to its construction may result. According to Edelman's theory, consciousness emerges from the match between a given value-category memory and a new *perceptual* category related to the pursuing of the same value, whenever this matching process takes place within human interactions mediated by language. This, of course, is the situation whenever, in the terminology of Control-Mastery Theory, the therapist passes the patient's test within the transference relationship.

The two following predictions, based on Edelman's theory, are paralleled by some well controlled empirical observations: (a) a patient will have a clearer consciousness of a value-category memory when that memory is matched with a new perceptual category, and (b) a patient will experience a more pleasant emotional state when the new perceptual category fits the innate positive value in a better way than the old memory category in the value-category system. An example of (b): reduced anxiety and a more lively involvement

in the therapeutic process are often noticed when—the therapist having passed a test—the patient gains insight into a previously unconscious pathogenic belief (Weiss, Sampson & the Mount Zion Psychotherapy Research Group, 1986; Weiss, 1988, 1990a, 1993a, b).

The fact that often insight gained after the painful and anxiety-provoking overcoming of resistance is not the prerequisite of change, but rather the *consequence* of a positive, anxiety-reducing change in a significant relationship such as the therapeutic one, was observed by Alexander in 1930, and was emphasised later by him when he proposed the concept of 'corrective emotional experience' (Alexander et al., 1946, p. 20).⁶ The therapeutic process, in summary, runs as follows: firstly, there is a new intersubjective context, positively related to the patient's innate values or (adaptive) plan (the context for a corrective emotional experience created by the therapist who is 'passing the test'); secondly, the patient is calmer and/or more interested in the therapeutic process, because this process now promises a better fulfilling of an innate adaptive value; thirdly, the consciousness emerging from the matching between the patient's value-category and this new relational reality becomes the prerequisite for the conscious scrutiny and revision of the previously unconscious pathogenic belief tacitly held within the patient's value-category memory.

This mini-theory, even if it is admittedly only sketched out thanks to a preliminary integration of some ideas of Control-Mastery Theory and Edelman's neurobiological theory of

consciousness, may shed light on an important question: is it possible that a pathogenic belief, or a set of pathogenic beliefs (i.e. one or more dysfunctional elements of the value-category memory) overcomes and hinders the plan (i.e. the unconscious striving for a more adaptive way of pursuing innate values) to such an extent that it becomes clinically impossible, at least through psychological means, to foster the plan and to correct the pathogenic belief? If so, why and when could this happen?

Many therapists implicitly accept this proposition by using the concept, 'unsuitable for treatment'. Only actual experience of different types of psychological treatments could settle the question whether there are types of pathogenic beliefs that cannot be corrected by any type of psychotherapy. The theory presented here, however, provides a precise answer to the related problem: can the pursuit of innate values be not only hampered and deranged, but totally destroyed by pathogenic beliefs dictated by experience and learning? The answer, according to the theory, is a plain no: by definition, if there is no fulfilment whatsoever of an innate value of survival, development, and adaptation, then survival, development or adaptation will not be possible. An innate value may be repeatedly fulfilled, during the first years of life, in a very limited and perhaps tragically distorted way—and the consequence may be the construction of memories and expectations (pathogenic beliefs) that could seriously hamper the pursuing of that value in adult life. However, at least a partial fit between experience

⁶ We quote from Alexander: 'The belief that the recovery of memory is, in itself, one of the most important therapeutic factors, is still held by many psychoanalysts and in a sense can be considered to be a residue of the period of cathartic hypnosis. The persistent emphasis upon intellectual reconstructions of memory gaps can possibly be traced back to the relatively short period of waking suggestion; but it was the still greater emphasis during the free association phase on the intellectual understanding of the past that made psychoanalytic treatment almost synonymous with genetic research. As a result, the filling in of memory gaps became crystallised as the therapeutic goal of psychoanalysis. This exaggerated emphasis has long hampered both the understanding of why patients remember repressed events and the correct evaluation of their therapeutic significance. It was not until 1930 (Alexander, 1930) that the recovery of memories was demonstrated to be not the *cause* of therapeutic progress but its *result*, and that recollection of repressed childhood memories occurs, as a rule, only after the same type of emotional constellation has been experienced and mastered in the transference situation' (Alexander et al., 1946, p. 20).

and value is needed in order to guarantee the survival of the individual and his/her adaptation to the interpersonal environment in which his/her survival takes place. If there has been survival, however limited and abnormal the adaptation, then there must be at least one value-category memory that corresponds to the survival values, however great the pathogenic potential of others. In other words, a psychological theory of human development that is based on evolutionary epistemology should deny the existence of a death instinct. Even suicide, according to such a theory, should be interpreted as an attempt, tragically misled by pathogenic beliefs, to pursue one or another innately based value (e.g. reducing pain or preserving the happiness of significant others), even if it indeed results in totally destroying the possibility of further pursuing any other innate value.

The theory discussed here allows for the possibility that innate values are hampered not only by experience and its consequences (i.e. pathogenic beliefs), but by inborn errors of brain functioning, metabolism or structure. Even in this case, however, it is in principle possible to devise psychological or pharmacological interventions which may foster the pursuing of the thwarted innate value. Recent writings on autism (e.g. Grandin, 1984, 1992; Sacks, 1995) illustrate the relevance and feasibility of psychological interventions aimed at fostering innate values that have been thwarted, most probably, not by experience but by genetically determined pathological conditions of mental development.

These reflections on a clinical model based on a cognitive-evolutionary view of mental

functioning illustrate a theoretical stance that clearly asserts the interacting, equally important, reciprocal roles of both experience and inborn processes in the construction of psychic reality. For a clearer statement of the theory of motivation that underpins this model of mental life, it is now necessary to dwell on the types and number of the innate values that support the multifarious plans guiding human behaviour, thought and affect.

INNATELY BASED MOTIVATIONAL SYSTEMS: AN EVOLUTIONARY PERSPECTIVE

Edelman (1989) states that the values upon which the formation of value-category memories is based must be conceived of as resulting from the evolutionary history leading to the human species and thus identified through ethological methods.

Some innate values (in Edelman's sense) are obviously homeostatic in nature. That is, they have to do with the maintenance of anatomical structures and with the balance of basic physiological functions. Eating, sleeping, thermoregulation, and evacuation of wastes are activities and functions related to such inborn values. We can consider the brain processes related to the pursuing of these inborn values as the operations of distinct systems of behavioural control (Bowlby, 1969). The latter can be called behavioural or motivational systems.⁷ Ethological observations show that other motivational systems are added (in the animal species capable of social life comparable to that of human beings)⁸ to the set of homeostatic systems. These other motivational systems

⁷ The advantages of thinking in terms of motivational systems, in substitution for the outdated concept of instinct, have been convincingly stated by Bowlby (1969) and Lichtenberg (1989), among others. Lichtenberg's analysis of the motivational systems is, from many points of view, in keeping with the one discussed here. Lichtenberg's theory, however, is only marginally concerned with neurobiology, and not at all with ethology and evolutionary epistemology. Ethological and evolutionary considerations are essentials to the task of integrating psychoanalytic concepts with Edelman's impressive theoretical construction. For this reason, in this paper we shall not deal with Lichtenberg's theory of motivation. Similarities and differences between Lichtenberg's theory and the cognitive-evolutionary view of motivational processes have been discussed elsewhere (Liotti & Iannucci, 1993; Liotti, 1995a). For a discussion of Lichtenberg's theory of therapy from the point of view of Control-Mastery Theory, see Weiss (1995).

have, as do the homeostatic systems, an inborn basis. They regulate distinct types of social interaction: care-seeking (attachment), caregiving, competition for rank (dominance and submission in social dyads and groups), mating, social play, co-operation in striving towards a shared goal, and affiliation to the social group. Each of these different types of social interaction is conceived to be regulated by a distinct motivational system with an inborn basis (Gilbert, 1989, 1992; Liotti, 1994).

When we think of the inborn values postulated by Edelman's theory, we should keep in mind two levels of inborn motivations, each of which comprises a set of distinct motivational systems (MacLean, 1985). The first level of values, corresponding to homeostatic motivational systems, is phylogenetically older and is represented in the functioning of the so-called 'R complex' or reptilian brain (comprising the structures of the brain stem, the putamen and the globus pallidus). The second level of inborn values is phylogenetically more recent and corresponds to the set of motivational systems regulating social behaviour, represented in the functions of the limbic system. These two levels of motivational systems operate in all mammalian species. In human beings, a third level of motivational processes appears in correlation with the development of the neocortex, adding itself to the previously evolved levels of homeostatic and social motivations. It is the level of the motivation for understanding, self-organisation of motive systems, i.e. giving coherence

to the fragments of meaning continuously processed by our higher order cognitive functions.

The patient's unconscious plan, described in Control-Mastery Theory, could be related to the operations of all the innately based motivational systems. The distinct motivational systems intervene in varying sequences and combinations, moment by moment, to guide the patient's behaviour in psychotherapy. The various motivational systems may operate simultaneously and in parallel;⁹ in a way, they could be compared to music, where the five main groups of motivational systems (as described, for example, by Lichtenberg, 1989) are the lines of a musical staff. The parallel processing of information regulated by the motivational systems takes place without conscious awareness. Consciously, we tend to perceive only the operations of one system at a time. It will be the system that, at the moment, is predominant over the others (consciousness, as well as language, is not a parallel, but a sequential, serial process [see Dennett, 1991]; there are rare, mostly pathological, exceptions to this rule).

The unconscious coordination of the patient's behaviour towards self-healing could be related to the existence of unconscious goals linked to inborn values and pursued by unconsciously operating motivational systems. The patient follows his/her plan, making use of existing categories of memory that have been built up, in the past, as the effect of the

⁸ Only animal species whose members are capable of reciprocal, individualised identity recognition have a social life that is comparable, in an evolutionary perspective, to human basic social interactions (Liotti, 1994). The social life of animals who are capable of reciprocal, individualised recognition through the social roles of dominance and submission defined by ritual agonistic behaviour (e.g. see De Waal, 1982), for instance, offers an example of such an evolutionary-ethological comparison. The social life of insects that are incapable of individualised recognition as a *consequence* of social behaviour (ritual agonistic behaviour, sexual behaviour, caregiving and careseeking behaviour) is thus incomparable to that of humans. Sociobiology does not emphasise this distinction between the social life of insects and that of primates, based on memory of distinct individuals. For this reason, the ethological-evolutionary themes in this paper should not be associated with those explored by sociobiology (for other controversies between sociobiology and ethology, see Gilbert, 1992, pp. 120-30, 135).

⁹ Recent developments in cognitive experimental psychology highlight the different nature of the conscious, sequential processing and the unconscious, parallel processing of information. In this regard, the contributions of the approach known as Parallel Distributed Processing (PDP) or connectionism (Clark, 1991) may be of particular value for our understanding of the relationships between conscious and unconscious mental processes.

striving to fulfil his or her inborn values in the context of an interpersonal environment. If the latter is traumatic or otherwise adverse, these categories correspond to 'pathogenic beliefs'. For most cases seen in psychotherapy, the motivational systems usually active during the construction of pathogenic beliefs and subsequently disturbed by them are the interpersonal ones: attachment, caregiving, sexuality, competition, co-operation and affiliation. It is likely that the simultaneous, parallel operation of conflicting interpersonal motivational systems constitutes the formal condition for the construction of pathogenic beliefs able to hinder the unconscious plan for self-healing and normal living. In the effort to preserve, within traumatic or otherwise adverse interpersonal relationships, a given innate value (that is, in the striving towards the goal of an innately based motivational system), the pursuit of other values and goals may be inhibited or distorted. Often, a pathogenic belief corresponds to the expectation that the pursuit of a given interpersonal goal (say, mating or self-assertion) will be detrimental for another equally important goal (say, attachment, caregiving, or affiliation).

The clinical examples through which many psychoanalytic authors so vividly illustrate these concepts offer abundant evidence for the above assertion.¹⁰ For instance, a patient who regards his parents as fragile and unable to tolerate his assertiveness and autonomy, gives up pursuing the values of competition and mating in order to preserve the values of caregiving and attachment (Weiss [1993a], among others, has emphasised the concepts of 'survivor's guilt', 'separation guilt', and 'oedipal guilt' in order to explain these types of unconscious relinquishing of autonomy and self-assertion). Another patient, who has experienced the threat of rejection whenever she tried to rebel or compete with an oppressive, dominant parent, may develop a type of compulsive self-reli-

ance and renounce the value of care-seeking (attachment) even when she is in serious trouble. A third patient, whose needs for attachment have been met only at the price of a total submission to his parents' will, may sacrifice the value of co-operation in order to preserve his search for the protective proximity of a significant other, unconsciously believing that to present himself as equal in dignity and competence may imply the risk of rejection.

The following is a more detailed clinical vignette:

A dysphoric male patient in his thirties interrupted his psychoanalytic treatment after a few months and shortly thereafter referred himself to another therapist. The alleged reason for his dropping out was the unbearable anger he had experienced while listening to his former therapist's interpretations. He strongly disagreed with her interpretations, which he perceived as 'far-fetched', and fiercely argued against them. What made him decide to quit was the fact that he was under the impression that she could be hurt by his aggression; furthermore, his therapist seemed 'cold' and 'neutral' when he expressed the intention of terminating. The second therapist took a supportive, empathic attitude, almost without giving him any interpretations. After few months, however, the patient expressed anger and dissatisfaction at this second therapeutic attempt. He stated that these new sessions were tiresome and useless. He re-evaluated his former therapist, saying that her 'craziness' was still preferable to the 'shallow and uninteresting' attitude of his second therapist. The formulation of the case, at this point, was the following: the patient was striving, unconsciously, to pursue simultaneously the values of emotional closeness (attachment) and of self-assertion (competitiveness), while his pathogenic beliefs conveyed the unconscious expectation that the two values were reciprocally incompatible. On the basis of this hypothesis, the therapist

¹⁰ Interestingly enough, non-psychoanalytic authors have also given evidence of the key role of family dynamics in shaping the individual's goals and plans. Sulloway's recent book (1996), for example, has impressive data on the role played by birth order.

replied to his patient's expressed intention also to interrupt his second treatment by suggesting that he should continue, since he (the therapist) was sure to be able to help him in the long run and was interested in listening carefully to his criticisms, which seemed to him neither irrelevant nor groundless. The patient accepted. Gradually, it became possible to discuss the patient's fear that both his anger and his assertiveness would not be accepted and tolerated by an attachment figure (as he feared with the first therapist), or that the attachment figure would not remain available and lively in the face of the patient's criticisms (as he had originally perceived with the second therapist).

We believe that such a clinical model, based on a cognitive-evolutionary psychology, may put into a wider theoretical perspective the pioneering contributions of many psychoanalytic authors regarding, for example, the handling of aggression in the analytic setting. We are thinking of Winnicott's (1947, 1968) important conceptualisations on 'object usage' (i.e. the importance for the analysand to develop the capacity of object usage through having experiences of hating the object who nevertheless 'survives'), and of Bion's (1962) notion of 'containment', as well as of the technique for handling projective identification as suggested by authors such as Ogden, Grotstein and others. Contemporary researchers on the development of the attachment system in the first years of life (Bowlby, 1979, 1988; Bretherton, 1985; Grossmann & Grossmann, 1991; Main, 1995) provide many examples of the construction of pathogenic beliefs (value-category memories related to attachment value) that can inhibit the pursuing of other relational values.

RESEARCH ON EARLY ATTACHMENT AND THE EMPIRICAL VALIDATION OF THE THEORY

When the innate value fostering the care-seeking behaviour of the child is met by optimal responses by the caregiver, a pattern of secure attachment and a secure Internal Working Model (Bowlby, 1969, 1979, 1988) is devel-

oped by the growing child. When, however, the attunement of the caregiver to the child's need for attachment is far from the optimal, the child will develop one of the three basic patterns of insecure attachment: avoidant attachment (when the caregiver is rejecting), resistant or ambivalent attachment (when the caregiver's behaviour is unpredictable and intrusive), or disorganised-disoriented attachment (when the caregiver is distressed and frightened/frightening, usually as a consequence of his/her own unresolved traumatic memories [Main & Hesse, 1990; Liotti, 1992]). Corresponding to the three patterns of insecure attachment, children may construct value-category memories (organised into Internal Working Models) in which the pursuing of the attachment value is linked to the expectation of (a) being rejected (avoidant attachment), (b) running the risk of unpredictable disappointment (resistant attachment), or (c) representing a threat to the frightened caregiver or to be threatened by his or her violent responses (disorganised-disoriented attachment).

The above statements are presently being supported by an impressive amount of empirical research, exploring both children's behaviour in correlation with caregivers' attitudes and children's representations of self and attachment figures. Some of these studies are clearly relevant for research programmes on developmental psychopathology (Adam et al., 1995; Fonagy et al., 1995; Liotti, 1992, 1995b; Main, 1995), and are in keeping with the basic assumption that adverse interpersonal experiences related to an unconscious inborn value (attachment) are reflected in the construction of enduring pathogenic cognitive structures (beliefs). There is, then, in support of this model, not only controlled clinical evidence coming from the study of psychotherapy process (Weiss, Sampson & the Mount Zion Psychotherapy Research Group, 1986; Weiss, 1971, 1988, 1990a, 1993a, b), but also evidence coming from the related fields of developmental psychopathology and basic attachment research. We shall now briefly review some of the pertinent themes emerging from attach-

ment research that could illustrate the genesis of some of the cognitive structures called pathogenic beliefs.

If, when in trouble, children search for comfort while their innate plans for care-seeking are hindered by negative expectations conveyed by the Internal Working Model of a previously constructed insecure attachment pattern, the resulting behaviour will be marked by anxiety and may become frankly abnormal. The systematic observation of child-mother pairs in the 'Strange Situation' (e.g. see Bretherton, 1985) provides examples, in a very early phase of life (the children under observation are 12-18 months old), of pathogenic beliefs (those conveyed by the Internal Working Model) which may hamper the operations of an innate adaptive plan (the attachment motivational system). The negative representations of self and caregiver conveyed by the Internal Working Model of insecure attachment, moreover, may subsequently interfere with the operations of other innately based plans, and thus contribute to the construction of more complex pathogenic beliefs.

It has been shown, for instance, that 5-year-old children, classified as securely attached when one year old, have a different and more adaptive way of dealing with competitive aggression among peers than children previously classified as insecurely attached to their primary caregiver. Securely attached children are able to compete with their peers (an interpersonal occurrence regulated by an innate system different from the attachment system, namely, the agonistic system [Gilbert, 1989]) with an adequate level of aggression and seem able both to enjoy victory and to accept defeat with relative equanimity. Thus, they tend to acquire a higher social rank in groups of their peers. Insecurely attached children, on the contrary, tend to express an excessive level of aggression when they compete with their peers, or else they appear timid and tend to avoid any competitive challenge (for references, see Grossmann & Grossmann, 1991, p. 101). These empirical observations may be explained as follows. Securely attached chil-

dren expect to be adequately helped and comforted by their caregivers (they have internalised, in their Internal Working Model, the experience of a secure attachment relationship). Therefore, even when they experience the painful humiliation of being defeated in an agonistic encounter, their secure expectation of soon being comforted mitigates the painful experience. Thus, they do not learn to fear excessively the painful experience of humiliation in defeat. On the other hand, insecurely attached children do not expect that a competent and available caregiver will soon intervene to soothe their painful feelings when they are defeated by their peers. As a consequence, they quickly learn to avoid the risk of painful humiliation in agonistic encounters, either by preventive excessive aggression or by shy avoidance of any competitive challenge.

Other research suggests that the Internal Working Model of early insecure attachment may interfere with the motivational systems regulating caregiving and co-operation (Grossmann & Grossmann, 1991; Liotti, 1994). Empirical research showing a negative influence of insecure attachment on the activity or development of the sexual system and related memory categories is lacking (but see the studies on mating processes as a function of different attachment patterns: Kirkpatrick & Davis, 1994). Also lacking are studies exploring the possibility that negative memory categories primarily constructed during the operations of the agonistic system, the sexual system, or the co-operative system may negatively interfere with the subsequent operation of other motivational systems.

Attachment research illustrates how a maladaptive Internal Working Model constructed in relation to an inborn value (attachment) may interfere not only with the efficient pursuit of that value, but also with other adaptive plans (e.g. striving for high social rank, caregiving, efficient co-operation on equal grounds and mating). As a general rule, thanks to this research we can state that, stemming from a pathogenic belief related to an adaptive inborn plan or motivational system, other pathogenic

beliefs may be constructed during personality development that may hinder the operations of other important motivational systems.¹¹ Some recent empirical findings show how, also through the subsequent deranged development of other inborn motivational systems, a pathogenic categorisation of self and other people's behaviour related to early attachment may underpin various adult psychopathological disturbances. Liotti et al. (1991) found that dissociative disturbances were significantly related to the experience of having been cared for, during the first two years of life, by a mother suffering from unresolved losses. As Liotti (1992, 1995b, in press) and Main (1995; Main & Morgan, 1996) have argued commenting on this finding, a mother suffering from unresolved losses and/or traumas is likely to induce disorganisation of the attachment system in the child. Such a disorganisation is reflected in the construction of Internal Working Models (in Edelman's terminology, conceptual categories), concerning both the Self and other people, that (a) make it difficult to pursue properly the innate value of protective proximity to other human beings (attachment), and (b) seriously hamper the functioning of memory and consciousness, facilitating the development of dissociative experiences and dissociative disorders. Support for Liotti's hypothesis on the link between early disorganisation of attachment and later dissociative psychopathology has been provided by recent researches by Coe et al. (1995) and by Carlson & Sroufe (in press, quoted by Main & Morgan, 1996, and by Liotti, in press).

Using the *Adult Attachment Interview* as a research instrument, Fonagy et al. (1995) and Adam et al. (1995) have found evidence suggesting that early insecure attachment in general, and ambivalent and disorganised attachment in particular, are major risk factors for the development of borderline psychopathology and miscellaneous adolescent psychopathology. The hypothesis that psycho-

pathology is linked to the abnormal categorisation of interpersonal events related to the inborn value of attachment is strongly supported by these research findings, as in Liotti's and in Main's above-mentioned studies. In general, the whole line of research in developmental psychopathology stimulated by attachment theory (Carlson & Sroufe, 1995) helps us to understand the origins of psychic reality as a function of both factual experience (leading to the construction of memory categories) and inner motivational systems (whose operations may be either fostered or hampered by those categories).

THE 'HIGHER-MENTAL-FUNCTIONING HYPOTHESIS' OF THE UNCONSCIOUS

The integration of evolutionary neurobiological thinking, ethological observations, and empirical research in developmental-cognitive psychology with a psychoanalytic conceptualisation of clinical work (Control-Mastery Theory, discussed in this paper, is only one among many examples) requires a new way of conceiving the relationship between conscious and unconscious mental processes. According to hypotheses by workers in cognitive experimental psychology, the conscious and unconscious processing of information are normally in reciprocal synergism, rather than in opposition because of the repression barrier (Eagle, 1987; Dennett, 1991). Dennett (1991) suggests that separate mental modules or 'specialists' process information 'in parallel' outside consciousness. The various motivational systems that we have mentioned above (e.g. those regulating homeostatic physiological functions, attachment, caregiving, competition, sexuality, cooperation, and exploration-curiosity) may be conceived as higher-order modules or 'specialists'. The non-conscious work of the 'specialists' continuously emerges in the 'global working space' of consciousness (Dennett,

¹¹ This conflict among motivational systems may remind us of Freud's (1915a) early conception of the conflict between ego instincts and sexual instincts.

1991). The results of the information processing carried on in this 'working space' are continuously redistributed to the unconscious 'specialists'. The assumption of Control-Mastery Theory in which Freud's 1911-15 early theory of the unconscious as an automatically functioning system is replaced by a 'higher-mental-functioning hypothesis' (outlined in Freud's later writings [see Weiss, 1993a, pp. 16-17]) is in keeping with this cognitive view of the relationship between conscious and unconscious mental processes. According to the 'higher-mental-functioning hypothesis', people can unconsciously think, test reality and carry out plans, which is highly congruent with the view we get from the cognitive theorists' conception of unconscious 'specialists' working in synergism and in continuous exchange with the conscious, higher-order mental processes.

Edelman's theory states that consciousness emerges from the matching of value-category memory with the ongoing perceptual categorisation of self and the environment. If the categories of memory hinder the pursuit of one or more adaptive values, the properties of consciousness emerging when such categories are matched with the ongoing perceptual categorisation of the environment will be less than optimal in clearness, width and decisional efficiency. Insight into the meaning of one's own and other people's behaviour, in such circumstances, will be more or less seriously hampered. A clear consciousness of one's motives, according to Edelman's theory, requires that the actual perceptual categorisation of an interaction is matched by a category of memory linking the pertinent value to the representation of past interactions. If a given structure of the value-category memory links the representation of past interactions to two or more inborn values (e.g. attachment and autonomous exploration, or attachment and self-assertion) which according to that structure are held as reciprocally incompatible, then the insight into at least one value being pursued or actively avoided during that interaction will be deficient or altogether lacking.

This cognitive-evolutionary view of conscious and unconscious mental processes lends support to the following statements: (a) pathogenic beliefs and the related plans for overcoming them are usually unconscious, and (b) they tend to become conscious when the therapist, having passed the patient's test in the transference, succeeds in bringing about a corrective emotional experience in the patient, enabling him or her to discriminate among those different and reciprocally independent values that the pathogenic belief has fused together and made reciprocally incompatible. Consider, as an example, the paradigmatic case in which a pathogenic belief links together, in a relationship of reciprocal incompatibility, the value of care-seeking and the value of self-assertion. Because of this belief, the patient, in order to maintain the protective attention of the therapist, avoids asserting her opinions and thus has no access to the values of fair competition and of true co-operation in the therapeutic relationship. These values, although she has an inborn disposition towards them, are not experienced and not represented in her psychic reality. When the therapist passes the test, showing that he will remain available and willing to help even if she has different views and may even at times criticise his behaviour, the patient has the opportunity to discriminate between attachment and self-assertion and to learn that they are not incompatible. In this context, the patient may have an insight on the past events that have led her to believe unconsciously that any attachment figure would have deserted her if she ever tried to assert her autonomous will or opinions.

CONCLUSIONS

We may summarise the themes developed in this paper as follows. Human beings are born pre-programmed to adapt to a specific physical and social environment, which, when provided to the infant, will allow for further development of the child's potential. This does not imply an explicit, genetically highly controlled

neural patterning (as with a preformatist structuralism), but rather a dynamic self-construction within parameters set by the environment (this conception is very much in keeping with the 'dynamic systems approach' espoused by Thelen & Smith, 1994). Patients build pathogenic beliefs mainly from experiences that do not fit with their own innate dispositions towards various states of interpersonal relationship, notably concerning attachment, caregiving, competition, sexuality and co-operation. The inborn programmes, developed during evolution, are genetically encoded, and are not only concerned with sex and aggression, but also with complex social adaptive behaviours that are as compelling as sexual or aggressive gratification, or more so. Moreover, patients (as well as all human beings), in their efforts at adaptation, have inner motivation to test their pathogenic beliefs against their innate dispositions and values.

We have tried to relate these ideas, as they have been stated in the literature on evolutionary epistemology, ethology, neurobiology, and cognitive-developmental psychology, to one of the approaches, supported by empirical research, today available in contemporary psychoanalysis, namely Control-Mastery Theory developed by the San Francisco Psychotherapy Research Group led by Weiss and Sampson. As stated at the beginning of this paper, we used this model only as an example. Our considerations do not stand or fall on this theory, and could be applied to many other approaches within contemporary psychoanalysis. The reason that we have selected this theory is because it seemed to us a useful tool, among others, to integrate psychoanalytic thinking and contemporary cognitive-evolutionary thinking. It seemed appropriate also to dwell on some hypotheses and theories formulated by other contemporary psychoanalytic thinkers that are in keeping with the assumptions of the integrated theoretical sketch we have outlined.

The emphasis on the role of childhood experiences in the production of pathogenic beliefs may imply that only external, 'real' experiences

are responsible for pathogenic beliefs. This emphasis could be a natural consequence of a new view of motivation. Once we abandon the concept of drives that need to be discharged and often interfere with interpersonal relationships, and emphasise motives aimed at adaptation, attachment and so on, we give more importance to those childhood traumatic experiences that are able to inhibit these adaptive motives and that may be responsible for pathogenic beliefs and/or defences. As mentioned earlier, many aspects of the important theoretical revision to psychoanalytic theory put forth, as early as the thirties and forties, by the pioneering 'British school' of object-relations theory seems validated now by other independent scientific developments. The understanding and description of clinical cases is surprisingly similar, albeit at times expressed with different terminology.

Along the same lines, a similar revision of the theory of motivation can be seen in the work of Kohut, who believed that the child's goal, so to speak, is not to go to bed with his mother (see his criticism to the Oedipus complex), but to get along well with her. If 'primitive drives' appear (especially aggression, but also some forms of sexualisation and incestuous strivings), to Kohut they are already a sign of conflict, of disrupted regulation ('fragmentation') of self functioning; in these cases, primitive drives take pre-eminence over higher order motivations, disturbing the regulation of the motivational hierarchy. In Freudian language, this can be conceived as a 'regression' in libido development. Kohut's emphasis on innate tendencies is most clearly seen in his emphasis on the importance of carrying out one's 'nuclear programme', and in his acceptance of King's (1945) definition of a healthy organism as functioning 'in accordance with its design'. As we have seen, Rogers (1961), with his concept of 'self-actualisation', also followed a similar path earlier.

Pathogenic beliefs derive from 'external' traumatic experiences, though of course they too are in part innately shaped. We assume their genetic bases are adaptive because they

were developed through evolutionary selection. One should not forget, however, that pathogenic beliefs reflect the betrayal not only of inborn values but also of the values shared by patient and analyst as participants in the same social and historical context. Pathogenic beliefs, moreover, are patterns of representations or of memory categories that the child builds to adapt not only to objectively traumatic childhood experiences, but also to experiences (s)he perceived as traumatic because of his/her egocentricity and false cause-effect interpretations of events. Later in life, these beliefs may turn out to be highly maladaptive.

Pathogenic beliefs—if regarded as categories of memory constructed either as a result of the objectively traumatic betrayal of innate values, the disregard for socially validated moral values, or the misinterpretation of the meaning of less traumatic interpersonal experiences because of limitation of cognitive processing during childhood (e.g. cognitive egocentrism)—correspond to various other ideas formulated by many contemporary psychoanalysts. We limit ourselves to mentioning Bowlby's (1969, 1988) 'Internal Working Models', Stern's (1985) 'Representations of Interactions Generalised' (RIGs), Luborsky's (1984) 'Core Conflictual Relationship Theme' (CCRT), Horowitz's (1991) 'Role-Relationship Models', Stolorow & Atwood's (1992) 'Unconscious Organising Principles', among others.

Conflicts arise because these pathogenic beliefs do not fit with inner plans, and also as a clash between the pathologically feared consequences of attaining different innately based goals. Patients have an inner motivation to test the therapist (and/or other situations or persons in which they may feel safe to do so) in order to change their pathogenic beliefs and fears, and to pursue their fundamental plans. The quest for order and coherence could be the innate motivation for this testing activity (in the words of Weiss & Sampson, patients 'hope' to change their pathogenic beliefs). According to this view, the concept of 'repetition compulsion' could be conceived, so to speak, as the same mechanism in reverse: a compulsion to

test the cognitive dissonance, the discrepancy of representations, in the hope of stopping the repetition and pursuing life's goals. Repetition compulsion, in this way, may be considered 'life instinctual', not 'death instinctual'.

If the therapist 'passes' these tests, i.e. if (s)he makes 'pro-plan' interpretations or interventions, or behaves in a way that is consonant with the patient's innate representations of adaptive relationship, the patient activates his/her pre-programmed plan. As shown by research data, at times an atmosphere of safety, a 'therapeutic environment', may in itself be sufficient to invite the patient to test the therapist about some of his/her pathogenic beliefs, to recall early repressed memories and emotions, and so on, in order to begin to pursue some of his/her life plans that were inhibited. In fact, as Weiss has often cogently argued, the therapeutic environment is never neutral: it is always interpreted by the patient in the light of his/her pathogenic beliefs (i.e. of his/her transference), so that in some cases even an 'unorthodox' analytic attitude could be very well suited for changing a specific pathogenic belief. These views were very well conceptualised also by the late Merton Gill (1982, 1984, 1994; see Migone, 1995a, ch. 4), and were implicit in the positions taken, several decades earlier, by psychoanalysts of the interpersonal and object-relations schools.

The activation of largely unlearned plans within the therapeutic process does not necessarily imply that the patient acquires insight in order to be cured. If present, however, we believe that insight contributes to a better integration of cognitive codes (verbal and non-verbal). In the history of psychotherapy, psychoanalysis, with its Enlightenment spirit, emphasised the importance of conscious integration in the process of cure, in part to enhance permanence of change.¹² However, since conscious awareness and insight represent only a minimal part of mental activity, the important therapeutic factor is probably the total experience (verbal and non-verbal) with an analyst who is passing the tests, and also the fact that the technique is targeted to the

patient's specific pathogenic beliefs, i.e. to the specific plans or inner representations that could be activated by a patient's test.

It is for these reasons that the importance of Alexander's (Alexander et al., 1946) concept of 'corrective emotional experience' should be re-evaluated and appreciated. In a certain sense, corrective emotional experiences, both in and outside of therapy, are those experiences that are most likely to help the individual pursue his or her innately based (unlearned) adaptive plans.

TRANSLATIONS OF SUMMARY

Les auteurs montrent que l'abandon de la théorie du trauma en 1897 fut pour Freud un trauma qui le mena à 'désespérer', et probablement à réagir en donnant trop d'importance aux fantasmes internes et à la décharge pulsionnelle. Ils suggèrent que de nos jours nous affrontons un second trauma dans l'histoire de la psychanalyse que nous pourrions appeler 'l'abandon de la théorie de la pulsion', c'est-à-dire la notion selon laquelle les êtres humains ne s'efforcent pas d'abord à réduire les pulsions agressives et sexuelles mais cherchent plutôt des objets, assignent des significations, testent des croyances antérieures et assimilent de nouvelles idées. Notre tâche consiste à nous en remettre comme Freud fut capable de s'en remettre, donnant un nouvel élan à la psychanalyse. Le présent défi est, d'une part, une révision de la conception psychanalytique de l'information héritée, et, d'autre part, une théorie de la motivation basée sur les faits convergents provenant des sciences cognitives, de l'éthologie, de la recherche sur les nourrissons et la recherche en psychothérapie. De nombreux modèles cliniques sont courants dans la psychanalyse contemporaine. Représentant un exemple parmi ces modèles, certains concepts utilisés dans la théorie de la maîtrise-contrôle ['Control-Mastery Theory'] de Weiss et Sampson seront examinés à la lumière de la science cognitive et de l'épistémologie évolutionniste au sein du cadre (a) du classique *Plans and Structure of Behavior* [Plans et structure du comportement] par Miller, Galanter et Pribram en 1960, (b) de la théorie neurobiologique de Edelman et (c) de la théorie de l'attachement de Bowlby.

Die Autoren legen dar, daß das Aufgeben der Traumatheorie im Jahre 1897 für Freud selbst ein Trauma war. Er geriet in „Verzweiflung“ und reagierte möglicherweise mit einer Überbetonung der inneren Phantasien und der Triebabfuhr. Sie sind der Meinung, daß wir heute ein zweites Trauma in der Geschichte der Psychoanalyse erleben, das wir das „Aufgeben der Triebtheorie“ nennen könnten. Demnach streben die Menschen nicht vorrangig danach, ihre sexuellen und aggressiven Triebe zu reduzieren, sondern vielmehr danach, Objekte zu suchen, Sinn zuzuschreiben, bisherige Überzeugungen zu überprüfen und neue Vorstellungen zu integrieren. Unsere Aufgabe ist es, uns von diesem Trauma wieder zu erholen, wozu Freud in der Lage war, und der Psychoanalyse neue Impulse zu geben. Die gegenwärtige Herausforderung ist einerseits eine Revision der psychoanalytischen Konzeption von ererbter Information und andererseits eine Theorie der Motivation auf der Grundlage konvergierender Evidenz aus kognitiver Wissenschaft, Ethologie, Kleinkindforschung und Psychotherapieforschung. Es gibt in der heutigen Psychoanalyse viele klinische Modelle. Als lediglich ein Beispiel unter diesen Modellen werden einige in der Kontrolle-Beherrschungs-Theorie ['Control-Mastery Theory'] von Weiss und Sampson verwandte Konzepte diskutiert. Sie werden betrachtet im Lichte der kognitiven Wissenschaft und evolutionären Epistemologie innerhalb des Bezugsrahmens von a) dem klassischen Werk von Miller, Galanter und Pribram *Plans and Structure of Behavior* [Pläne und Struktur des Verhaltens], b) Edelmans neurobiologischer Theorie und c) Bowlbys Bindungstheorie.

Los autores sostienen que el abandono de la teoría del trauma en 1897 fue también un trauma para el mismo Freud, quien se sintió muy desesperanzado y quizá reaccionó poniendo un énfasis excesivo en las fantasías internas y en la descarga de las pulsiones. También sugieren que hoy día estamos también enfrentándonos a un segundo trauma en la historia del psicoanálisis que podríamos llamar 'el abandono de la teoría de las pulsiones', en el sentido de que los seres humanos no luchan, primariamente, por reducir las pulsiones sexuales y agresivas sino que más bien buscan Objetos, asignan significados, comprueban creencias previas y asimilan esquemas nuevos. Nuestra tarea es sobreponernos, tal como lo hizo Freud, dando un impulso nuevo al Psicoanálisis. El reto actual es, por una parte, revisar el concepto psicoanalítico de información heredada; y, por otra, construir una teo-

¹² For the concept of 'integration' as a therapeutic factor, see Friedman (1978, pp. 46-8). Empirical research on cognitive integration has been conducted using Bucci's (1997) concept of 'Referential Activity', which expresses the (therapeutic) integration between different cognitive codes (in Bucci's 'multiple code theory', integration occurs among three different cognitive codes: Verbal [V], Non-Verbal [NV], and Non-Verbal/Non-Symbolic [NV/NS] codes, the last one also being called 'sub-symbolic' and based on connectionism and Parallel Distributed Processing).

ría de la motivación basada en datos concordantes con los que proceden de la psicología cognitiva, de la etología, de la investigación de bebés y de la investigación en psicoterapia. En el Psicoanálisis contemporáneo existen muchos modelos clínicos. Por citar un ejemplo entre todos esos modelos, se examinan algunos conceptos empleados en la teoría del control ['Control-

Mastery Theory'] de Weiss y Sampson, a la luz de la Psicología cognitiva y de la epistemología evolutiva dentro del marco a) del clásico de 1960 *Plans and Structure of Behavior* [Planes y estructura de la conducta] de Miller, Galanter y Pribram; b) de la teoría neuro-biológica de Edelman; y c) de la teoría del apego de Bowlby.

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Paolo Migone and Giovanni Liotti
(Dr Migone)
Via Palestro, 14
43100 Parma
migone@ipruniv.cce.unipr.it
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