Newsletter of the Society for Sociophysiological Integration

ASCAP

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"I believe that in biological science the concepts are the crucial thing." *Ernst Mayr*[1]

Newsletter Aims
•A free exchange of letters, notes, articles, essays or ideas in brief format.
•Elaboration of others' ideas
•Keeping up with productions, events, and other news.
•Proposals for new initiatives, joint research endeavors, etc.

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ASCAP Society Mission Statement

The society represents a group of people who view forms of psychopathology in the context of evolutionary biology and who wish to mobilize the resources of various disciplines and individuals potentially involved so as to enhance the further investigation and study of the conceptual and research questions involved. This scientific society is concerned with the basic plans of behavior that have evolved over millions of years and that have resulted in psychopathologically related states We are interested in the integration of various methods of study ranging from cellular processes to individuals in groups The ASCAP Newsletter is a function of the ASCAP society.

Contents

Concerning paleobiology, sociophysiology, interpersonal and group relations, and psychopathology

ADDRESSED TO & FROM ...

REPORT FROM THE BECK AWARD COMMITTEE

We propose the following procedures and time lines for the Beck award initiated by the Philadelphia group in May. Notices will go out in October or November for an April 1 deadline. These will be aimed at departments of psychiatry, psychology, anthropology, family medicine, social work and sociology. Suitable venues for announcement are being investigated and advice sought from ASCAP readers. EMAIL and professional newsletters are possible such venues.

A committee consisting of Mark Erickson as chairperson will additionally consist of the two most recent past-presidents and the first vice-president of the ASCAP Society. They will be charged with choosing no more than five finalists on the grounds of originality, creativity, and scholarship. The decision for the final winner will be made by the committee and Dr. Beck. Each finalist essay will be independently rank ordered by the five participants, the winner receiving the greatest cumulative weighting. If there is a tie, Dr. Beck's rating would decide the winner.

Mark Erickson,
San Francisco, CA,
Russell Gardner, Jr.,
Galveston, TX,
John Pearce,
Cambridge MA.

SELF-ESTEEM

I am sending a chapter from a rather good book on stress -- among other things it has a chapter by Miczek describing a prolonged insensitivity to morphine analgesia following defeat in rats, which looks as though it might be our best model of the ISS (Involuntary Subordinate Strategy) so far.[1]

I have just given a talk on self-esteem in Wellington, New Zealand, and have been asked to repeat it, so am thinking along those lines. I said that the crucial process for the evolution of self-esteem was the development of phenotype-dependent strategy sets (PDSSs), in which the choice of strategy depends on some internal representation of the phenotype. For instance, the bull frog can be either a croaker or a satellite male; he could decide using some environmental factor, such as the proportion of frogs already croaking, but he doesn't, he makes the decision on the basis of how big he thinks he is; if he thinks he is big, he croaks, if he thinks he is small, he becomes a silent satellite male. Once some part of the brain has been taken over to contain information such as A or not A, it is likely to be the repository for all future self-related information ... except possibly for the "own frequency" knowledge of the electric fish, which may be altogether a different system. Choosing between two non-phenotype dependent strategy sets does not require any information relating to the self; e.g., one can choose between two girls with information only about them; or one can choose to be a fisherman rather than a hunter without introspection; so that in the absence of intrasexual selection (which underlies most PDSSs) the idea of the self might never have evolved. It is quite fun to introduce these young minds to the concepts of RHP and SAHP -- I have not tried them yet with anathetic signals.

John Price
now East Sussex, England.

THANKS

I am grateful for all the publicity you have been giving my ideas lately. I am tempted to believe the old dictum that there is no such thing as bad publicity. I have been resisting sending another contribution to the now very smart Newsletter, but Leon's piece in the June issue finally provoked me.

I think your efforts to avoid rifts between the ASCAP members are admirable. I find in writing I manage to sort things out for myself.

Incidentally, a patient, who is a professional musician, caught sight of the Newsletter recently and asked me if I was into the music scene. Apparently ASCAP is a well known music publication!

John Birtchnell
London, England.

[Editor's Note: Indeed it is! In view of our emphasis on communication, it has seemed fortuitous, not a problem.]

by M Chance

ARTICLE: A socio-mental bimodality: Part (i) of (iii)

It has not been sufficiently realized that we possess an inherent mental bimodality which is, at one and the same time, a property of our minds and also of the corresponding social relations, either one capable of engendering the other. The neurophysiological basis for this distinction is of interest.

The agonic modality

It is often remarked that when there is a "bad atmosphere" in the department of an organisation, there is present an authoritarian person, usually in charge, who will be over-controlling the group by intimidation varying in intensity from barely perceptible insinuation to periodic outright abuse. "Subordinated" individuals are often unconscious of their reaction and find themselves unable to resist because they are unaware of the source of their emotional disturbance.

In a less marked manner we become primarily concerned with self security and our attention is much taken up with being part of a group and with what others think of us so as to assure acceptance by the group. We become concerned about rank hierarchy, convention and maintaining good order. In this mode our concerns are predominantly self-protective and our minds engage information processing systems in our brains that are specifically designed to attend, recognise and respond to potential threats to ourselves, our status and social presentation.

The hedonic social mode

is marked by the absence of agonic features and hence, since the members of a group may not have experienced anything else, they do not necessarily know that they are in the hedonic mode. In the hedonic mode people come together to enjoy each other's company as such or to enjoy some common activity or to undertake a specific task. There will be a free flow of information between the members, with roles often interchanging. This prevents the handing out of excessive detailed instructions giving rise to over control. Individuals are valued or esteemed for their qualities rather than being classified by signs of type of rank.

Being valued reinforces the individual's sense of social security. This underpins a freedom of association which creates a social network rather than social rank. As a result the hedonic human being has a flexibility of arousal and attention that allows time for integration of reality, interpersonal relations, private feeling and thoughts which are the prerequisites for the operation of intelligence.

These modes are part of our evolutionary inheritance and can, therefore, be studied by the objective description of social behaviour across species, i.e. by the methods of comparative ethology which enables us to uncover the evolving structures of social behaviour in different species up to and including ourselves.

This is why I undertook a comparison of the social structures of several species of old world monkeys and apes which are our nearest zoological relatives (see Chance and Jolly).[1] Out of this emerged two contrasting ways of bringing about social cohesion: the *agonic* and *hedonic.*

During this study it became evident that low ranking members of a group of macaques or baboons were always aware of the location of a dominant individual and that *predominant attention* could be recognised whether it was directed within the group or towards protective features of the environment, where, in danger, individuals sought refuge and the group split up (acentric attention). When it was directed within the group (centric attention) the group cohered and afforded the protection, high ranking baboons or macaques according less and receiving more attention than those lower down. In these groups threats passed, on the whole, down the rank order and were socially binding in the Hamadryas baboon,[2,3] and in macaques.[4,5,6,7,8,9] These characteris-

tics of social attention and social structure comprise the agonic mode.

Contrasting with the way the agonic centric societies of the baboons and macaques cohere is the attractive nature of display which brings together members of separate chimpanzee bands when they meet up after periods of foraging for fruiting trees as reported by Reynolds and Reynolds[10] and Reynolds and Luscumbe.[11] Male gorillas use display to alert and attract the members of a troop before setting off on a day's foraging and are another example of the hedonic society. So social cohesion is brought about by manipulating attention. The logic of this discovery enabled us to see that there is such a thing as a structure to the pattern of attention within a group. This has been fully explored in The Social Structure of Attention.[12] So now we have established that two societies exhibiting two types of social cohesion exist based on the way social attention is manipulated, in the two closest phylogenetic relatives we possess in the Old World.

Now let us look at the differentiation within the agonic rank order; both dominant individuals and their subordinates are reacting to each other. Whereas the subordinates are dependent upon and restricted by the dominant, the dominant himself (for it is usually but not exclusively a male) controls the subordinates by actively corralling the subordinates to maintain a degree of social cohesion. This he does by (1) threatening, (2) neck biting (a controlled nip, followed by clasping and hugging by Hamadryas males), and in several species of baboon and macaque by the occasional herding of recalcitrant (i.e. non-responsive) individuals, which clearly indicates a deliberate act directed at circumscribing the movement of other individuals and thereby exerting control.

METHOD

(The basic material summarized below will be found in the book Social Groups of Monkeys, Apes and Men).[1] For evidence to be supportive it must be the result of distinct thought processes in a separate discipline. If not an actual (though different) description of the same phenomenon, the material should be seen to be coextensive with the description of the two socio-mental modes. So I shall describe those examples which provide such evidence and then list the studies which are merely co-extensive.

EVIDENCE

Agonic mode in non-human primates

Also seen clearly in baboons, macaques arrange themselves in a series of ranked levels one above the other. This hierarchical differentiation is manifest in the structure of attention between them as each individual accords and receives attention as a function of their rank. Higher ranking individuals accord less and receive more attention than those lower in the social scale.

In this way, channels of attention develop, binding those who accord more attention to those of higher rank. This has several consequences. The first is that dominant members of the society are able thereby to exert *control* over those lower in rank, simply, but not solely, through the proximity of the lower-ranking to the centrally dominant figure, and because the channel of communication is always open to the subordinate from the dominant. Emory has assessed the attention structure in similar groups of monkeys, caged in identical conditions in the San Diego Zoo.[3] He found that the amount of attention paid to the dominant male was correlated with the nearness of each individual to him - this is centripetal attention. That the degree of centric attention and of group cohesion was due to an in-built tendency to return towards the dominant male (influenced to some degree by that individual's attention to others of the group) was made evident through the difference between the two species.

In a typically cohesive, hierarchical social system, in which reverted escape brings back the low-ranking individuals towards the source of threat and hence back into the society, escape itself is consummated by proximity to a supportive referent. If this positive referent is of the same rank the individual can relax close to them or, by gaining an affiliation with an individual of higher rank, may use that referent as an ally to maintain or achieve higher rank vis-a-vis another individual through the deployment of pro-

tected threat, i.e. threatening another individual using the higher rank individual as a backdrop. This strategy may be used when females are competing for a male consort or during the maturation of the individual in the society. The maturing male, in the wild, is displaced to the periphery of the group, and may leave it altogether (to which the term 'exit' may be applied) to join bachelor bands, become a lone male, or re-enter another group later on. When escape is no longer reverted, a break in this fundamental social vector occurs and exit takes place. This may occur as a result of persistent persecution by a more dominant monkey using protected threat, or simply through the high propensity for escape in the low-ranking individuals, as their sensitivity to threat increases.

In the *agonic mode,* individuals are always together in a group yet spread out, separate from one another, keeping their distance from the more dominant ones to whom they are constantly attentive. They are ready, at an instant, to avoid punishment by reacting to those threats that are dealt out from time to time down the rank order. This they do with various submissive and/or appeasing gestures, and by spatial equilibration which, arising from withdrawal followed by the reversion of escape, serves to prevent escalation of threat into agonistic conflict, yet tension and arousal remains at a high level. The continuous high tension combined with centric social attention and without the accompanying agonistic behaviour, is the unique characteristic of this mode, for which the term *agonic* is reserved ~ *as arousal must be balanced by inhibition to preserve this state.*[13]

The evidence for a neurophysiological mechanism capable of sustaining the arousal characteristic of the agonic mode has been reviewed by Paul Gilbert.[14] He supports others in referring to this neurophysiological state as one of "braking", because "it… implies an unabated state of arousal which does not provide any effective behaviour as long as the powerful brakes (controlled by the hippocampus) are applied."(pp 109-111)

It has long been known from the work of Sir Charles Sherrington at the turn of the century that the neocortex inhibited lower parts of the brain, partial disinhibition of which produces specific motor outflows and consequent actions.[15] In the agonic mode, partial tension in ail the limb muscles is seen directly in the monkey's posture.

Hedonic mode in non-human primates

The hedonic mode in the non-human primates is typical of the great apes (chimpanzee, gorilla and orangutan) and is most clearly seen in the social structure of chimpanzees. It is seen in the languid, relaxed, often slow, movements of these creatures except when excited in pursuit of some specific activity requiring muscular exertion, e.g. hunting, throwing, climbing, etc. This relaxed state may well be a reflection of enhanced powers of neocortical inhibition consequent on their relatively large neocortex which also makes it easier for them to develop hedonic social relations in which many types of body contact are frequently present in their social relations. This keeps arousal low.

The chimpanzees' hedonic-type society is very flexible: Margaret Power[16] and Frans de Waal[17,18] show how the assuaging qualities of appeasement become transformed into reconciliatory and reassuring gestures between individuals who are mutually dependent. This is seen as the group splits up into twos or threes to go foraging, when the less confident individuals seek and are offered reassurance by contact gestures usually from older, more confident, leaders. Chimpanzee groups mix temporarily without conflict.

After the chimpanzees have been foraging in small groups they will come together in response to calls, when "carnivals" of competitive display will focus attention upon the most demonstrative individual. Display actions include jumping up and down, or throwing things into the air. These congregations are one of many different occasions which give opportunities for contact greetings between group members. The most significant occasion for maintaining socialisation follows threat from a more dominant individual, although, if Power is right, this is not a frequent occurrence in the wild.[16] Then either party

may initiate reconciliation through touch. As de Waal explains, touching and especially kissing, bring about reconciliation among chimpanzees; the contact then reduces the tension, and relaxation occurs.[17] This means that except during moments of excitement the arousal level of the individual is low -- this is the hedonic condition and is responsible for the flexibility of the hedonic mode.[18] This flexibility is a manifestation not only of absence of the fear of punishment in the relationship between individuals, but also of a freeing of an individual's attention from being the medium or channel of the social bond between them and the rest of the society. Because it is no longer active as a bonding element, attention is freed for detailed investigations and manipulations of objects in the physical environment, thus facilitating the development and expansion of intelligence.[13]

Westergaard reports that lion tailed macaques (*Macaca silenus*) spontaneously manufactured and used tools to extract syrup from an apparatus designed to accommodate probing behaviour and puts this down to their method of feeding which involves omnivorous, extractive foraging similar to that of chimpanzees.[19] While this may be so it is equally significant that Gary Emory (personal communication), who has studied their group, states that they are exceptionally unaggressive and peaceful in a colony at the San Diego Zoo, especially when compared to the organisation of the mandrill (*Mandrillus sphinx*) which Emory showed were centripetally organized in their social attention.[8]

This is made more likely since Emory reports that a macaque female broke off a branch from a dead tree and wove it into the wire mesh surrounding the cage, then sat on it. She also bit a hole in a rubber football and then used it as a bucket to pour water over another monkey. So observation alone is sufficient to reveal spontaneous inventiveness. Constructing a specific problem can distort one's awareness of the scope of a primate's creativity.

Confirmatory evidence of the two modes in non-human primates

Two studies of semiferal colonies of the Rhesus macaque have shown that glancing from a distance is the method of attention between agonically ranked individuals, and the lack of this behaviour combined with sitting next to and relaxed grooming evinced hedonic relations between individuals. Using these measures Waterhouse & Waterhouse showed that there were two separate networks of agonic and hedonic attention in a colony at the Bristol Zoo.[7] Also Pitcairn discovered the same dichotomy in a very elaborate study in which mother/infant relationships were known from a 15 year study of the colony at the Basle Zoo .[5,6]

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by J Birtchnell

ARTICLE: On the cartoonization of Birtchnell (with special reference to Leon Sloman)

It's hard work launching a new theory. I find myself saying the same things over and over, answering the same questions, correcting the same misconceptions, till I find myself wishing I'd never thought of the damned theory. Lisa Minnelli once said of her mother, Judy Garland, "She had rainbows coming out of her arse." I'm beginning to know what she felt like. When faced with an unfamiliar idea, people inevitably restate it in terms of another theory with which they are more familiar. A problem with couching the theory in simple terms like close, distant, upper and lower is that people think they understand the terms because they understand what these words normally mean. I keep saying, "Read the book," but even when they read the book they still ask the same questions and have the same misconceptions. May I have some space to clarify a few points?

First I want to say that it *is* an evolutionary theory. I use such simple terms as close, distant, upper and

lower because they have to apply to all organisms from the simplest to the most complex. When John Price (JP) claims that the vertical axis came in at an earlier stage of evolution than the horizontal, I feel like asking how far back does he want to go? At what stage did organisms start moving toward or away from each other? Do micro-organisms not do this? When Leon Sloman (LS) says that he prefers theories based on "biological mechanisms" to a theory such as mine, I want to say that the theory *does* involve "biological mechanisms." What mechanisms does *he* think it involves?

Here I would like to comment on the discourse between Russell Gardner (RG) and Mike Waller about consciousness. I am sure there must be centres in the CNS which monitor, from minute to minute, how close to or how distant from others or how upper or lower, in relation to others, we are. Similar centres must exist in all animal forms. I would guess that these centres lie deep within the limbic system because they appear to be so closely linked to the emotions. I observe myself getting anxious when I move too close to, or too far from people, or when people move too close to, or too far from me, or when there is a risk of my losing too much upperness or too much lowerness in relation to people. I observe myself getting depressed when I have not attained or maintained the position I wanted. I do not think out these reactions, they just happen. Beyond this, I find myself doing and saying things, which, in retrospect, seem to have been the right things to have done or said in order to get what I wanted. It is in consciousness that I observe all this going on, but it is not in consciousness that these decisions get made. I am never sure what additional contribution the conscious mind makes to meeting my relational needs. I suspect it has a restraining function. In the book I use the terms sub-cortical and cortical to describe these two CNS layers. Paul Gilbert (PG) calls them fast track and slow track and Power & Brewin call them experiential and rational.[1]

I want to put in a plea for using axes rather than dimensions. Dimensions are more to do with continuous measures, so that there is a gradation from one end to the other. One might make a case for the horizontal being continuous, i.e. as you get less close you get more distant. The vertical is more easily construed as categorical, i.e. either you are upper or you are lower. The gap between upper and lower can range from being very big to very small, but as the gap closes, both scores approach zero. One might more usefully think of the axes as being radii, so that there is a maximum score at the periphery of the circle and a score of zero at the centre.

It is fundamental to the theory that being close is neither better nor worse than being distant and being lower is neither better nor worse than being upper. From an evolutionary point of view, this has to be so, for if it were not, whichever were better would have survived in the gene pool and whichever were worse would have failed to survive. Elsewhere I have spelt out, for both animals and man, the main advantages of being close, distant, upper and lower.[2,3] To comment upon LS's remark about lowerness being too pejorative, there is nothing pejorative about lowerness, any more than there is anything pejorative about any of the other positions.

Above all else, closeness, distance, upperness and lowerness are objectives, in the same way that food and drink are objectives. But, just as with food and drink, we have to acquire a knowledge of where they might be found, and develop strategies for obtaining them. When you feel hungry you have to know where food might be, then go there and try to get some. We have to accumulate a range of what I call sources, and become competent at, and confident of, a range of strategies for attaining and maintaining enough of the four positions. An animal that lacked an awareness of where food and drink might be, or the competence to get them would die, and probably, in the wild, an animal that lacked the competence to gain sufficient of the four positions (as I have defined them)[23] would also die. In humans, this is not necessarily so. Some humans have a limited capacity for attaining one or more of the four positions, e.g. some (avoidants, schizoids) have a limited capacity for attaining closeness, yet somehow, they get by.

The figure that RG drew up in the May issue and that LS reproduced in the June issue, under the title

"Birtchnell's Figure," was RG's construction, not mine. I would not have entered the subheadings under the main headings of close, distant, upper and lower, as RG did, unless perhaps I had specified the sense in which I intended to use them. The issue is complicated by the fact that the headings can be used in a range of different senses and I would need to construct a different figure according to the sense in which I was going to use them. The simplest figure would be one which referred to them as objectives, goals or commodities. Used in this sense, they would just be abstractions.

Suppose I constructed the figure to represent them as a measure of the competencies of a particular individual, then the well-adjusted individual would get maximum points on each one of them. To return to the distinction between axes and dimensions, if we were thinking in terms of dimensions, it would seem odd indeed if someone scored a maximum on both closeness and distance or on both upperness and lowerness, but this is exactly how it would have to be. Thinking in terms of axes (or radii) would make this possible.

Another fundamental feature of the theory is the distinction I make between the positive and negative forms of strategies for attaining and maintaining each of the positions. In a recent article I constructed a figure of positive descriptive terms and a figure of negative descriptive terms.[3] Space does not permit me to explain here what I mean by such terms (see Newsletter Vol 4, No 12 or Birtchnell, 1993, 1994),[2,3] but a lot of the misrepresentations of the theory are the result of failure to take account of them. It is complicated by the fact that there must be at least four different forms of negative relating and perhaps there should be a separate figure for each. People who draw direct parallels between animal relating and human relating (e.g. JP, LS and, to a lesser extent, PG) tend to gloss over the distinction, though there are many examples of animals appearing to relate positively. I say appearing to, because a lot of human positive relating involves having some understanding of what it feels like to be the other person and making allowances for this, and so far as we know, animals are not capable of this.

An important distinction is that between active relating and reactive relating. In active relating the person is making a bid for a particular state of relatedness. In reactive relating the other is responding to this bid. The active/reactive distinction is quite separate from the positive/negative distinction, and either active or reactive behavior can be either positive or negative. One could also create separate figures for active and reactive relating.

What I need to stress is that the theory, which for want of a better term I (and others) have come to call spatial theory, is a general theory. A number of other, more specialist, theories can be contained within it. This is not to say that it is superior to the more specialist theories, for what it gains in generality it loses in specificity.

One theory that can be contained within it is the ranking theory of depression. This theory states that one person makes another person depressed by dominating her/him or putting her/him down. In my terminology, the dominating/putting down person is behaving in a negatively active way, by trying to grab upperness with little regard for what this does to the other person. The dominated/put down other person may get depressed for two possible reasons (there may be others): (1) S/he may feel deprived of a quantity of upperness either in relation to the dominator or in relation to certain others (e.g. the dominator may have demoted her/him). S/he may still be upper in various other ways/situations or in relation to various other people, but the loss of some of one source of uppperness may have been enough to depress her/him. (2) S/he may, before the negatively upper behavior began, have been in a state of positive lowerness in relation to the upper other (as an admirer, doting wife, employee, student, patient or whatever) but then the upper other may have started to exploit or abuse her/him and turned the positive lowerness into negative lowerness. In the second case the lowerness did not become depressing until the upper person's relating changed from positive to negative.

The inclination of ranking theorists to equate lowerness with depression is most unfortunate. LS

says (1) "I associate the ISS with lowerness" and (2) "when an adult exhibits a strong persistent ISS in the form of depression ..." He goes on to imply that lowerness (as what he considers to be a form of depression) contributes to distance. I hope I have said enough to convey that lowerness should not be equated with depression. Furthermore, as JP has suggested, there can be a distancing element to depression, and it is this which pushes people away.

Ranking theory is complicated by (1) a person can be relatively upper or lower on a whole range of parameters at the same time and (2) it is not the relative position of one person in relation to the other that makes the lower person depressed, but what the upper person is doing to the lower one. Subordination is a form of reactive relating. One tends to think of a subordinate as a particular kind of lower person, someone who is obedient and deferential, what I would call lower distant. Subordinates (e.g. those in lower ranks in the armed services) are not normally depressed. I was not happy about LS referring to a very young child as being subordinate. Only in a very strict and rigid family might this be so.

By conceiving of upperness as good and lowerness as bad, ranking theorists appear to experience difficulty appreciating the advantages and pleasures of lowerness. I was intrigued that LS chose the convoluted action of putting oneself down as an example of lowerness behavior. If anything, putting oneself down is a way of being upper to oneself. He went on to say that if one puts oneself down, other people are less likely to try to put one down themselves, and this somehow gives one upperness. He paints the dismal picture of everyone trying to put everyone else down, just like animals in the wild. This is not the way that humans normally behave toward each other.

Continuing in this competitive vein, LS ascribes to RG (and agrees with) the opinion that one of the tasks of therapy is to promote alpha behavior, by which I presume he means upperness. Is that positive (benevolent) upperness or negative (malevolent) upperness, or doesn't it matter? Since I maintain that upperness can be neither better nor worse than lowerness, I cannot subscribe to this. My view of therapy is that it helps to eliminate negative forms of relating, whether these be upper, lower, close or distant. It does this by enabling patients to improve their relating competencies, and to feel more secure in their various states of relatedness. It also enables them to cope more effectively with the negative relating of others.

Another theory that can be contained within spatial theory is attachment theory. Attachment was defined by Bowlby as "... *any form of behaviour that results in a person attaining or retaining proximity to some other differentiated and preferred individual, who is usually conceived of as stronger and/or wiser.*"[4] That makes it a form of lower close behavior. When LS says that he finds the concept of secure attachment "more meaningful" than the concept of closeness, that presumably is because he has read about attachment but he has not read about closeness. He says that secure attachment is associated with mental health. Secure attachment is simply secure lower closeness. All forms of secure relating are associated with mental health. I shall be reading a paper called "Mental health as positive relating" at a conference in London in October. In the book, different forms of mental ill health are explained in terms of negative forms of each of the four positions.

I have been thinking recently that PG's defense and safety systems also fit conveniently into the theory, though I am not too happy with his terminology.[5] As far as I can tell, both systems are to do with safety. Using his terms, defense is linked with my concept of distance, and safety is linked with my concept of closeness. In distance, we are concerned with the protection and defense of the self. Defensive acts such as fight, flight and freezing are distancing processes. In closeness we are disposed toward involvement with others. The safety system, as PG describes it, is concerned with a preference for affiliation, friendship and attachment and the good aspects of safety are being valued, desired and esteemed.

It was I who introduced the idea of vertical and horizontal thinkers. Although most people, to a lesser

or greater extent, concern themselves with both vertical and horizontal functions, there are, unfortunately, a number of theorists who appear to focus almost entirely on one or the other. Adler, for example, was what I would call a vertical thinker, and although attachment has both a vertical and a horizontal component, Bowlby was much more concerned with the horizontal than with the vertical. Furthermore, it appears to be a characteristic of unidimensional thinkers that they conceive of one end of their preferred dimension as good and the other end as bad. Adler considered upper to be good and lower to be bad, and Bowlby considered close to be good and distant to be bad. I agree with RG and LS that we always should be concerned with both the vertical and the horizontal, but I would add that we always should be concerned with both ends of each of these. I think that those who think in terms of dimensions are more likely to consider one end as good and the other as bad, which is another good reason for thinking in terms of axes.

LS says that he does not see the horizontal and vertical axes as being independent, then indicates how the behavior of a child on one axis can influence behavior, a parent on the other. Whilst I consider it important to view the axes as independent I do acknowledge, as I did in the book, that there can be interactions between them. I do not think that LS's example was a very convincing one. By using the word 'sad', rather than 'depressed', to describe the child, he was introducing an element of care-eliciting in the child's behavior. I don't think a distant, depressed child would necessarily elicit a closeness response from the parent. G3

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by R Gardner, Jr.

ARTICLE: Summary of Waller's arguments that we inadvertently merged in May

In the May, 1994, issue, Michael Waller responded to an article written by Mauricio Cortina in review of Slavin and Kriegman's book (the S/KCW series).[1] Remember that Mauricio in the February, 1994, ASCAP talked of the "fallacy of the misplaced agency" meaning the "selfish gene" (SG) level in the famous metaphor of Richard Dawkins. Mauricio finds the SG theory "radically reductionisitic". Unfortunately for the coherence and power of Michael's rebuttal, as he pointed out in the July issue, two of his arguments were merged as a result of an omission of page 2, which helped brevity but hurt comprehensibility, as he noted.

We in the editorial office apologize. Although Mike was gracious to assume potential blame himself (supposing that he, perhaps, had not sent the second page), he had indeed done so and we assume responsibility on several fronts, first copying and then proof-reading. I therefore cheerfully assume the rapporteur responsibility that Mike requests, although he makes his points so colorfully all by himself that I certainly need to quote from the omitted page. We did of course immediately on receipt send the original to Mauricio who later said that he is working on a Slavin/Kriegman-Cortina-Waller-Cortina (S/KCWC) reply that will have as input the full Wallerian argument as Mike himself originally put it.

The central conflict in this drama is that Cortina finds problematic the selfish gene argument in his article in the February issue and Waller as a Dawkinophile explains a lack of problem. Mike is exquisitely familiar with the Sober-Gould-Lewontin arguments Mauricio cites and uses them to his own advantage.

I summarize Mike's two arguments as follows: 1) The selfish gene is of course a metaphor in that the genes themselves do nothing and have no feelings but there is conceptual utility in assuming they do -

indeed, the centrality of the gene is at the core of Darwin's natural selection although Mike asserts that Cortina and his fellow skeptics about SG marginalize that fact.

(2) The presence of linking genes do not disparage the argument. Indeed, Mike agrees that there is much evidence that genes are not beanbags, separately acting and independent of one other. Some may "free-load" as a result of obligatory connections -- be there, that is, without adaptive utility, or worse, cost the organism in its phenotypic form because of such linkages with other genes. Other "driving genes" even cause sterility but then, Mike argues, that indeed demonstrates that they are selfish - what is more selfish than a free ride?

Now to the specifics of the omitted page: picking up on page 1, Mike noted that plant breeders want the genomic map of the genus "prunus" in order to reject specimens with less good genes 10-times more quickly. There is economic advantage in not waiting for maturity to reject seedlings.

Going on to page 2 he points out that this process simply short-changes the processes evident to plant breeders for a long time and certainly known to Darwin too (we recall that Darwin prolifically corresponded with breeders and was an avid participant in plant and animal breeding conventions).

Breeding, natural selection and now technology selects whole organisms and their constituent genes on the basis of helpful versus less helpful characteristics; with the technological brave new world, Mike points out that direct end-to-end assemblage of genes may improve still more on the plant breeders who still have to select out whole seedlings, even if earlier than before. Now we go to Mike's own (previously missing) prose.

Yet the end-products of such direct genetic manipulation would be identical to that of traditional plant breeding or the continual refinement of species by evolution: organisms better fitted to what is required of them. Is it therefore unreasonable to suggest that the selection and rejection of genes is the be-all and end-all of natural selection?

If I might be permitted a flight of fancy, I can put the same point a little more colorfully. Were we in the business of making automobiles, it might be fair to term the financial expression of our activities as mere bookkeeping; but if we were bankers, money would not only monitor our progress, it would also be our sole stock-in-trade. And is not the terrestrial gene-bank the biggest bank of all?

Mauricio goes on to suggest that those who believe in the selfish gene, also believe that genes "cause" the selection process. As a dyed-in-the-wool genic theorist, I can say that this is nonsense. Genes no more cause evolutionary change than differences in the durability of rock cause the landscape. In both cases the positive role is performed by environmental factors acting on natural variability. However, if I might turn the question back to Mauricio, would there be any evolution if genes were not continually presenting themselves, via organisms, to have their relative strengths and weaknesses so rigorously assessed?

Mauricio links the issue of causality with a distinction Sober and Lewontin make between selection of and selection for. They apply the latter to genes which equip the phenotype with an adaptive advantage,and the former to genes which persist over evoutionary time for no other reason than that they are tied together with an adaptively advantageous gene on the same chromosome. Now, I agree that this is an instructive distinction, but not for the reasons given. We need continually to be reminded that the idea of the selfish gene is no more than a metaphor. Genes neither give, nor are capable of giving, a damn as to whether they survive or not. Itjust happens that there is considerable heuristic advantage in looking at them "as if they had a burning concern with finding a means of perpetuating their own existence. Within this conceptualisation it is essential that genes are looked on as totally amoral, i.e. they will do anything to ensure their own evoutionary survival. In many cases what advantages them also advantages the organism which carries them; but this is not invariably the case. Elsewhere Sober has given an even

more powerful example than free-loading, "linked" genes. He argues that a "driving" gene with a deleterious, rather than neutral, effect upon its carriers might nonetheless work continuously to preclude the fixation of a rival gene with positive adaptive value.
[This now segues into what was copied in Mike's May contribution.]
At population level, the result could be a stable polymorphism. Sober develops this argument beyond the theoretical level by citing Lewontin and Dunn's study of a driving gene which renders homozygous mice sterile. The initial research hypothesis assumed a frequency for the gene reflecting a gene/individual conflict of interest of the type just sketched. In fact, the frequency was significantly lower, reflecting the occasional loss of complete breeding group when all males chanced to be carriers of the gene.

This is the end of my repair job and I request the reader return to the May issue for the remainder of Mike's argument. I appreciate his invitation to do some rapporteurial work as I read the material more carefully and find Mike's arguments meaningful. I hope that he forgives us for the disruption caused by his merged May argument.

References: page 20

by R Gardner, Jr.

ARTICLE: Five harbingers of the future: Parts (iv) & (v)

This is the last part of a report on a visit to Austin, TX, in which clinical and educational programs sparked discusion of the sociophysioiogical concerns of the Newsletter. To this point the Austin State Hospital has been the center of our focus.

- **Harbinger (iv)**

Brain-behavior pathophysiology for violent troubled kids.

Private practice mammalians
I needed to look no further than dinnertime to learn of natural experiments involving the brains and behavior. A next harbinger of the future involved information about brain and behavior showing up in the private practice sector of psychiatric care.

Austin is where the Neuropsychiatric Treatment Centers (NTCs) have originated, a surviving representative of inpatient private practice psychiatry with attributes that have allowed it to be "selected" in the current fiscally restrictive climate. That is, NTCs and work with patients who are stressful for our social and city systems (violent youth) and the resultant outcomes of how they do from their assessment and treatment have been, and are being, measured, including a follow-up of how well they do. Simultaneously, it helps instruct us on what the genes do after conception -- how, that is, they help the organism learn and otherwise adapt to a variety of circumstances.

Larry Fisher (LF) and I were recruited together about two decades ago as parts of another flamboyant leader's (Lee A. Christoferson) grand dream for an integrated clinical and basic neuroscience enterprise, in Fargo, North Dakota. Larry arrived as a neuropsychologist in a private practice group called The Neuropsychiatric Institute (TNI) connected with a department of neuroscience in a newly expanded medical school at the University of North Dakota. I came to the department of neuroscience as chairman of a division of psychiatry-behavioral sciences. Other divisions included neurology, neurosurgery, neuroradiology, and neuropathology. Envisioned for the future were the basic sciences of neurophysiology and neuroanatomy which are in fact now the chief TNI enterprises, as it has changed to a privately endowed research institute.

LF's early work involved collaboration chiefly with the neuro-divisions. In the tradition of pioneering Russian psychiatrist-neuropsychologist Aleksandr Romanovich Luria who worked with head-injured WW-II soldiers, LF worked to determine psychological changes that could localize neurological lesions for the clinical purposes of these specialties. Then computerized brain tomography and other imaging techniques suddenly developed, and, as Larry said, "I was out of a job."

But, a resourceful mammalian, he is now program director of a surviving psychiatry inpatient program. He contributes his knowledge of how the brain works to top-down and bottom-up integrative pathophysiological formulations of patient problems, a fundamental value of this Newsletter and a major reason for its existence!

He gave a verbal snapshot of his typical patient. Many are veterans of a fetal life during which their mothers used alcohol or crack cocaine with negative consequences for their frontal lobes, thus crippling their resiliency compared to normal kids. They then encountered rough subsequent lives on inner city streets, including vulnerability to head injuries and brain damage. Neglected, they suffered sexual abuse as well, along with its consequences. Many have post-traumatic stress and dissociative disorders - and have themselves been users of drugs and dangerous sex. From society's point of view, these youth are especially major problems because they are extremely violent and the future expensive inhabitants of the prison system.

UTMB trained neuropsychiatrist formerly on faculty at Duke University, Dan Matthews (DM) recruited LF in the late 1980s to join him in a partnership for developing the Neuropsychiatric Treatment Centers (NTCs) which focus upon stabilization, diagnosis and treatment planning for recalcitrant, youthful disturbed violent offenders: they are 12-18 year olds who typically are sent by community agencies and who enter the program after failing approximately 4.5 previous programs; they are 80% male and 60% black. LF's credentials were attractive to Dr. Matthews because in addition to thorough knowledge of the brain, LF had been previously involved in electroencephalography and issues of neurobehavioral development. Moreover, he was thoroughly acquainted with behavioral research in which one doesn't infer, one measures.

Diagnosis and reasoning from pathophysiology

The NTC approach to the kids involves first removal from all previous medications. Although massively troubled, the kids are not usually psychotic. Many were nevertheless previously on dopamine blocking agents (neuroleptics) as chemical restraints because they had been so previously difficult to manage. The most helpful drugs, sometimes in high doses, eventually used after thoroughgoing evaluation are those that "stabilize the wiring" in LF's words; still other medications improve the patients' moods or calm their anxieties, depending on the diagnosis.

This stems in part from the landmark work of Robert Post of the NIMH who popularized the metaphor of kindling in the treatment of manic-depressive patients. Such people begin to have increased frequency of manic episodes overtime, apparently as a result of their brains being more sensitized: as though smouldering coals were activated into flame with less and less spark. Kindling theory developed in the context of seizures. It turns out that the same medications that reduce mania and impulsive violence also reduce seizures. When speaking (as he did recently at UTMB), Post quickly points out that this is a metaphor and that he is not calling the violence seizure-equivalent.

Post does not minimize, however, that fetal alcohol or cocaine syndromes and post-natal traumatic brain injury can in fact cause some seizure disorders, sometimes subtly. The medial parts of the temporal lobes are more vulnerable to damage and subsequent scarring than other brain parts - why, no-one yet knows - and they are then often the source of aberrant, seizure-causing electrical stimuli. Search for these is part of the NTC diagnostic process and LF is seeking better techniques. Which kids have such scarring and subsequent subclinical seizures? Which have these structures intact but other parts damaged, such as the frontal lobes with consequent poor planning and impulsivity, including readiness to engage in impulsive violence?

For the young patients who arrive at NTC after many

previous treatment failures, a first priority is to make the environment safe for them, so that their body blows against the doors and walls typically exerted during the first protest-filled days don't hurt them or the walls. Large, gentle attendants, many of them males, focus on diminution of aggressive behaviors. Thoroughgoing medical and developmental history, and physical and neurological examinations are completed with neuropsychological, electro-encephalographical and other laboratory assessments made. Only then are medications used according to the determined pathophysiology. The kids are instructed, their days filled with structure, a concept often completely new to them; most of all, they are provided more appropriate ways of realizing what their needs are and how they can get them met without their usual measures.

Many adventures occur on the way to such realization. Frontal lobe damage, for instance, biases to impulsive and unplanned behaviors, such as eloping before a meal. Later, cooled down and hungry, they call the only source of succor they have, the hospital from which they impulsively escaped. Temporal lobe damage may make the patient vulnerable to limbic system seizures. *Absence* of frontal lobe damage, however, may allow some exquisite planning behavior that thwarts the treatment planning; LF told us of one such patient who was capable of frontal lobe planning and ally-elicitation that produced a successful elopement.

Advanced mammalians check the past and anticipate the future

Does it work? As noted above, planners for health care system reform note that health care professionals at present do not much keep track of results. We have had little reason to expend resources to follow up patients. But LF and DM are memory-laden mammalians who find checking results against expectations useful, not only as research to advance knowledge, but as practical methods to convince others to pay them for their effort. They work under the umbrella of health care industry - formerly the Brown Schools which went bankrupt in their other components. NTC left and are now part of the fiscally solvent Community Psychiatric Centers (CPCs) which have 44 hospitals in the US (15 in California where they started), 8 in the UK, and 1 in the Virgin Islands.

LF has follow-up data on NTC results for 1990 and 1991. The treatment program then entailed nine months (subsequently it has been reduced to three). Criteria for satisfactory outcome included that in the year after treatment, there had been (1) no violence, (2) no return to the hospital or jail, (3) the patient remained in the school or job program devised prior to discharge, and (4) the patient was still following the original treatment plan. **For the 1990 patients, 90% met these criteria and for 1991, 86%.** Failures which occur sometimes -- LF with his high standards feels too frequently - have involved psychiatrists who have "meddled with the treatment plan", who conjecture, for example, that the patient really has a different diagnosis and thereby requires a variation in medication, thereby wrecking an equilibrium the patient had upon graduation from NTC.

These impressive findings are exciting because they have major bearings on how psychiatrists of the future may behave: pathophysiological determinants may pay off for future treatment planning. Keeping track of results pays off, not only in terms of the patients' increased welfare, but because agencies are more willing to pay if good results occur. The ASCAP Society's first president, primatologist Michael Chance, suggests that we should be concerned with societal issues. This is a major factor that could bear on the costs and tragedy of the prison system. If the habilitation of these damaged youth does work (and LF's preliminary evidence seems to show that at least it begins to do so), the implications are extraordinary.

• Harbinger (v)
Felons already in prison.

Birtchnell's vertical axis holds in prison settings

Chance's agonic atmosphere with authoritarian and hostile ritual agonistic behaviors certainly prevails in prison, the destination for the youngsters with whom LF and DM work who fail and are eventually con-

victed of crimes. We have the flagship of the state prison hospitals on the grounds of UTMB so that bars, guards and elaborate precautions for security are everyday facts of life when visiting this massive part of the medical complex. Stories of assaults and rapes that go on within prison walls are part of the clinical history of many of these patients.

UTMB psychologist Ernest Barratt has worked on learning some of the determinants of violence in the prison setting using elaborate head electrode setups, computer analyses and double blind cross-over studies of severely punished - but recurrent nevertheless - prison aggression. He notes that analysis of incoming information in the angular gyrus of the cerebral cortex is impaired in the patients. He found that, in concert with the DM/LF work, antiseizure medications reduce impulsive violence.

The humanist doctor

Steve Mitchell (SM) is working at the prison unit near Tyler, TX, and is concerned especially about mentally retarded inmates. He trained in psychiatry at UTMB, not because of its adjunct prison facility, but because of its Institute for Medical Humanities. Steve had read widely in fiction and on matters of literature and art; he had been a composer and musical performer; he felt that related parts of medical experience should be highlighted, and enjoyed the training period partly for the easy connections he then had with the Institute scholars in history, literature, art and ethics. After residency, he entered the private practice of psychiatry and encountered first hand the profit-driven inpatient practices. He found that paying patients were commonly exploited but quickly discharged when their funds were exhausted. He told of a colleague contemplating a possible new venture in which they would do "ethical" (emphasized repeatedly) work.

So after the agonic world of for-profit, inpatient psychiatry, Steve recently went to work for the prison system and found that he could feel of value to his prisoner charges: not much per person, but since the need is so great, short single sessions and appropriate treatment can alleviate considerable suffering and he feels he has seen effects (though not measured with LF care).

A well known Ruiz case that settled for the prosecution put the Texas prisons under the thumb of the Federal courts some years ago. During that jurisdiction, the principle of medical autonomy was enforced. Psychiatrists had scarcely been in the prison system prior to that time, and wardens were said to have used minimally trained people (medics in the army, say) to make major medical decisions. Steve feels good about the fact that the warden cannot now prevent him from using an indicated drug.

Steve has found that nearly all his prisoner-patients suffer from post-traumatic stress disorder, awakening from horrible dreams. These include flashbacks to what happened during an assault that they may have perpetrated. His patients had many troubles in addition to the quick reactivity to real or imagined threats that Ernie Barratt measured and investigated. Some are psychotic with bizarre persecutors, some anxious and panic-ridden, others depressed and suicidal, and of course, many are manipulative and eager to work the system in some way destructive to it, trying somehow to express alpha states, sometimes like patient MM with dramatic self-destruction (see Harbinger Part (i) in the June issue of The ASCAP Newsletter).

But SM has very little trouble in his interviews, for reasons I can understand after seeing him interact with me and others as well: he is interested, respectful, attentive, and clearly knowledgable. Like Jere Fisher in the first harbinger of this essay, he is a powerful audience and this has a way of working wonders in people not often heard.

Despite the power of audienceship, the receptive communicative state, its power partly derives from the fundamental alpha states it modulates. As they care for their patients or instruct their colleagues, Jere and Larry Fisher, Robert Gilliland and Robert Price, Beverly and Eldon Sutton, Steve Mitchell and Lady Bird Johnson, all exemplify firm control embedded in consideration and uncondescending human attributes. The sweet smell and color of the flowering plants are an add-on late development; the vigor of the plant cell, stem, and tissue came long before, are more basic plans.

ABSTRACTS & EXTRACTS

Price J, Sloman L, Gardner R, Gilbert P & Rohde P: The social competition hypothesis of depression.

Drews C: The concept and definition of dominance in animal behaviour.

Tick E: Killing our guests.

Damasio H, Grabowski T, Galaburda AM, Damasio AR: The return of Phineas Gage: Clues about the brain from the skull of a famous patient.

Bichakjian BH: Language evolution: Evidence from historical linguists.

Sachdev P & Aniss AM: Slowness of movement in melancholic depression.

Lucion AB, De Almeida RMM & De Marques AAB: Influence of the mother on development of aggressive behavior in male rats.

Leiner HC, Leiner AL & Dow RD: Cognitive and language functions of the human cerebellum.

Sortwell E & Sagen J: Induction of antidepressive activity by monoaminergic transplants in rat neocortex.

Stefano FB, Digenis A, Spector S, Leung MK, Bilfinger TV, Makman MH, Scharrer B & Abumrad NN: Opiate-like substances in an invertebrate, an opiate receptor on invertebrate and human immunocytes, and a role in immunosuppression.

Price J, Sloman L, Gardner R, Gilbert P & Rohde P: The social competition hypothesis of depression. British Journal of Psychiatry. 1994;164:309-315.

Depressive personality and depressive illness are examined from an evolutionary adaptationist standpoint. It is postulated that the depressive state evolved in relation to social competition, as an unconscious, involuntary, losing strategy, enabling the individual to accept defeat in ritual agonistic encounters and to accommodate to what would otherwise be unacceptably low social rank.

Drews C: The concept and definition of dominance in animal behaviour. Behaviour. 1993;123(3-4):283-311.

The concept of dominance has contributed greatly to our understanding of social structure in animals. Over the past three decades, however, a variety of concepts and definitions of dominance have been introduced, leading to an ongoing debate about the usefulness and meaning of the concept. Criticisms aimed at one definition of dominance do not necessarily apply to other definitions. Existing definitions can be structural or functional, refer to roles or to agonistic behaviour, regard dominance as a property of individuals or as an attribute of dyadic encounters, concentrate on aggression or on the lack of it, and be based either on theoretical constructs or on observable behaviour. Thirteen definitions of dominance are reviewed, and their usefulness assessed with respect to their descriptive value. The predictive and explanatory values of definitions are specific to the questions asked in each particular study and are not considered as criteria to judge the usefulness of the dominance concept. By virtue of its high descriptive value, the original definition of dominance by Schjelderupp-Ebbe (1922, Z. Psychol. 88:226-252) emerged as the basis to formulate a structural definition with wide applica-

bility and which reflects the essence of the concept: Dominance is an attribute of the pattern of repeated, agonistic interactions between two individuals, characterised by a consistent outcome in favour of the dyad member and a default yielding response of its opponent rather than escalation. The status of the consistent winner is dominant and that of the loser subordinate. Dominance status refers to dyads while dominance rank, high or low, refers to the position in a hierarchy and, thus, depends on group composition. Dominance is a relative measure and an absolute property of individuals. The discussion includes reference to the heritability of dominance application of dominance to groups rather than individuals, and the role of individual recognition and memory during agonistic encounters.

Tick E: Killing our guests. Pilgrimage. Reflections on the Human Journey. 1994;20:(#3)20-21.

In *Genesis,* we are told that Abraham was visited by three strangers, whom he immediately made welcome by bathing their feet, then giving them rest and a meal. Later in time, as recorded in *Deuteronomy,* Moses admonished his people, "Love ye therefore the stranger."

The classical Greek world practiced the tradition of guest-friendship, called "xenia," whereby strangers from distant parts were treated as welcome and honored guests. Once a guest-friendship was sworn between two people, families or clans, their offspring honored the ties for generations. In an incident recorded by Homer in *The Iliad,* two enemies facing off for a death struggle refused to war against each other, instead trading tokens of honor, when they realized that their grandfathers had sworn guest-friendship.

On our own continent, an Iroquois legend relates how a poor and hungry stranger begged sustenance from the various clans. After being rebuked by all others, the stranger was finally welcomed, fed and tended by the Bear Clan. And among the Plains Indians, enemy warriors who rode peacefully into a hostile camp would often be fed and sheltered.

... The English word "guest" evolved from Anglo-Saxon, Icelandic and Gothic words for "stranger." Guest originally connoted not a friend but a stranger received with hospitality.

... Among the Greeks, the tradition of guest-friendship served social and political ends by helping to knit together a widespread people from diverse traditions, values and lifestyles.

...The Hebraic, Greek and Iroquois traditions provide divine endings to many stories of aiding the stranger. The stranger whom the Iroquois befriended turned out to be the Creator in disguise, who later gave the Bear people, the poorest of the clans, the gift of healing medicines. The three strangers who visited Abraham turned out to be angels bringing messages from divinity.

Damasio H, Grabowski T, Frank R, Galaburda AM, Damasio AR: The return of Phineas Gage: Clues about the brain from the skull of a famous patient. Science. 1994;264:1102-1105.

When the landmark patient Phineas Gage died in 1861, no autopsy was performed, but his skull was later recovered. The brain lesion that caused the profound personality changes for which his case became famous has been presumed to have involved the left frontal region, but questions have been raised about the involvement of other regions and about the exact placement of the lesion within the vast frontal territory. Measurements from Gage's skull and modern neuroimaging techniques were used to reconstitute the accident and determine the probable location of the lesion. The damage involved both left and right prefrontal cortices in a pattern that, as confirmed by Gage's modern counterparts, causes a defect in rational decision making and the processing of emotion.

Bichakjian BH: Language evolution: Evidence from historical linguistics. In J. Wind et al. (eds), Language Origin: A Multidisciplinary Approach Boston: Kluwer Academic Publishers, 1992, pp 497-516.

While the evolution of species is universally accepted by the scientific community, language evolution is still waiting for recognition. This paper will present evidence showing that language evolution does take place, and that it is a neotenous process, whereby the features (sounds, signs and strategies) that native children normally master at a later age are constantly replaced by ever-earlier-acquired alternatives. It will be argued furthermore that the linguistic process has probably a biological underpinning -- it could be brought about by a change in the genetically-directed regulation of the plasticity of the appropriate cortical regions, and, since early-achieved linguistic proficiency constitutes a definite advantage, the corresponding selection pressures can be expected to guide the biological evolution towards earlier plasticity and, by so doing, the linguistic evolution towards earlier-acquired features.

Sachdev P & Aniss AM: Slowness of movement in melancholic depression. Biological Psychiatry.,1994;35:253-262.

We studied 10 subjects each with melancholic depression evidencing significant motor retardation (RM), Parkinson's disease (PD) with bradykinesia, and normal healthy controls (NC), matched closely for age and gender, on measurements of motor function and depression, and their performance of simple and complex ballistic movements. The simple movements involved the execution of 10°, 20° and 40° angular movements using a methodology adapted from Hallet and Khoshbin (1980). The complex movements involved the performance by the right arm and hand of a squeeze and a flexion movement, both sequentially and simultaneously, using a methodology adopted from Benecke et al. (1986, 1987). The RM and PD groups demonstrated a smaller increase in the angular velocity as the angle of the movement increased from 10° to 40° than did the NC group. Many PD and RM subjects tended to take longer to perform the simultaneous and sequential movements, but nonsignificantly so. The RM group performed the squeeze movement slower when executed as part of the simultaneous movement than when performed as a simple movement. The pause time between the movements when performed sequentially was longer (nonsignificantly) for the RM subjects. Our study demonstrated a disturbance in the execution of simple and complex movements by RM subjects that resembled the disturbance seen in PD. This argues for a common pathophysiological basis for at least some aspects of motor retardation in the two disorders. Reduced dopamine function is one common abnormality that may partially account for these findings.

Lucion AB, De Almeida RMM & De Marques AAB: Influence of the mother on development of aggressive behavior in male rats. Physiology & Behavior. 1994;55(4):685-689.

The present experiments investigated pre- and postnatal maternal effects on aggressive behavior in rats. Resident-intruder aggressive behavior of male rats in colonies (two males and two females) was studied in five experimental groups: 1 = WWY (*n* = 7) the two males of each colony were wild (biological father and mother were wild) fostered by a wild mother; 2 = WAY (*n* = 11) the two males were wild fostered by an albino Wistar mother; 3 = AWY (*n* = 12) the two males were albino fostered by a wild mother; and 5 = HWX + HAX (*n* = 9) one of the males was hybrid born and reared by a wild mother (the father was albino) and the other was also hybrid but born and reared by an albino mother (the father was wild). Each test lasted 10 min and the intruder was always a Wistar male. Aggression of wild rats was higher than the laboratory ones, independently of the mother (albino or wild) they were fostered by. However, hybrid males born and reared by a wild mother were more aggressive than those that were born and reared by an albino mother, in spite of the

father being wild. In conclusion, crossfostering has littel effect on territorial aggression, but prenatal maternal effects seem to play a major role on the ontogeny of aggressive behavior of male rats.

Leiner HC, Leiner AL & Dow RS: Cognitive and langage functions of the human cerebellum. Trends in Neurosciences. 1993;16:444-454.

Traditionally, the human cerebellum has been regarded as a motor mechanism, but this view of its function is being challenged by a growing body of data on the non-motor functions of the cerebellum. Some of these data are presented in this article, which reviews neuroanatomical, neuroimaging and behavioral reports of cerebellar involvement in cognitive and language functions. The article proposes that this functional expansion is a consequence of specific cerebellar structural changes that evolved during hominid evolution and that could have been a prerequisite for the evolution of human language.

Sortwell CE & Sagen J: Induction of antidepressive activity by monoaminergic transplants in rat neocortex. Pharmacology Biochemistry and Behavior. 1993;46:225-230.

To assess the ability of monoaminergic transplants to reduce immobility in the forced swimming test (FST), either adrenal medullary tissue, pineal gland tissue, or equal volumes of sciatic nerve were transplanted into the rat frontal neocortex. In the FST the duration of immobility is thought to indicate the level of antidepressant activity, as immobility times are reliably reduced by antidepressant therapies. Immobility times were reduced in rats with adrenal medullary grafts and pineal grafts to the rat frontal neocortex. In contrast, immobility times were not reduced in control sciatic nerve tissue grafts. Biochemical analysis using HPLC revealed that pineal-grafted neocortex contained higher levels of serotonin (5-HT) and adrenal medullary-grafted neocortex contained higher levels of norepinephrine (NE) than sciatic nerve-grafted or nongrafted controls. Immunocytochemical studies showed that the monoaminergic grafts survived well and continue to produce high levels of monoamines. These results support an important role for neocortical 5-HT and NE transmission in antidepressant activity and suggest that transplants of monoaminergic-containing tissue can reduce biochemical deficits in depression.

Stefano GB, Digenis A, Spector S, Leung MK, Bilfinger TV, Makman MH, Scharrer B & Abumrad NN: Opiate-like substances in an invertebrate, an opiate receptor on invertebrate and human immunocytes, and a role in immunosuppression. Proc. Natl. Acad. Sci. USA. 1993;90:11099-11103.

The presence of morphine-like and codeine-like substances was demonstrated in the pedal ganglia, hemolymph, and mantle tissues of the mollusc *Mytilus edulis.* The pharmacological activities of the endogenous morphine-like material resemble those of authentic morphine. Both substances were found to counteract, in a dose-dependent manner, the stimulatory effect of tumor necrosis factor ά or interleukin 1ά on human monocytes and *Mytilus* immunocytes, when added simultaneously to the incubation medium. The immunosuppressive effect of this opiate material expresses itself in a lowering of chemotactic activity, cellular velocity, and adherence. Codeine mimics the activity of authentic morphine, but only at much higher concentrations. Specific high-affinity receptor sites (μ3) for morphine have been identified on human monocytes and *Mytilus* immunocytes. In *Mytilus* recovering from experimentally induced stress, the return of "alerted" immunocytes to a more inactive state appears to be due to a significant rise in the content of morphine-like material in the pedal ganglia and hemolymph at this time. Thus, morphine may have a role in calming or terminating the state of immune alertness.

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