I should like to comment on Parkes' interesting observations on his cat, and also on the question of why (in the ultimate, evolutionary sense) people get depressed after the death of a baby.

The cat who withdraws and refuses offers of nurturance after punishment or defeat is a reasonable candidate for the role of animal model of human depression - research on the cat brain has elucidated some of the mechanisms of human sleep, why should it not do the same for depression? Is the reaction of Parkes' cat typical of the species? Is there any literature on this?

Is the cat adopting the metaphor of the sick role to express its depression? Possibly to competing cats (with whom it interacts in the agonic mode) it is giving a message such as "I am out of action, and therefore not likely to invade your territory, but I will defend to the death this corner of my home territory in which I am cowering." This is ritual submission combined with the threat of unritualised "defence of the nest" aggression. To the home team of the Parkes family (with whom it interacts in the hedonic mode) it is clearly not using the sick role to obtain nurturance, which in fact it refuses. But it could be saying, "I am sick, therefore do not force me out into the competitive arena of life to fight on your behalf. In particular, do not take me to a cat show, I am not up to it." With this message the cat may be transmitting the "off games, out of action" (as opposed to the nurturance-eliciting) component of the sick role signal.

It is interesting that the depressed cat does not give invitations to aggressive play. This may be due to two separate mechanisms. Firstly, all the activities of the hedonic mode are inhibited in depression, so that play is inhibited along with exploration, curiosity, affiliation, etc. Secondly, the threat and attack components of agonic interaction are

inhibited in depression, leaving only the escape and submission components active. Aggressive play contains the play element of hedonic interaction and the attack element of agonic interaction, and so may be inhibited on both counts.

The death of a baby does not cause a fall of status or RHP, so why (in the ultimate sense) does it sometimes cause depression (over and above grief) in the parents? The reality of depressive illness after the death of a baby is beyond doubt. Recently it was brought home to me vividly by a patient who was so incapacitated by the death of one of her twins that she was quite unable to care for the surviving twin. That is difficult to account for in adaptationist terms. Do we know the incidence of depression following the death of a baby in societies in which death of a baby is a common occurrence? Probably the sequence "death - grief - depression" is not sufficiently fine-grained to distinguish between the death of a powerful ally and the death of a baby. Evolution could have produced two different kinds of grief: one following death of an ally which could trigger depression, and one following death of a baby or other dependant which could not trigger depression; but it has not done so, and all grief- induced depression is probably not adaptive.

In terms of RHP, the yielding hypothesis of depression states that depression is caused by loss of RHP, and the depression itself leads to further loss of RHP, like the devaluation of a currency. Depression following bereavement is a problem for both these propositions. Firstly, as discussed above, the bereavement does not always lead to loss of RHP; secondly, it has been thought since Freud's Mourning and Melancholia that depression following bereavent (mourning) is not associated with lowered

self-esteem (including, presumably, the RHP component of self-esteem). Is this still thought to be true? Has there been measurement of self-esteem in depressions following bereavement compared to other depressions? Or can we say that whereas there is no loss of self-esteem during grief, when grief triggers depression loss of self-esteem does occur?

In general, grief is one of the dysphoric emotions which seem to have evolved as part of the causal chain between stimulus and depressed state, others being shame, guilt, anxiety, depressed mood (short of depressed state), disappointment, mental and physical pain, loss of face and the sense of being insulted or put down. These emotions are the subjective correlates of intervening processes between stimulus and mood change. I think what they have in common is the fact that the stimuli or conditions which cause them are sufficiently often associated with loss of RHP that it has been advantageous for them to cause the internal reduction of RHP which seems to be the crucial functional element of depression. Instead of having:

Insul

loss of RHP depressed state

Death

we have:

Insult humiliation

depressed state

Death grief

in which humiliation is the subjective correlate of being put down, and grief is the subjective correlate of loss of a loved one. Humiliation and grief share with other dysphoric emotions the capacity for triggering depression. The only difference is that whereas humiliation is always associated with loss of RHP, grief only sometimes is. This second model is less simple and satisfying than the first; but the only alternative that I can see is to postulate that the depressed state following loss is an entirely separate condition not involving changes in RHP.

Finally, Parkes says that nurturance of the sick is unlikely to be an innate human characteristic. There is a lot of variation, but tomy knowledge genetic studies have not attempted to analyse it. Are more MZ than DZ twins concordant for nursing? I do not think that other primates nurture the sick. In The Chimpanzees of Gombe, Jane Goodall describes chimpanzees avoiding and throwing stones at disabled conspecifics, treating the physically ill rather as some humans treat the mentally ill. However, "Cape hunting dogs....will even take care of the sick and injured animals for long periods of time" (1, p46, quoting 2). Perhaps this is because (in the ultimate sense) they share with us hunting, or having a home, or living on the ground; hunting, because injuries in the hunt would be too costly if the injured were not cared for, having a home and living on the ground because otherwise caring for the sick might just not be practicable.

- 1. Van Hoof, J.A.R.A.M. (1990) Intergroup competition and conflict in animals and man. In: J. Van der Dennen & V. Falger (eds) <u>Sociobiology and Conflict: Evolutionary Perspectives on Competition, Cooperation, Violence and Warfare</u>. London: Chapman & Hall, Pp 23-54.
- 2. Lawick, H. van & Lawick-Goodall, J. van (1971) Innocent Killers. Boston: Houghton Mifflin.