ASCAP NEWSLETTER

Across-Species Comparisons And Psychopathology Newsletter

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"Shall we accept the beast-within idea on the basis of its acceptance by many of the world's greatest thinkers... or by its common-sense appeal, or by its implicit validation each day on the front page of every newspaper; or, should we stand with many...intellectuals and social scientists who reject the idea as so cially dangerous? ... [W]e are forced to conclude that the concept has never been scientifically disproven, but merely disapproved of for personal, professional and moral reasons." Kent Bailey

The ASCAP Newsletter[2]
is a
function of the

International Association for the Study of Comparative Psychopathology (IASCAP)[3]

Newsletter aims: 1. A free exchange of letters, notes, articles, essays or ideas in whatever brief format.
2. Elaboration of others' ideas.
3. Keeping up with productions, events, and other news.
4. Proposals for new initiatives, joint research endeavors, etc.

IASCAP 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 that focusing on cellular processes to that focusing on individuals to that of individuals in groups.

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Contents:

In Memoriam: Powerful bad news arrived last week: Daniel X Freedman, editor of the Archives of General Psychiatry has died. We are very saddened. He was a persuasive leader in American psychiatry as well as a good friend and colleague to many many. He

worked with serotonin when it was an exotic name and little else. He had Yale education and was faculty there where he came to know Paul MacLean and to appreciate the importance of evolutionary biology.

The appreciation came from earlier sources too as I learned from John Paul Scott at HBES in 1991. Professor Scott did pioneering work on the genetic basis of behavior in dogs as well as on the evolution of social systems. His first teaching job was at a Indiana college in Danny Freedman's home town when Danny was a youngster. They became well acquainted. I wrote Dr Freedman about my encounter and have in my files a fond letter from him about that youthful influence.

When APA president in 1982, Dr Freedman made sure that Paul MacLean gave a named address. It seemed a most pleasant part of his duties as he grinned ear-to-ear on the platform. I remain particularly appreciative for Dr Freedman's editorial shepherding of my first paper on the topics of this newsletter which was published later that same year (on the evolutionary basis of manic-depressive disorder). It in turn caused me to become acquainted with John Price, Leon Sloman, Paul Gilbert and many of the readership. DXF was aware of the ASCAP Newsletter and gave it his blessing in early 1989.

I was on a trip when I learned about DXF. Ironically, in the mail upon return was an angry memo from DSF to his Archives readers. The AMA central office had changed the journal format drastically "to enhance readability." This happened without his input. He noted that one article per issue had to be sacrificed for the new format. Dr Freedman was very alive when he wrote his last missive.

Inquiry about ASCAP Format; Speaking of formats, we're discussing formats for the newsletter. How does the membership feel about it? John Pearce has been after us for awhile to change the typeface (he likes Helvetica which we currently have only in the small font used for quotes). But we have some new software that might be deployed for the newsletter's potential benefit.

There is something of a white space debate. One prestigious reader, editor of a journal himself, argues that we should have more of it, especially on the front page "to make thing less cluttered." Another subscriber who was a newspaper man before turning sociologist and neurop-sychiatrist, argues against it. The important thing for him is content and he dislikes wasted space. Please contribute your view.

Katy Barclay newly in the ASCAP Newsletter central office suggests that the last line of our mission statement (first column of p 1) could be edited to read as follows: "We are interested in integrating studies of molecules, cells, individuals, and individuals in groups."

In speaking to President John Price on the telephone about it, he expressed an appreciation for Katy's interest (while staying noncommittal about whether the change should take place suggesting that we survey you-all instead). We need to order new **IASCAP** stationery next month, so let us know yes or no soon about the suggestion. Do euphonious qualities of the present version outweigh the virtues of streamlining?

Communique from Laquna de Oro

by R Gardner & Ivor H Jones We at UTMB in Galveston were the beneficiaries for ten days of Ivor H Jones's sabbatical leave. He is Professor & Chairman of Psychiatry at U Tasmania, Australia. He gave Grand Rounds on "Self-injury as a biologically determined phenomenon," a

research seminar on defeated sugar-gliders as a proposed animal model for depression, participated in a seminar for psychiatry residents in their second year that is part of a series on sociophysiology, and met individually with a number of faculty. The two of us swam together in the lagoon, talked of many things, and decided in the manner pioneered by John Price & Dan Wilson, at Odin-tune, Sussex, that we would issue a two part communique, as below. The thorough-going search for top-down and bottom-up correlative work we are deploying in the sociophysiology course stimulated Professor Jones to articulate a notion that he has had in mind for some time.

The smell-memory hypothesis By
Ivor H Jones

The idea central to this hypothesis is that smell is a sensory modality at once different from the others and with a more intimate relationship to memory. It is, hence, a logical precursor to greater memory functions. This fact — proposition is perhaps a more suitable word provides a rationale for the anatomical juxtaposition and the presumed phylogenetic relationship between the structures subserving memory and those subserving smell.

Briefly, scent is a sensory structure with memory built into it in that it can persist for days or longer. The organism can thereby utilize this external memory and know not only what it *is* outside but what *has been* outside. Light and sound (vibrations) do not have this quality except by constant repetition.

While no sensory modality exactly reflects the external world, each provides a close representation of it because features of the external world of value to the organism are represented internally in the present. But objects when removed have maximally a very short afterimage or after-sound. It is suggested that it is smell's unique quality — persistence of the stimulus — that comes to be represented internally as a persisting internal representation of the external world.

It is suggested that when the ancestral organism became capable of an internalizing process concerning time, they developed in relation to smell. Having been successful for smell, the other modalities followed. How can this step occur? It is likely that some neuronal quality which allows a continuing identical signal (of smell) to be recognized as such — continuous and internal — by some matching process.

If the system works for smell, it can later be used for variations on this pattern — including perception of interrupted signals with qualities in common, but the organism is likely to need "hatpegs" to which it can refer new signals.

Given the above a problem remains. Sooner or later the system will become clogged unless some signals are lost. Forgetting is a necessary component of this system. Further, an additional mechanism is required to determine what is forgotten. We all know this remains an imperfect process but links to affect, so that those events leading to memories are those most powerfully linked to affect. These are reinforced and rendered less susceptible to attrition. This process of course requires close anatomical correlations between affect and memory structures.

Limbic system & smell brain
by R Gardner

Paul Broca of Broca's area in the brain for motor speech was a surgeon by training and an anthropologist-neurologist by avocation. But indeed he had a year of psychiatry in the very same hospital in which Pinel had

struck the chains from the psychotics just two decades before. Broca studied the brain with great energy: new fixing techniques in the early 19th century meant that the soft quickly decomposing tissue could be studied over time. He was one of the first to give it major attention (despite the *smell* of formalin!).

So not only did Broca label the third convolution of the frontal lobe for its role in language, but he described the diagonal band (of Broca) in the bottom of the forebrain. This structure links the limbic system to the basal ganglia of the forebrain known for their function in movement — though they have many other functions too. Two of these structures — with the wonderful names of caudate and putamen — are collectively known as the striatum mentioned in the abstract quoted below.

And most of all, Broca coined the term "limbic lobe" which now often means "emotion brain." Paul MacLean in 1952 resurrected Broca's use of limbic as a modifier for "system" rather than "lobe." MacLean has noted that the limbic system is the "paleomammalian" brain, above the reptilian brain of the brain stem, but not as high as the neocortex which the primates have hypertrophied as part of their development. Broca had deliberately steered away from a previous assumption of the function assumed for this brain area: he gave it a locational name (limbus = rim) rather than the functional name.

What was the function that Broca wanted to avoid presuming before his corrective label? Answer: smell. Broca's caution resulted from dissection of the dolphin brain and his discovery that the limbic system was well developed but that the dolphin had no olfactory nerve! This implied that its functions were much more extensive than smell alone.

Despite this dissociation, ie, that the structure had a life of its own without olfaction in a smell-less sea-mammal, olfactory structures in animals with the sensory modality do most assuredly have connections with many structures in the limbic system, which in turn have much to do with memory. Anyone can remember a flooding memory evoked from an odor.

The hippocampus is a prominent limbic structure. A famous patient HM lost his hippocampi 40 years ago and could remember as long as his attention wasn't distracted (immediate recall). But when his attention was called to another task, his recall disappeared (short term recall). However he could remember things that happened before his loss of these limbic brain structures (long term).

As seen in the abstract below, another limbic brain structure, the amygdala, is also important in a kind of memory measured in the rat using an Orton 8-armed radial maze system.

To quote from a discussion of the limbic system by Nauta & Fiertag:[6]

> What about olfaction? The relationship between it and the limbic system, once thought to be a relation excluding the other senses, so that the limbic system was taken to be the nose-brain, really amounts to this: First, the primary olfactory cortex projects to the entorhinal area; the entorhinal area projects to the hippocampus. Thus we see reintroduced, after years of fervent affirmation followed by years of fervent denial, the idea that the hippocampus gets olfactory signals. In a way, the signals are privileged: the path from the olfactory epithelium to the hippocampus does not require a cascade of projections across the neocortical sheet. Hence the path from the olfactory epithelium is more direct than the path from sensory surfaces such as skin. Second, the primary olfactory cortex projects to the amygdala, in large part to a particular cell group, the lateral nucleus of the amygdala. Again the paths are privileged as they bypass the neocortex Finally, the primary olfactory cortex projects to the hypothalamus.

The above was common information for the IJ-RG. RG's mild skepticism about a unique smell-memory linkage acknowledged that the persistence of

smells might have been strategically helpful but notes that the history of notochord containing animals ancestral to vertebrata probably entailed small worm-organisms buried in the mud. Hence vision and audition *would* have been not important then, but only when the descendents had developed more and freed themselves from the smelly mud. Thus the association of smell with memory might have been merely an accident of history rather than secondary to smell having a longer lasting trace. It got there first, and once there, kept its special privileged relationships.

Abstract: McDonald RJ, White NM: A triple dissociation of memory systems: hippocampus, amygdala, and dorsal striatum. Behav Neurosci 1993; 107:(Issue #1)3-22.

This study investigated the respective roles of the hippocampus, the amygdala, and the dorsal striatum in learning and memory. A standard set of experimental conditions for studying the effects of lesions to the three brain areas using an 8-arm radial maze was used: a win-shift version, a conditioned cue preference (CCP) version, and a win-stay version. Damage to the hippocampal system impaired acquisition of the win-shift task but not the CCP or win-stay tasks. Damage to the lateral amygdala impaired acquisition of the CCP task but not the win-shift or win-stay tasks. Damage to the dorsal striatum impaired acquisition of the win-stay task but not the win-shift or CCP tasks. These results are consistent with the hypothesis that the mammalian brain may be capable of acquiring different kinds of information with different, more-or-less independent neural relationships among stimuli and events. A neural system that includes amygdala may mediate the rapid acquisition of behaviors based on biologically significant events with affective properties. A neural system that includes the dorsal striatum may mediate the formation of reinforced stimulus-response associations.

"NO" to Capabilityi by Mike Waller

I cannot help thinkingthat a very useful baby is going out with the bath-water if RHP is jettisoned in favour of "capability" as suggested by John Price and Russell Gardner. I accept that "resource holding" is rather opaque, but when compared with "capability," "potential" seems to me to convey a marginally stronger sense of the uncertainties involved in guesstimating the probability of future successes on the basis of current performance.

If we are looking for a more user-friendly option could we not settle for either "evolutionary potential (EP)" or "Darwinian potential"? Both terms make unequivocally clear the territory we are operating in, and, depending on whether an individual is said to have a high or low EP, both serve as an expressive shorthand for "seems to have/does not seem to have what it takes to pass on genes in the environment in question."

If we wished to have quasi-numerate variants, we could speak either of "evolutionary quotient" or "Darwinian quotient." I know that in a sense these terms are regressive in that they merely re-invent "fitness," but with due deference to CD, fitness is a term which so often has to be shorn of its colloquial meaning and re-explained, as to fail on the user-friendly criterion.

Might I also enter a plea on behalf of "self-esteem"? Again "capability" seems to me to be too permanent and, in this context, disadvantageously bereft of an emotional component. Surely from a psychopathological perspective we need to preserve a term which reflects the double-headed arrow in the old S<->O<->B formulation? My environment does not act on me as one chemical acts upon another. I interpret my environmental experiences in ways which strongly influence my self-image; and this self-image, or self-esteem, plays a crucial role in the extent to which I realise my evolutionary potential. Who was it [who] said "there is

neither good nor bad but thinking made it so"?

Incidentally, the last place I would look for any degree of user-friendliness is good old Thomas Car-lyle. I have had Sartor Resartus on my bookshelf for about twenty years. Your quotation sent me back to have yet another go at reading it. I soon gave up and had recourse to the encyclopaedia to be re-reminded that his general theme is the critical importance, and beneficial effects of, hero-veneration in human affairs. This has never cut much ice with me and I was delighted with the irony of finding some three pages further on in ASCAP (p 13), John Price quoting research cited by Michael Chance revealing a marked tendency towards extreme hero-worship within therapeutic groups. Perhaps Carlyle would have had more to learn from AS-CAP than vice versa!

A Few Books of Interest by Dan Wilson Let me mention a few books I have read recently. Some new, some old. Most of what I have been reading is dense population biology, but a few items may be of interest for readers of ASCAP.

Anyone seriously interested in evolution must read Darwin by Adrian Desmond and James Moore (1992). Even Steven J Gould (in an all too rare moment wherein he transcends smug-ness, egocentricity and general catathesis) states that it is "unquestionably the finest biography ever written about Darwin." It is enthralling in the manner of a fine screenplay. The events of our hero's life flick past in almost visual terms. In particular, it is the first Darwin biography to include much new archival material dusted off in the past decade, largely from Syndicates of Cambridge University. Even as a lad I much enjoyed good biography and as a psychiatrist all the more so. This is good.

In a similar mode, I recommend Studying Animal Behavior: Autobio-graphies of the Founders. Some nineteen eminent evolutionists and ethologists offered brief autobio-graphical sketches with reference to the roots of their scholarly inter-ests. I enjoyed them all, perhaps especially those of Mayr, Eibl-Eibesfeldt, Wilson and Maynard-Smith. As a psychiatrist I have ever been a sucker for autobiography.

I am also impressed with Chris-topher Badcock's Oedipus in Evolution. I think this is (finally) a psychoanalytic book which makes considerable sense. Badcock succeeds where other analysts fail in that he puts Darwin first. This is not freudian dogma simply dressed up in the trousseau of evolutionism to better seduce another generation of unwary "Johns." It is a vigorous revision of freudian ideas. Inevitably there is the occasional homage to the bearded master of Vienna, but it is a fine contribution.

Peter Bowler (1992) has written another fine highly readable book, The Environmental Sciences. Bowler reviews and integrates the histories of everything from meteorology to natural history to ecology and evolution. It has, for my tastes, a bit too much here and there of sociological theorizing which detracts from the overall aim of a more narrative compendium of major ideas and persons. It is nonetheless quite good and, by today's standards, quite cheap at about ten bucks.

More recently, I reread two fun books while working on a paper con-cerning incest (contrasting the psychiatric *vs* anthropological views thereon). The first is Robin Fox's (1980) delightful if somewhat over-looked The Red Lamp of Incest. Robin writes as well as he thinks while weaving together threads of Freud, Levi-Strauss and, especially, Darwin,

though this book seems to have been rushed by its editors. He, as ever, abjures the suffocating assumptions of the politically correct and de-hystericizes the subject. This is a brave thing insofar as there is currently a clinical infatuation with incest quite unleavened by facts of biological anthropology. Robin inoculates us against the more extreme ideologies that sometimes parade in the field of 'survivor treatment' (one is curious about those who treat non-survivors). Here again, politically correct terms often gussy up ideology in pseudo-objective lingo. My main criticism of much in this hot area is the degree to which it incorporates largely social constructivist cant in lieu of solid anthropological, primatological and evolutionary data. In any event, Robin again has a lot to say.

Another book of great merit is the much heralded Sexual Personae. This book by Camille Paglia (1990) is, depending upon whom one asks, either the most otiose item in a long time or a great breakthrough. Few are indifferent. I suspect that most critics have not read it. I think that it will, in time, sit on the shelf near Origin in that it is steeped in evolutionism (apparently intuited by the author rather than cited among her references). It is almost as if such tomes as Sex, Evolution and Behavior or Sociobiology were filtered through the heart of a literary scholar of great quality. Her thesis is simple: cultural origins are best traced to the envious emulations by males of the creative biological power of the female. As such, she persuasively notes that sex is what links culture intimately to human nature — the latter leads to women's bearing babies and the former to artistic, political and other sublimations of a largely male type. Without using such language, she basically imagines that masculinity is more "r-selected" and femininity more "K-selected" and links this to cultural analysis with literature as a point of departure. What we call "r" and "K" becomes, in the language of literary criticism, Dionysian and Apollonian coefficients of cultural ecology.

Her remarkably complete view of culture and biology is presented in a polemical style which has, in itself, provoked considerable reaction. Still, the substance of her ideas is familiar and largely acceptable to evolutionists. Moreover, she has done much to rescue human sexuality from the intellectual abyss into which it had been led by the tenured radicals who, in the last generation, have commandeered faculties in the humanities, some social sciences and the law. Paglia is a fine antidote to the wheezing orthodoxy of the political correctitudinarians who insist on the moral ascendance of a social constructivist agenda in a manner as dogmatic as the Victorian clerics who so abused Darwin. Irretrievably wedded to their abstruse and essentially leftist ideologies, they have for the past generation dismissed as fascist any phylogenic analysis of human art or life. Though her hypomanic cavils are sometimes excessive, Paglia does obliterate their clutter with clarity and considerable courage.

Finally, after that tirade, I thought it useful to seek shelter among the classics, so I have reread Malthus for the first time since college. The Population Principle, so great an influence on both Darwin and Wallace, retains its freshness. The section on moral restraint as a check to population growth in many ways anticipates some issues of altruism theory. Indeed, I wonder if there is not more of a connection between Mathusian ideas and Hamiltonian kinship selection or, certainly, Wynne-Edwardsian group selectionist thinking (such apostasies!). Someone more

expert than I might usefully connect very fashionable current ideas with Malthusian doctrines now two centuries old.

Turning away from books now, ASCAP readers may find the gist of a recently submitted paper amusing if not edifying: *Autologous clones: the evolutionary exaptation of endocrine and immunological systems from neural ectodermic homeobox genes.* Basically, I imagine that these highly interactive systems are derived from common ancestral genes. With recent work on the homeobox apparatus, it is clear that a major avenue of evolutionary innovation in most genomes is autologous cloning of useful alleles. Such clones are then sculpted in brisk evolutionary fashion to suit other ends. I further imagine that the unusual genetic and biochemical similarities that exist between, say, some hormones and some neurotransmit-ters are molecular evidence of this. Vasopressin is a worthy example of a molecule that is a hormone in the periphery and a transmitter centrally. There are many others. Indeed, the biology of the sigma receptor system is another example. Here, the neural, endocrine and immunological systems share a receptor depot. Finally, these systems appear to occupy highly similar homeobox referents.

The homeobox, readers will recall, is that genomic region that control spatial arrangements and aspects of induction in the embryo, ie, essentially the *bauplan.* It is little changed throughout evolution of animalia. Indeed, human and drosophila homeoboxes are quite similar. It is among the most deeply canalized of genomic features. So, if redundant mutation arose that was not deleterious, evolution would have a template of an already highly structured complex to further modify. Such genes, I think, can be included in Gould's concept of "exaptations" —things that are not so much evolved but there and waiting for a place in the sun.

In any event, it's an idea. I am also wondering if there is some connection between these homeobox genes and the old meridians so key to traditional Chinese medicine and acupuncture. But that for another day.

Comment on John Birtchnell's 1991 and 1993 contributions by John S Price

The Sep & Dec 1991 numbers of the ASCAP Newsletter provided a very thought-provoking combination of paper and editorial comment. John Birtchnell is a great improvement on Leary because he is much more precise about what he means. One is confused by Leary as to whether he is talking about people or relationships or episodes in relationships or items of behaviour. Talking about S in relation to X or a generalised other is much clearer. I find it helpful to test a scheme like this against data from novels, where the full complexity of human behaviour is portrayed (unlike the data base of experimental psychology). Having just read some Thackeray, I will comment on the model as applied to some of his depicted relationships. In The History of Henry Esmond, the hero has a long-standing close relationship with the Marchioness of Castlewood, and this is mutual, and remains close whether he is staying in her house or away for years fighting the French in Flanders, so in this case physical distance is of little import, as with Dobbin's relationship to Amelia in Vanity Fair (he thinks about her most of the time while serving in India). The closeness need not be mutual, as in the case of Henry Esmond's relationship to the Marchioness's daughter Beatrix, whom he thinks about a lot of the time but who does not think about him when he is not there. In the latter case, when they

are together, Henry exhibits closeness-eliciting behaviour, in that he is trying to win Beatrix's hand, but Beatrix expresses distance-eliciting behaviour, in repeatedly telling him that she does not love him and telling him in eighteenth century language that he is a wimp.

Alternative reactions to intrusive closeness are withdrawal and attack. The response varies with position on the vertical dimension. Beatrix can exhibit a verbally expressed wish for distance because she is upper in relation to Henry. Attack is another upper response to unwelcome closeness, as when adults brush off the approaches of children. Withdrawal is a lower response to intrusive closeness, as depicted in the relation of Thomas Esmond to his wife who becomes dominant in the later stages of their marriage. A difference of intention about closeness is an instance of a difference in definition of the relationship, which can be resolved, like any other difference, in either the hedonic mode (by discussion and negotiation) or in the agonic mode (by fighting) or the difference can be minimised by evasion or withdrawal (as in Palazzoli et *al*'s families in schizophrenic transaction).

Is there a unitary trait of closeness/distance for an individual, for a relationship, for an episode in a relationship, or for an individual in a relationship? If we use as a criterion of closeness the amount of time a person spends thinking about the other, what about people who are rivals, or having a feud, who may be obsessed with constant thoughts of hatred about each other? Are the two old men in Maugham's Sanatorium close? Here the criterion of closeness is intensity of reaction to loss of the other. But there is closeness between the Esmond family and Mohun in Henry Esmond, on the criterion of time thinking about the other, but there was no sadness when he was killed. No doubt these matters have been studied by John Birtchnell in his questionnaires, and it would be interesting to know the factorial structure of closeness/distance, and how much of the variance is accounted for by a general factor. Of course the factorial structure of closeness is probably different in different kinds of pairs, even when equated for upperness/lowerness. Is the closeness of father to son sufficiently similar to the closeness of master to servant to justify using the same terminology for the two kinds of relationship? And how about symmetrical pairs like married couples and pairs of friends? This reminds me of some work I did long ago on the dimension of extroversion/introversion, which is not unrelated to closeness/distance. In that study which was never published we used a large (more than 1,000) sample of twin pairs, and studied the within-pair differences in the twins" responses to the EPI and their parents' ratings of within-pair differences. It was clear that extroversion as measured by the EPI applied only to peer-group sociability (rated by the parents), and had nothing to do with sociability within the family, either to closely related members of the same generation or to the older generation. The correlation between extroversion and the parents' ratings of various forms of family sociability were near to zero, and this was a robust finding as it applied to both sexes and to both MZ and DZ twin pairs. This suggests that people who like a lot of closeness with a lot of people may not be the same as those who like intense closeness with one or a few others. This problem does not arise if we are using closeness to describe a particular relationship or a person's behaviour to a specific other. Nevertheless it would be helpful of JB could clarify relationships be-

tween his dimensions and those of Eysenck.

Another two-dimensional scheme is that of Talcott Parsons who (based partly on the small group work of his colleague Bales) pointed out that human groups tend to differentiate on the dimensions of power/no power and instrumental/expressive, and that initially undifferentiated groups tend to come to resemble the human nuclear family which is based on a coalition between the powerfully instrumental father and the powerfully expressive mother. I imagine Parsons' power dimension is similar to JB's upper-ness/lowerness, but the instrumental/ expressive dimension is not represented in JB's scheme. The fact that closeness/distance is not represented in Parson's scheme probably reflects the fact that it is based on studies of formal small groups, in which the scope for variation in closeness/distance is limited.

Thinking about John Birtchnell's model more generally, there is a clear need for at least one more dimension in order to talk meaningfully about a relationship such as marriage. JB recognises that there may be positive and negative aspects of his quadrants, and that any given way of relating can be either respectful or disrespectful. This is related to the fact that the Leary horizontal dimension is loving/hating, which is a hotchpotch of closeness/distance and respectful/disrespectful. In my own thinking I find it easiest to use JB's two dimensions and for the third use Michael Chance's concept of agonic/hedonic. Hedonic means respectful and willing to negotiate any differences of definition; agonic means disrespectful, hating, selfish and determined to get one' s own way by putting the other person down. Relationships can switch rapidly from hedonic to agonic and back again, so that the terms are more useful in describing episodes in relationships than relationships themselves. It is as if JB's two dimensional space can be seen in two different lights, say a red light for agonic and a green light for hedonic. Even within the hedonic mode there may be both positive and negative forms of relating for each quadrant. For example, JB describes insecure upperness, which may be expressed within the hedonic mode in such disrespectful ways as patronising behaviour (see my paper in Michael Chance's recent symposium on the two modes).[11] But I think in this argument I may be getting away from the JB level of description, which is the way one person relates to another at any given time, towards my own preferred scheme which is relationships and episodes in relationships.

In terms of relationships JB's dimensions are very asymmetrical. The closeness/distance dimension describes relationships (as well as relating), but the upperness/lower-ness dimension describes people in relationships. To describe relationships we would have to transform the vertical dimension into symmetry/complementarity, taking as our data the difference between the two relating people on the original vertical dimension. Another asymmetry is the fact that when things go wrong in relating, the trouble is opposite on the two dimensions. Things go wrong on the vertical dimension when two people are too similar, such as both trying to be upper and thus getting into Batesonian symmetrical schis-mogenesis. But they go wrong on the horizontal dimension of closeness/ distance when the two are different, one wanting closeness and the other distance, so that one has to press for closeness because the other is so distant, while the other has to escape into distance because the other is so intrusive (a mismatch of "punctuation" which has been so well described by the Bateson group).

Talking of things going wrong brings us to psychopathology, and we must note a difference in our models here. JB ascribes anxiety to the fear of losing any one of the four main positions and depression to the state of having lost it (whereas our model relates depression specifically to the coerced loss of upperness); he also ascribes psychopathology to the disrespectful behaviour of others, which overlaps with the first two, as it is likely to be the disrespectful behaviour of others which is responsible for the loss of position; ie, intrusiveness on the part of the other leads to loss of distance, rejection on the part of the other leads to loss of closeness, intimidation on the part of the other leads to loss of upperness and abandonment on the part of the other leads to loss of lowerness. I think he would agree that most depression follows loss of upperness and/or closeness; the thought that depression may follow loss of lowerness and distance is interesting. Does this relate to the "overintrusiveness" component of high EE which has been shown to predispose to the relapse of depression? And can one envisage a situation in which one loses lowerness without losing closeness? Perhaps when the king (or president) dies — or when the prime minister seems to be making a hash of things. We accept that there are complex interactions between the positions, and also that we can keep more than one model in our minds at the same time — eventually it will become clear which parts of them have a bearing on those molecular/genetic processes that our editor yearns to grapple with, but for the time being we must settle for a state of relative uncertainty at a higher level.

Turning to across-species comparisons, it is clear that JB's two dimensions would probably mop up most of the social behavioural variation between primate species. Think of the adult male orang-utan and the male patas monkey — neither betrays the slightest need for the commodity of closeness — and contrast this with the macaque or the squirrel monkey who seems to have no need for distance. The adult female orang-utan has no need for closeness with other females, needs only sexual closeness with males, and her non-sexual closeness needs are limited to her offspring. The female patas monkey, on the other hand, has closeness needs for other adult females similar to those of macaques. Compare the macaque and baboon need for upperness with that of, say, chimpanzees and langurs. The only constant factor is the lowerness needs of infants. In territorial monogamous species such as gibbons and marmosets the individual variation in needs on the two dimensions is much less, so that within-group variation in needs would seem to be an adaptation to group living. Let us hope that JB' s forthcoming book is read by primatologists as well as by those interested in human social psychology.

12

Turning now to JB's 1993 contribution, I like John's description of money as "packaged upperness" (ASCAP, Apr 1993). I think it also emphasises the asymmetry of the vertical dimension, in that people would rather have packaged upperness than not have it; and few would be depressed at the loss of packaged lowerness, which by the same analogy would be debts or IOUs. I am doubtful about depression following loss of lowerness in other respects too. If the master calls his servant to him and says, "I no longer want you to be my servant, but rather to possess half of all I own, and to be in all things equal to myself," is this likely to be a cause of depression on the Life Events Index? I agree that if you lose the role of child or nurtured object, this may be depressing,

but is it depressing because of the loss of lowerness or because it implies the cessation of the supply of resources which the individual lacks and was the reason for him to need nurturing in the first place?

In spite of John's model, which I find helpful in accounting for variation in relating, I would still argue that the adaptive function of depression over the course of evolution has been to help individuals to cope with loss of upperness and to accommodate to imposed lowerness. Possibly it has also had a function in helping people to cope with the loss of closeness, and to accommodate to imposed distance — the unsociability, apathy and inertia of depression would prevent the rejected person from attempting to regain closeness inappropriately and thus cause social disruption. We know from the newspapers that rejected suitors sometimes cause such havoc that they have to be put in prison, and it may be that in these cases the rejection has not made them depressed enough. But I think these instances are very minor compared to the situations of enforced lowerness. There is a fundamental evolutionary constraint on the vertical dimension in that there is a limited supply of upperness, in that being upper implies that someone else is lower; in other words, there is not enough power to go round. This does not apply to the horizontal dimension, because theoretically there is as much potential closeness as anyone could want. Even with pair-bonding, in which there is bound to be some mis-matching of pairing behaviour, the fact that there are equal numbers of both sexes ensures there are not too many casualties (unless some men are greedy and want more than one wife, but is this not a manifestation of upperness?). But there can only be one king. Even with political parties, there can only be one leader (except for British Liberals and see where that got them!)

The dimensions are also asymmetrical because the middle of the vertical dimension is qualitatively different from the extremes, since a symmetrical relationship is different from one in which either person has upperness; but this does not apply to the horizontal dimension, along which middling degrees of closeness have no particular quality.

John mentions that people may become depressed by having any form of relating imposed on them. In this case, whatever it is they are being made to do reflects their essential lowerness in that relationship, because they are having to accept the other's definition of the relationship, and that is the ultimate criterion of upperness/lowerness.

But on the whole I am sceptical about a mother being depressed by the child wanting too much closeness; I think more mothers are likely to get depressed by the child being disobedient and domineering. I suppose you can have a child who demands closeness in a domineering way: is the mother then depressed because she is losing distance, or because the child is bossing her and she has lost upperness?

Clearly the interaction of agonistic and affiliative behaviour is very complex. I do not think it is fair to say that "ranking theorists" underestimate the complexity of human behaviour or the importance of affiliation. It is precisely because human behaviour is so complex that we look at animal models to see the patterns of vertebrate, mammalian and primate behaviour displayed in a much simpler way, to give some insight into what might be the patterns underlying the impenetrable complexity of humanity. And if we ignore affiliation, it is because, in evolutionary terms, agonistic behaviour and ranking is more important for the evolution of

depression and more likely to give us clues as to the neurochemical mechanisms subserving it. Because a microbiologist studies the common cold and ignores smallpox, it does not mean that he considers smallpox unimportant. I suspect John is veering here towards the view that if you study ranking behaviour, you approve of it, and offer your work as justification for politicians to exploit it. But does the microbiologist study the tubercle bacillus because he approves of it? It seems that when we move from physical to psychiatric disease, our standards and evaluative systems change.

Personally, I think that symmetrical relationships are the best (even in marriage!) but that does not prevent me from saying that they are more difficult to maintain than complementary relationships. Here is how I finished up a book chapter recently:[15]

Many people find it difficult to maintain symmetrical relationships, especially when they feel strongly about something and cannot get their own way. The usual recourse in these circumstances is some form of fighting, or exchange of putting-down signals, which may result in one member becoming subordinate. This pattern of behaviour is deeply embedded in the human genome, and since many existing vertebrate species are unable to sustain symmetrical relationships, it is quite likely that the human capacity to do so is of relatively recent evolutionary origin. Marriage is an institution which in historical terms has been asymmetrical, but which now is often expected to be symmetrical, and culture is giving mixed messages to prospective marriage partners, often of male dominance to the groom and of symmetry to the bride.

Marriage is like a business, with many executive decisions to be taken; and yet what investor would buy shares in a business with two equal managing directors? Were electors prepared to vote for a political party with two equal leaders? Even with an agreed objective of symmetry between the marriage partners, the maintenance of symmetry is not easy, but when the attempt is based on incompatible objectives, it is only the lucky or the very loving who get by.

This is a problem for society. If we want equal marriage, we should try to prepare men for it as well as women, and that means counteracting influences from the East and from Latin-American culture, including films like The Godfather.

More needs to be spent on Marriage Guidance. It is a scandal that one has a dozen supermarkets to choose from to buy one's food, but only one, or at the most two, organisations to go to for relationship counselling. In particular, more needs to be done about prophylactic marriage guidance. With the divorce rate running at fifty percent and probably half of those who stay married doing so unhappily, it should become axiomatic that all marriages need guidance, in the way that a car needs servicing. Let us by all means aim at symmetrical marriage, for that is the highest aim, but let us realise that symmetrical marriage is like a high performance engine, and its need for both routine and remedial attention is very great.

We should aim to create social conditions in which people want to have symmetrical relationships, to boost each other up and to avoid putting each other down. Unfortunately, many people now find themselves with attitudes like Thomas Garrison Speidel, into whose mouth, in his novel The Eighth Day. Thornton Wilder put the following words:

"The capacity of human beings to wish their neighbours dead is unlimited. Now, mind you! I don't say that everybody wants everybody dead. We all belong to little clubs. We want the members of other clubs dead; we only want the members of our own club STUNTED. A man wants his wife stunted and vice versa; a father wants his son stunted and vice versa."

There is still a lot of work to be done in the field of mental health promotion.

I think this quotation from Thornton Wilder illustrates how the need for upperness can be (it also shows a perceptive realisation of the difference between ritual agonistic behaviour resulting in stunting between kin and unritualised fighting resulting in death between non-kin). This is why I write about the vertical dimension and seem to neglect the horizontal. Also, the horizontal dimension has had a lot of attention from others, from John Bowlby onwards (I was going to say downwards!). On the pupil referring to both eve

and child. by RG [16]

To begin, a quote from L Thomas:

> The word "pupil," with two meanings of the pupil of the eye and a small child, may have acquired both meanings ... from children. The Indo-European root was pap, the word for the nipple or breast, which with some kind of logic turned into terms for small children: pupas and pupa in Latin, then pupillae, then pupil. Every language derived from Indo-European has the same connection, and for the same reason: when someone looks very closely into someone else's eye, he sees a reflection of himself, or part of himself. But why call that part of the eye a pupil? The same duplication, using identical terms for the pupil of the eye and a child, occurs in totally unrelated languages, including Swahili, Lapp, Chinese, and Samoan. Who would most likely have made such a connection, and decided then to use the same word for a child and the center of the eye? Most likely, I should think, a child. Who else but a child would go around peering into someone else's eye and seeing there the reflection of the child, and then naming that part of the eye a pupil? Surely not, I should think, any of the members of a committee of tribal elders charged with piecing together a language; it would never cross their minds. The pupil-eye connection must have turned up first in children's talk.

Dr Thomas also feels that children invented talk: [16, p170]

> I suggest [language] began in the children, and probably began when the earliest settlers, or the earliest nomadic tribes, reached a sufficient density of population so that there were plenty of very young children in close contact with each other, playing together all day long....
>
> To set off the explosion, and get it right, you would need a dense mass of children, a critical mass, at each other all day long for a long time.

There are problems with these formulations. First, there is the sense from Dr Thomas that language began like washing grains mixed with sand began for the Japanese monkeys: the youngsters began it, the oldsters were most reluctant to try it, but gradually the invention took hold and it turned out to be a cultural innovation deployed by all the colony.

I suspect that development of language was far more gradual and had a course of development suggested by Merlin Donald: mimesis likely came first as a finely developed narrative form which we see still in dance and theatre and in much of humor. On-tologically, it develops early, much earlier than language. Infants imitate the facial expressions of adults within hours of birth and before long show with smiles and laugh appreciation for simple storylines, the repetition of sounds and sights, the to-and-fro of a mobile. Mimesis, Donald points out, was like a platform for the more articulated and detailed language to base itself upon (children first use it in the second half of their second year).

Now back to the pupil. One cannot help but enjoy Thomas's ideas. Upon reading it I believe my pupils must have enlarged.

That is, the pupillary dilation described by Eckhart Hess must be considered also: one's pupil enlarges when a pleasurable stimulus is seen. For women babies automatically produce dilation; for men it happens if they have had experience with children, but not if they haven't. Attractiveness ratings are greater if enlarged pupils are the only things changed in the picture of someone.

In between the tribal elders and the children are the women and mothers much preoccupied by their children. Nothing, I submit, would make *their* pupils larger than their children, seen by them as they drinking in what their mothers have to tell them. As human children they absorb more than the milk furnished by all mammals — they absorb stories and songs for instance and their enlarged pupils during such pleasurable experiences may have influenced the etymology of the word.

Abstract: Georgopoulos AP, Taira M, Lukashin A: Cognitive neurophysiology of the motor cortex. Science 1993/260:47-52 (2 Apr 93 issue).

A major challenge of current neuroscience is to elucidate the brain mechanisms that underlie cognitive function. There is no doubt that cognitive processing in the brain engages large populations of cells. This article explores the logic of investigating these problems by combining psychological studies in human subjects and neurophysiological studies of neuronal populations in the motor cortex of behaving monkeys. The results obtained show that time-varying psychological processes can be visualized in the time-varying activity of neuronal populations. Moreover, the functional interactions between cells in the motor cortex are very similar to those observed in a massively interconnected network performing the same computation.

Abstract; Maestripieri D, Schino G, Aurelis F, Troisi A: A modest proposal: displacement activities as an indicator of emotions in primates. Anim Behav 1992;44:967-979.

Displacement activies are behaviour patterns (mostly body care activities) characterized by their apparent irrelevance to the situation in which they appear. Scratching, autogrooming, yawning and body shaking are among the most commonly reported displacement activities in non-human primates. A review of the primate literature indicates that displacement activities tend to occur in situations of psycho-social stress and that their frequency of occurrence is affected by anxiogenic and anxiolytic drugs. In light of this evidence, it is suggested that displacement activities can be used as indicators of emotional states arising in a variety of primate social interactions. Methodological problems associated with such a use are discussed. The hypothesis that displacement activities may also have a communicative function in non-human primates is not supported adequately by available data.

Does displacement fall within the domain of sociophysiology?

Maestripieri and colleagues propose that displacement activities in primates indicate emotions but that they could discover no evidence of their being communicative. If true, their proposition would counter the idea that sociophysiology should be the basic science of psychiatry. But since they generally occur during periods of psycho-social stress, I suggest they do still fall within the broad domain of sociophysiology.

Overstreet DH: The Flinders sensitive line rats: a genetic animal model of depression. Neurosci and Biobehav Rev 1993;17:51-68.

The Flinders Sensitive Line (FSL) rat, selectively bred for increased responses to the an-ticholinesterase DFP, was originally proposed as an animal model of depression because, like depressed humans, it is supersensitive to the behavioral and hormonal effects of cholinergic (muscarinic) agonists. The present review critically examines earlier and recent data collected on FSL rats to assess whether the mode has good face, construct, and/or predictive validity. With respect to face validity, FSL rats resemble depressed humans, at least superficially, in that they demonstrate: (a) reduced locomotor activity, (b) reduced body weight, (c) increased REM sleep, and (d) cognitive (learning) difficulties. So far, studies designed to assess the presence of anhedonia, a cardinal feature of melancholic depression, have been inconclusive, but there are trends for the FSL rats to be more anhedonic than their control counterparts, the Flinders Resistant Line (FRL) rats, when exposed to chronic mild stress. Thus FSL rats fulfill the criterion of face validity. Because FSL rats are more sensitive to cholinergic agonists and have phase advanced circadian rhythms, they meet the criteria for the cholinergic and circadian rhythm models of depression and, therefore, have good construct validity. A key behavioral symptom exhibited by the FSL rat is demonstration of an exaggerated immobility when exposed to stressors such as foot shock and forced swimming. This behavioral abnormality has been normalized by a number of well-recognized antidepressant drugs such as imipramine and desipramine, as well as newer generation an-tidepressants with promising clinical effects such as sertraline and rolipram. However, several treatments that have not been routinely used to treat depression (lithium, exposure to bright light, the anticholinesterase DFP) have been ineffective in reversing the exaggerated immobility. Thus, the evidence in the present review indicates that the FSL rat model of depression fulfills the criteria

of face, construct, and predictive validities.

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2. c/o R Gardner, 4.450 Graves Building (D28), University of Texas Medical Branch, Galveston, TX 77555-0428. FAX: 409-772-6771. For ASCAP Newsletter Volumes 3 (Jan through Dec, 1990), 4 (same months, 1991), and 5 (same months, 1992), please send $18 (or equivalent) for each 12 issue set. The first two volumes (1988 and 1989) of thirteen and twelve issues respectively are available on request without cost. For subscription to the 1993 set of 12 issues (Volume 6), the cost is $20/year. Make checks or money orders out to "Department of Psychiatry and Behavioral Sciences, UTMB."

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organization has no official budget.

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