CHAPTER NINE

Discussion of Steve Ellman's and Lissa Weinstein's chapters

Peter Fonagy

I am pleased to discuss two superb chapters. Fortunately for me as discussant, both chapters were closely linked in terms of intellectual stance and theoretical framework. They reflect an attempt at integration at a number of levels: (1) the integration of psychoanalytic theory and experimental science; (2) the integration of object relations and drive theories; and (3) the integration of clinical work with complex high level theoretical accounts. Again, fortunately for this discussant, the integration succeeds at all these levels.

At the core of both chapters is the notion of *endogenous stimulation* which is truly a new "drive" theory. Although the theory is not equivalent to any of Freud's views of drives, it explodes a number of theoretical oppositions or paradoxes which psychoanalytic theoreticians have learned to embrace over the years. For example, as we shall see, accepting the notion of endogenous stimulations we can no longer debate whether people are pleasure or object seeking. In some ways this is reminiscent of resolving the contradictions surrounding the particle and wave theories of light. Understanding the physical, bodily experience

that appears to underpin dream experience helps us unpack many complex psychoanalytic ideas.

Chapter seven

Steve Ellman started this chapter with one of the most eloquent and concise statements of Freud's Chapter Seven in *The Interpretation of Dreams* which I have ever read. I feel like repeating it for the sheer aesthetic pleasure but in the interest of focusing on Steve's original thinking I shall move on. The pithiness of his presentation is a hallmark of his intellectual work over the years. Papers in *Science* and *Nature* are remarkably short. But to get there is, of course, the result of a long and arduous process of work.

So, REM is a marker of endogenous stimulation for which the analogue is ICSS, intracranial self-stimulation, a field of research where Steve's work was absolutely groundbreaking. Now, rodents doing lever-presses to receive these stimuli is obviously not the biological equivalent of the wish-fulfilment theory of dreams, but the link is far more than metaphoric. In a brilliant demonstration Dr Ellman and his team showed that REM deprivation made the experience of intracranial self-stimulation more intense, more rewarding for the animal as if they were "hungry" for this kind of stimulation.

Further, a sort of orgy of ICSS, being allowed as much stimulation as they wanted, satiated the animals to the point that even an extensive period of sleep (and therefore REM) deprivation did not cause a REM sleep rebound. Dream sleep then probably involves the activation of ICSS pathways. In other words REM probably activates pleasure or reward pathways. This is of course more than just offering support for Freud's intuition. It is framing REM sleep as a prototypical experience of generating an internal experience of physical pleasure, not just in sex (in the broadest term) but also aggression (and even destructiveness).

Now, the subsequent chapter linked the pleasure system underpinning REM to Thomas Insel's model of the neural underpinnings of mother-infant and infant-mother attachment. Her contribution covered a considerable amount of evidence pointing to dreaming as, in part at least, an activation of the experience of absolute dependence on the primary object. But developmental time moves on, and the infant dream becomes a vehicle for adaptation to the "good enough" parent who (as Winnicott taught us) cannot and should not deliver optimal

gratification. The neurophysiological link between earliest attachment and the dream explains many of its core characteristics including the predominance of bodily experience and sexuality and aggression.

Steve Ellman suggests that "issues that are brought up in REM sleep mentation are survival issues that usually involve an element of the body-self represented in the dream". Human dreams are developmentally early (albeit possibly "time-expired") adaptive solutions to conflicts invariably generated by wishes. This is a profound reformulation of the conflict theory of dreams. The origin of the dream state in the physical dependence of the human newborn means that the struggles depicted in dreams will be, at least in structural terms, life-death issues. They will pertain to the infant's struggles for its own self and its attempt to conquer, in the sense of winning the heart of, the woman he loves.

This immediately catapults us to individual differences. Both low and high levels of endogenous stimulation are maladaptive. Moderate levels represent healthy adaptation. For the infant with high levels of endogenous stimulation a small amount of external stimulation will be pleasurable, but excessive stimulation from the mother will cause distress and trigger avoidance. This mirrors the behaviour of animals for whom excessive intracranial stimulation has evidently aversive effects and who, given the choice, would wish to take control over intracranial stimulation, just like humans might.

Human maternal sensitivity is then, according to Ellman, in part a mother being aware of the cyclic nature of her infant's endogenous simulation and conversely his need for exogenous stimulation in order to avoid distress and the need to generate a false pleasing self. For a high endogenous infant the adaptive internal response, as Steve described, may be to respond to the mother who is disappointed at her ministrations not having the desirable effects, by falsely complying with the mother's demands. This has evident clinical implications as to the timing of psychoanalytic interventions, mindful of the basic rest activity cycle (or as it manifests in the clinical setting).

From the Weinstein and Ellman sleep studies we know that the pattern of needing to present a pleasing (false) self, in the sleep laboratory, reflects an underlying need to adopt an artificially distancing defensive stance towards the participant's most immersing dream experiences. The developmental story might trace this back to a situation where the false self develops because the mother's disappointment with herself as

mother is experienced as "impinging", leading to an adult experience of endogenous stimulation that is exceptionally intense. And probably because these intense experiences are indeed excessively real, the participant with a tendency to false self denies the reality of the dream in phasic REM.

The theory of endogenous stimulation reveals the dichotomy of pleasure and object seeking to collapse when viewed from the perspective of the newborn who seeks "a continuing sense of basic trust and security that makes the new environment more manageable". The "social orientation of the infant", commonly cited by developmentalists as evidence for the object seeking view of infancy, is seen by both Ellman and Weinstein as the infant's evolutionarily enhanced attempt to ensure maternal care in a state of absolute dependency. This has, as Steve emphasised, considerable benefits for the long-term healthy physical as well as psychological development of the individual.

Steve reminded us of Sarah Hrdy's views of mothering but she also provides dramatic illustrations of the need for human "allo parenting" (allo parenting is the need for more than one adult to be present to ensure "good enough parenting" can take place). Infanticide by mothers only occurs when mothers are unsupported—when the sensible strategy from the point of view of her own survival is to look after herself, kill the child, and have a go later at passing on her genetic material. From an evolutionary standpoint the mother can become "object seeking" (seeking her object the baby) only to the extent that she can afford not to have to seek resources for herself, but this may not take place unless there is a support system for her also present.

But this, in turn, following Steve's thinking, determines the extent to which the infant is object conscious (chooses to be aware of and seek his objects). I find this an illuminating explanation for attachment strategies. When the infant is unaware of another being responding sensitively (contingently) to his actions, he knows he will be forced to look after himself and increases his "threshold" for exogenous stimulus and prioritises endogenous stimulation. Attachment theorists would recognise this as an insecure attachment strategy. It is maintained because when the infant fails to respond, the mother disengages further to limit her disappointment and hurt, pushing the infant back further upon his strategy of self-sufficiency.

It is in relation to individual differences then, that the theory of endogenous stimulation is particularly helpful. A highly original and

intriguing implication of their model is a view on the availability of the infant to external stimulation. Infants vary in the probability to which they will be affected by genetic and environmental influences, depending on social context. Infants with high endogenous stimulation may not be so affected by environmental influences as infants who are less extreme in this dimension. Their constitutional traits, unmoderated by their psychosocial environment, will influence who they become. They are not necessarily more clinically vulnerable as a consequence but their problems will be less closely linked to personal history.

This is interesting to link to recent findings concerning the short allele of the 5-HTTserotonin transporter gene. This genotype has been shown to mark individuals who are more "sensitive" to their environments. Sensitive mothering may make these individuals more likely to be securely attached, while those with the alternative polymorphism (the long allele, more efficient transcription) are uninfluenced by the mother's sensitivity in their attachment security. Regardless of the validity of this particular molecular genetic model, the general idea of variation in openness to experience is an important and intriguing challenge to psychoanalytic models. It is also something we do not normally consider.

Yet it is perfectly possible that some of the different psychoanalytic models of development may be rooted in these genetic differences between infants. They may all be accurate descriptions of genetically very different individuals. The high endogenous infants are more like Kleinian infants than infants in the mid-range of endogenous stimulation. Good enough mothering must be looked at from the perspective of evolutionary time and current social contexts, not just the perspective of the baby. I will return to Steve Ellman's contribution but let me briefly consider Lissa Weinstein's work in the next chapter.

Chapter eight

Lissa Weinstein wonderfully complements Steve Ellman's magisterial overview of the interplay of infant mental function and the mechanisms of dreaming. Lissa's focus was on the emergence of the reflective self from the "dreaming relationship" between infant and mother. She drew attention to the crucial distinction between tonic processes occurring throughout REM (e.g., aroused EEG) and phasic processes (e.g., eye movements). Ellman and Weinstein postulated that phasic REM activity

contributed most to endogenous stimulation and was the most potent when it came to decreasing the presence of reflective awareness.

Phasic REM dreams are thus expected to be particularly compelling (e.g., "real"). Using an exceptionally elegant measure, they showed that dream reports where the dream report was *not* phrased using the language of intentionality ("I was driving" vs. "I dreamt *that* I was driving") were most likely to be associated with having been woken from phasic REM activity. By implication then, phasic REM switches off intentionality, as Daniel Dennett (2001) has described this—it reflects a state of consciousness beyond (or prior to) the reflective part of the self.

This was so in most participants, but not all. It was "'paradoxical" in those volunteers who had what seem like "false self structures". Such structures may be markers for a predisposition for endogenous stimulation. These individuals may have had histories of having to present a false placatory presence to a disappointed caregiver who had not been able to reach them because they were too endogenously stimulated, perhaps within infantile phasic REM states. They then currently find their dream (that inevitably reflects conflict) more threatening because they actually feel it to be too real. So they respond with an exaggerated and inappropriate act of reflectiveness.

More generally, Lissa Weinstein presented the view that tolerance for one's own thoughts and feelings (a manifestation of the reflective self) was related to endogenous stimulation and experience with the mother, which might alter the threshold of what is experienced as pleasurable. The more balanced an individual's status with respect to endogenous stimulation, the more robust the reflective disposition might be expected. This could be linked to tendencies, we have reported, for those with histories of secure attachment, to find a reflective stance to be more accessible following the early years.

It is in this context that Lissa advanced the view that the biological function of REM sleep could be to promote and maintain attachment processes. Evidence for this, as we saw, comes not only from the temporal association of entering REM dominated sleep and the peaking of oxytocin at 4am, but the association of sleep disorders with insecure attachment across individuals. Perhaps the procedural learning often linked to REM sleep could represent the internalisation of the relationship pattern (working model) between mother and infant. After all, the development of internal working models represents a kind of

procedural learning process (although it is not often thought about that way).

This may be related to how REM sleep dominates early infancy, just as the formation of attachment bond dominates the mother-infant relationships. This has been shown, as we have learned, in sleep studies of infants, which could be interesting to carry out in relation to monitoring the quality of the mother-infant relationship. Also striking, from a developmental standpoint, is the temporal coincidence of the reorganisation of sleep architecture at three months, and the infant's move from a preference for one hundred per cent contingent stimuli (its own body) to highly but never perfectly contingent ones, as John Watson observed. It may be relevant to mention that the attachment neuropeptide, oxytocin, is also a kind of viagra for mentalisation—intranasal oxytocin enhances reflective capacities even in men!

The move then to creating second order representations of internal states, the reflective self, is perhaps rooted in turning towards social contingencies from the overwhelming domination of endogenous stimulation of phasic REM that was critical to developing the sensory systems. The delayed development of REM would interfere with this switch from internal to external (the infant aiming to find himself within the reflective mind of the observer). The model adds to the hypotheses advanced by Gergely, Watson, and colleagues by linking the physiological to the intersubjective factors. Endogenous stimulation, the internal activation of bodily states, has the potential to eliminate the differentiation of self from other and internal from external.

Taken together, Ellman and Weinstein succeed where psychoanalysts before them have often failed. They bring together the object relations (attachment) model with the model of the drives. They do so by modifying both approaches. Their theory of drives places the emphasis of drives on pleasure and uses the metaphor of brain stimulation. Their object relations theory is focused on the role of reflective self function, the psychological capacity for self-other differentiation rather than on the memories of specific instances of relating. By freeing both frameworks from the non-essentials, freeing them from what we called the over-specification of theories, the integration is smooth, compelling, and advances our collective theoretical constructions.

Their model is parsimonious and comprehensive of many aspects of the models they aim to replace, or perhaps more appropriately thought of as models they aim to develop and advance. They show

how individual relationships shape but in turn are shaped by the ways in which endogenous stimulation is experienced, cognised, and symbolised. This category of work is almost unique in psychoanalysis. To finish, I would like to highlight the ways in which the Ellman programme of work in my view has "beacon status" in psychoanalytic theory building (to be emulated):

1. It evolves a model of mind from basic laboratory research
2. It makes minimal assumptions about the nature of the mind
3. The theoretical exploration continues to drive a programme of empirical enquiry, generating findings which further enrich the theory building enterprise
4. The clinical applicability of the model thus created remains one of the criteria for the testing of its postulates
5. There is remarkable scholarship offered as part of the model with careful referencing of related empirical and theoretical work
6. Most important, there is genuine creativity in the theory building and empirical research
7. And related to this, Ellman's work is *collaborative*. And let me end on a final serious note about our profession. While collaboration may not be sufficient to achieve distinction, it is essential for doing so. In modern science none of us can do it alone. The average number of authors of a medical paper in 1955 was 1.5. This rose to 3.0 by 1985 and 5.0 by 2010. During the same period in the *International Journal of Psychoanalysis* the average number of authors per paper figure increased "dramatically" from 1.0 to 1.1. Science is collaborative and needs us to work together to make progress.

For all these reasons and many besides, "*When Theories Touch*" is a work of great scholarship and an even greater integrative intellectual achievement for which future generations of psychoanalytic researchers, empirical and clinical, will be grateful and which they will admire for many years to come.

Reference

Dennett, D. (2001). Are we explaining consciousness yet? *Cognition*, *79*(1–2): 221–237.