

ASCAP

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"In a discipline with few universally accepted principles, the proposition that people are motivated to maintain and enhance their self-esteem has achieved the rare status of an axiom."

Mark R. Leary and Deborah L. Downs¹

Across Species Comparison and Psychopathology (ASCAP) 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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Secretary & Newsletter Editor: R. Gardner, Managing Editor: Dena Stringer. Editorial Offices: Graves Bldg, D-28, University of Texas Medical Branch, Galveston TX 77555-0428.
Tel: (409) 772-7029
Fax: (409) 772-6771
E-Mail: ASCAP@beach.utmb.edu

*** Previous volumes are available.

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.

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CONTRIBUTING TO THE NEWSLETTER

The ASCAP Newsletter welcomes contributions. The best way to submit one is sending it on a 3.5" high density disk (IBM compatible preferred) and mail along with a hard copy to Dr. Russell Gardner, Jr. or Dena Stringer, UTMB-Graves Bldg (D-28); Galveston, Texas 77555-0428. Your disk will be returned after your contribution has been published. Disk may be sent in ASCII form or in a word processing program such as Word Perfect, and Microsoft Works/Word.

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

ADDRESSED TO & FROM ...

STORM IN THE GULF OF MEXICO

Hurricane Opal is causing us some sleep loss in Texas these days. This is metaphoric as well as literal. In the fiscally distressed times that we are in, UTMB has drastically downsized. This has meant that during the last two weeks of September Dena Stringer has become reassigned away from me. Our publication and our fledgling group is facing troubled times. You'll notice that the first of three subscription renewal notices usually sent out in October are not sent out this year.

I've discussed the matter with departmental Vice Chairperson Karen Dineen Wagner and through her indirectly with Chairman Robert M.A. Hirschfeld. They state clearly that the ASCAP woes were an unintended consequence of the personnel shifts and that they will work with us to maintain the newsletter as something valued by the department.

I've conferred with President Leon Sloman (and am attempting to touch base with others on the Executive Committee). He instructed me to ask the readership if there is someone else that might take on the responsibility of newsletter publication, perhaps less extensively than the heights that we achieved with Erica Ainsbury at the Managing Editor helm, but still something to keep us connected and viable as an organization.

At issue is the deployment of a skilled computer person who could be paid to compile materials, put them into form, watch over for typos and errors with a fine-toothed comb (we've had too many errors with the rush to publication that we've had to experience over the last months). With the other responsibilities, there are simply too many things to do.

If a Managing Editor third or half-time could be hired, our troubles might be over. Should we increase subscription fees/dues, elicit foundation support, or ask for donations? Should we turn to E-mail and let it go at that? Many subscribers are not E-mail involved, however. I feel myself that the longer time latency and the permanence of paper copy is helpful to the debate.

However, our subscribers are still not numerous and I sometimes despair that we ever will be. If we were, then the dues should take care of the matter and we could deploy them to the employ of the Managing Editor here. Also should there be a membership drive? Who might do that?

So, we need ideas! What are yours? Let us know quickly as at this time we are countdown — minus 3 — with only the November and December issues of 1995 to go. We hope to hear from you.

R. Gardner
rgardner@beach.utmb.edu

RESPONSE TO MASTERS

The organizers of the ASCAP meeting in Santa Barbara did a great job. It was just the right size - small enough to give all who wanted an opportunity to express themselves, but large enough to provide a broad range of perspectives. The bonding between ASCAP members was maintained throughout the HBES meeting, which added to the congeniality of the HBES meeting. The newsletter has been going from strength to strength which is why a lot of people look forward to reading it.

In the April 1995 issue of ASCAP Roger Masters (whom I unfortunately did not get to speak to in the HBES meeting), presented five principles of hypercomplexity. He says "Mammals have multiple Involuntary Subordinates Strategies, not only because there are different responses available in the repertoire (e.g., depending on whether escape is possible or not) but because both genetic and developmental constraints may lead to behavioral polymorphism in the preferred strategies of different individuals."

As Roger Masters refers to mammals, it would be more appropriate to say Subordinate Strategy rather than Involuntary Subordinate Strategy. When one uses the term Subordinate Strategy in non-humans it is usual to include the act of submission as well as escape in the term. I therefore think that Roger Masters

is perfectly correct when he says that there are multiple Involuntary Subordinate Strategies. However, in humans it is possible to differentiate between the Subordinate Strategy which is characterized by feelings of helplessness, inadequacy and inferiority and Acceptance and Submission. In humans it becomes more easily possible to differentiate between these strategies and for that reason in humans I use the term Subordinate Strategy in a more restricted sense.

I would argue that one of the reasons for the "Behavioral Polymorphism" that Roger Masters refers to is the fact that in humans the Subordinate Strategy, at times, functions with greater or less efficiency. For example, when the Subordinate Strategy is functioning efficiently and effectively it is usually followed fairly quickly by Acceptance and/or Submission which turn off the Subordinate Strategy. The degree of efficiency of the Subordinate Strategy would be largely dependent on genetic and developmental constraints. For example, an insecure pattern of attachment appears to lead to more inefficient functioning of the Subordinate Strategy. In that case Subordinate Strategy may persist and manifest as victim behaviour or a vulnerability to depression.

I feel that Roger Masters made some excellent points and agree with his contention that there are a number of strategies associated with losing agonistic encounters. I also feel that it would be important to differentiate these mechanisms and to determine how they relate

to each other.

Leon Sloman
Canada

ODINTUNE MEETING

We have just had a most enjoyable Birmingham group meeting here - fortunately the weather was kind, and so there was a lot of walking on the downs. Konrad Kortmulder came over from Leiden with his wife Christine, and showed us a chapter in his current book in which he discusses the two modes. He favours a purely descriptive approach, eschewing theory - he did not like my definitional approach based on type of competition. I replied that society has to provide the member with some way of satisfying his or her desire to improve himself, otherwise he will resort to the older, agonistic means of increasing RHP through agonistic behavior. Hedonic societies must provide enough structure both to outlaw agonistic behaviour and to allow other forms of self-advancement. This could be prestige competition to raise SAHP, or effort to raise the prestige of the group, or both at the same time (when society allocates individual prestige to those members who raise the prestige of the group). We agreed in the end that our two approaches were complimentary, and I think that our conversation helped me to understand the relation between the two.

Frank Cawson is our library member (his career was with the British Council), who offered to select certain pieces of fiction for us to rate on the agonic/hedonic difference, to see if we could

agree, and if not to improve our understanding of the definitions. This offer was welcomed, and he is on the agenda for the next meeting. Frank brought his wife Rosemary who was a useful adjunct to our discussions. She and Christine compensated to some extent for our lack of female members.

Dave Stevens was there and was joined later by his wife, Eve, who is a Jungian analyst. Dave is currently writing a paper for ASCAP on the relation between the two mode theory and other theories of social interaction. This, I think, will round out the two essays you have had already, and together with a paper by Michael on "counterdominance", will hopefully make the basis for a paper in *Behavioral and Brain Science*. When all four have appeared in ASCAP, it would be good to solicit comments from one or two people in other disciplines, such as anthropology, sociology, and social psychology.

Michael Chance, 80 in January, was present and showing no signs of neuronal loss or other infirmity. In fact, he got us all going in a Conga line after dinner on Saturday, and I think would have wanted to rave it up still further if he had not been brought down to earth by others who wanted more academic discussions.

We spent some time discussing his treatment of counterdominance - the group processes which prevent any one member from acquiring dominance. It was seen that this applies not only to agonistic dominance but also to

status based on prestige. And there are societies where no-one is allowed prestige, and others in which there is allocation of prestige, but no-one is allowed to be seen to compete for it (like Scott Fitzgerald's account of Princeton). (Okonkwo's loss of prestige when he beat his wife is relevant here.) This refers to R. Gardner's *Two Modes in Two Narratives* in this issue.

Alas, Paul Gilbert has resigned from the group - they are working him too hard in Derby - and Anthony Stevens was unable to attend because of a prior commitment to his dog - also some others were unable to come, so we were a small group but it had the advantage that we could put them all up at Odintune and so we had the benefits of cohesion.

The Little Princess is an addition to the list of those who do not accept the definition of the current mode as agonic. They refuse to be cowed (or otherwise coercively subordinated), but rather carry out the coercive orders with dignity and without reacting agonically like Southwell and his torturer, Jesus and his turning the other cheek, and Ghandi's salt march. There is a film whose title I can't remember about a schoolboy who refuses to react agonically to an agonic teacher. In all cases it takes great persistence and courage probably high self-esteem like the princess, probably early training in hedonic interaction.

Please congratulate Dena on setting out my two modes essay so well and getting the compli-

cated references absolutely faultlessly.

John Price
England

CONTRADICTING VIEWS

As there is a complete contradiction on the subject of the Evolution of Language between the report of Chris Knight's work included in John Price's report of the Birmingham group meeting (ASCAP Aug 1995, Vol. 8 No. 8) and LA. Scheparty's note, I thought it appropriate to give the full reference to Chris Knight's work. It is *The Human Symbolic Revolution: A Darwinian Account* by Chris Knight, Camilla Power, & Ian Watts. *Archeological Journal* Cambridge (U.K.) 1995;5(1): 75-114. The following statement was taken from this book: *By 50,000 years ago, the effects of a 'symbolic explosion' --an efflorescence of human art, song, dance, and ritual - were rippling across the globe. Applied to archeological evidence, standard neo-Darwinian theory offers new understandings of this improbable event. The present article defines 'symbolism', models quasi-ritual behavior in late archaic Homo sapiens, extends the argument to the emergence of anatomically modern humans and concludes with preliminary tests against archaeological, ethnographic and rock art data.*

Michael Chance
England

CLARIFICATION

Let me use these columns to correct some errors in my paper on Bimodal Theory (ASCAP Vol 8,

No. 8 #93)? Within the figure on pg. 11, the last line of text in the upper domain, 'Mental dimensions', should read "defence system off-on". I overlooked this in the copy I sent to you; my apologies for the goof. This and the 'safety system' refer to Paul Gilbert's proposed psychophysiological systems *Brit J. of Clin. Psychol.*, 1993;32:131-153. Although Paul may not agree to their being labeled as 'Mental'.

In the final paragraph several phrases have been omitted. Towards the foot of pg. 11 it should read "Physiological, cognitive, affective and behavioral conditions have been observed, and pharmacological effects noted, which bear upon the diagnosis and treatment of organically-based psychological disorders, and these findings gain from bimodal interpretation. The empirical basis of bimodal theory is well established, and its heuristic value now has become clear-bimodal theory is a profound insight into the human condition....".

I hope this clarifies things, and look forward, as do John and Michael for their forthcoming pieces, to any comments on bimodal theory from other readers.

David Stevens
London, England

Response to Waller

In the May 1995 issue of the ASCAP newsletter, M. Waller asks, in essence, how high neuroticism might facilitate reproductive success. He also expresses some doubt about low neuroticism. These are sensible questions, well worth asking.

For the benefit of newcomers to the discussion, Neuroticism, like the other four factors of the five-factor model, is a broad personality trait, stable over long periods of time, operative in most areas of life, robustly insensitive to changes in a person's circumstances, predictive of many measurable behaviors, and easily replicated by an observer report. Contrary to intuition, and contrary to the fond hopes of Hans Eysenck, it is not so easy to validate with physiological measures.

Neuroticism has also been called "negative affectivity." People who score high on standard measures of neuroticism experience unpleasant affect such as depression, anxiety, self-doubt, embarrassment, shame and guilt, and agitated anger more frequently and more intensely than do people who score low. (Calm, persistent anger is an element of Agreeableness, one of the other five factors.) Another one of the five factors, "Extraversion" reflects the frequency and intensity of "positive affect," i.e., vigor, assertiveness, cheerfulness, warmth, gregariousness, etc. Contrary to intuition and popular opinion, Neuroticism and Extraversion are **UNCORRELATED!** One quarter of humanity scores above average on both traits. Such people are complex and emotionally intense. One quarter of humanity scores below average on both traits. Such people are emotionally bland.

Psychotherapy-seekers are almost always high in Neuroticism. Neuroticism probably predicts how often people seek psychotherapy, how long they stay, and how much they are willing to sacrifice to get it. It also predicts the likelihood, severity and frequency of depressive symptoms, anxiety symptoms, psychosomatic symptoms, and perhaps others. (This literature is growing rapidly.)

Before I reply to Waller, I'd like to take one paragraph to consider the problem of just-so stories. Any reasonably intelligent and thoughtful person can generate plausible speculation about why a certain future of humanity was adaptive or not adaptive in the ancestral environment. If such speculation produces testable hypotheses, it is justifiable. It is marginally justifiable if it initiates conversation that might, someday, generate testable hypotheses. I don't know that evolutionary psychologists have told too many just-so stories. On the whole we've been pretty restrained. However, the temptation is always there, and our intellectual detractors are just waiting for us to do it, so they can criticize us for it.

The following speculation strikes me as marginally justifiable because it opens a dialog that might someday lead to testable hypotheses. I can't say at the moment what those hypotheses might be or how they might be tested.

I have been interested in an evolutionary perspective on the five-factor model for some time. I've found that most people choke on the suggestion that neuroticism had reproductive advantages in the EEA, and may have practical advantages in modern times. There's a logical reason for that, and perhaps an evolutionary one, as well. The logical reason is that the analogy between psychic pain and physical pain is an obvious one. In most cases, physical pain is an indication of some illness or injury—in other words, physical pain pathology. It's a short logical step to presume that psychic pain must signify psychic pathology. However, the analogy between physical and psychic pain is not as valid as it first appears.

It also seems likely that psychic pain and pleasure are the fundamental compasses by which human beings consciously navigate through life. People inevitably attempt to avoid psychic pain and maximize psychic pleasure. Therefore, there may be some instinctive aversion, even on the part of Darwinian psychologists, to acknowledge the pos-

sible advantages of psychic pain.

Now I'll speculate on the possible reproductive advantages of high Neuroticism: avoidance of warfare; avoidance of fights; quicker submission to dominant competitors (thus avoiding dangerous interpersonal conflicts); avoidance of predators, snakes, spiders, tall trees, precipitous cliffs, dangerous waters, etc; more vigilant mate-guarding; more vigilant child-guarding; more intense demands of loyalty and sexual fidelity from sexual partners; more intense demands for expected reciprocation from reciprocal partners; more intense demands for kin altruism from kin; more intense complaints of physical symptoms, evoking both kin and reciprocal altruism in the form of food, medicine, concern, suspended expectations of hard work and reciprocation.

It seems quite possible that males would expect high-Neuroticism females to be more sexually faithful than other women, simply because they are more timid. In the same way, females might expect high-Neuroticism men to be more generous in sharing their resources with mate and progeny, partly because they are more afraid than other men of losing their mates, and partly because, in males, Neuroticism is likely inversely correlated with status, and thus, opportunities for low-investment copulation. Consequently, high Neuroticism may confer some positive mate-value on both men and women. In modern times, high-Neuroticism is considered "sensitive." Women are ambivalent about "sensitive" men, but they are not entirely averse to them. They are probably evaluated as more desirable for long-term relationships and less desirable for low-investment copulation.

It seems quite possible that many of these advantages are still operative in modern times, though they may not be reflected in objective reproductive rates, due to mismatch, birth control, modern medicine, and so on.

I could think of some more possible advantages of high Neuroticism, and so could Waller, and ASCAP's readers, but that's enough to get the conversation going.

When considering possible advantages of traits such as these, I think it's most productive to think in terms of game theory.

Imagine you live in a village populated entirely by low-Neuroticism people. They would be rarely anxious, rarely enraged, and so on. That has obvious advantages. It might help them be successful in warfare, getting honey and fruits out of tall trees, and so on. On the other hand, they might be dying at a pretty high rate from falling out of trees, fights, battles with neighboring villages, snake bites, and so on, and they might be tolerating a pretty high level of cuckoldry, child neglect and so on. Imagine you are the only high-Neuroticism person in the village. The others are accustomed to climbing trees anyway, and would do it in any case, so they don't mind sharing the fruit and honey with you, and even though your spear arm is mysteriously paralyzed on the morning they plan to raid the neighboring village. You have less status than the others, but you make up for it by working harder to prevent cuckoldry, working harder to protect your child from harm, and so on. Perhaps you are unusually willing to accept a low-status mate. You have less fun and more pain, but your average level of reproductive success is equal to the others in the village.

I won't belabor it, but one can easily imagine the opposite scenario—the reproductive advantages exploited by a low-Neuroticism person living in a village otherwise populated by high-neuroticism people.

In the long run, nature will favor a dynamic equilibrium between high-Neuroticism and low-Neuroticism people, just as it favors a dynamic equilibrium between dumb people and smart people, tall people and short people, males and females, and so on. Nature can achieve this in four ways. (1) A flexible strategy in which a person adjusts his average neuroticism level up or down, depending on local, short-term circumstances. (2) A strategy flexible early in life, depending on local circumstances, and then inflexible later in life. (3) A semi-flexible strategy, set partly by genes, and fine-tuned in early life, thereafter inflexible. (4) An inflexible strategy dictated entirely by genes.

No doubt nature often favors option 1. However, if

nature favored option 1 in the case of Neuroticism, then it wouldn't be identifiable as a personality trait, because traits are, by definition, somewhat inflexible, at least in adulthood. We know that in both humans and other animals nature sometimes favors less flexible strategies, such as options 2, 3 or 4. As far as I know, we don't yet have a general theory of why nature favors a flexible strategy for some features and an inflexible one for others. If we do have such a theory, I'd like to know more about it. The heritability of the Neuroticism trait is well-established.

It seems likely that option 3 is the correct one. As far as I know, no one has any good data on how it is fine-tuned early in life. Contrary to popular opinion, most attempts to correlate adverse childhood experience to adult psychopathology find no relationship. Therefore, it's probably fair to say that no one knows.

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ARTICLE:

*by M Cortina
mcortina@aol.com*

Remarks on Birtchnell's and Mealey's comments to Freeman's Article

I would like to make a few comments on Birtchnell's and Mealey's remarks to Freedman's ASCAP article in regards to the concept of Internal Working Models (IWM's). I agree with Birtchnell that Freedman does not take into account critical differences between IWM's among species, using a rather simplistic imprinting model. It is hard to imagine what these internal models may be like in dogs, although I do think that many social—particularly altricial—species are capable of forming rudimentary representational models of the world.

However, I take exception to several of Birtchnell's remarks in regard to attachment theory and would like to set the record straight. First, it is inconsistent for Birtchnell to say that Bowlby's IWM concept is imprecise and vague while at the same time saying he likes the psychoanalytic concept of internalization. How can he like and dislike two concepts that have basically the same meaning?¹ Second, Birtchnell and Mealey question the notion that early experience may have lasting effects on development. I dare say that if one looks at research inspired by attachment theory one may become less skeptical. I would like to call attention, among other sources of evidence, to the 20 year longitudinal Minnesota mother-infant project lead by Sroufe and Egeland (among others). There is growing a body of evidence to show that there are important continuities in development if what is being measured are broad band adaptations rather than individual behavior(s).^{2,3,4,5,6,7,8}

Continuity of organization through time can be very persistent, particularly if the same experiential conditions that were originally present remain unchanged. Peter Fonagy and his group were the first to demonstrate that parent's adult attachment interviews (AAI) predict infants attachment classification at 12 months using Ainsworth's strange situation (SS) laboratory procedure.⁹ At least five other studies comparing AAI's in adults and the SS procedure in infants have reached similar conclusions, including a three generational study of grandmothers and mothers (using the AAI) and infants (using the SS technique).¹⁰

Despite this data, there will always be skeptics like Mealey who believe that sociopaths—and other character deviations—are basically innate, and that "the main effect of temperament is much greater than the main effect of parental style". Again, I would urge Mealey to look at Stephen Suomi's sophisticated prospective research with rhesus monkeys that shows that monkeys with "at risk" temperaments (fearful-inhibited temperaments), when mothered by their inexperienced primiparous mothers have average to poor outcomes. Yet when fostered with the most nurturing mothers, these infants have the best developmental outcomes!" One study in humans demonstrated that irritable infants selected at birth from low SES families were significantly more likely to develop a secure attachment three months after an intensive intervention

The intervention was aimed at supporting mothers sensitive responsiveness to their infants. A control group without the intervention showed a much higher percentage of insecure infants.¹² Given the high heritability for the inhibited irritable temperament, experiential factors remain very potent in predicting outcomes.

Finally, Birtchnell's comment in regard to Zeanah's analysis of how parents rejecting attitudes become internalized and carried forward by their children (quoted by Freedman) reflects a basic failure to distinguish between behavior and character-rooted attitudes. Birtchnell dismisses Zeanah's penetrating analysis by saying that in fact good parents reject their offspring to encourage self reliance. As Freud taught us, the meaning of any given behavior can

only be understood in the context of its motivation, and as relational theorists would add, in the context of whole relationships, particularly the quality of these relationships. A behavior that encourages autonomy and a behavior that is rejecting can look the same and can be rationalized as the same (as demonstrated by mothers with avoidantly attached infants who evaluate their relationships with their children as being better than they actually are).¹³ Yet, these look alike behaviors have dramatically different consequences for development depending on whether the behavior is based on a loving and respecting attitude, prodding a child toward self-reliance or a rejecting attitude.

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ARTICLE:

by R Gardner
rgardner@beach.utmb.edu

Two Modes in Two Narratives: Sociophysiology at Multiple Levels

Five hours of narrative art.

Over a five hour period, Suzie and I experienced together two narrative works of art that seemed to bear on Michael Chance's agonistic and hedonic modes, recently discussed at length in *The ASCAP Newsletter*.¹ So, before the experiences faded, I made the notes that follow.

We decided to see *The Little Princess*, a movie re-issued after a disappointing first run despite great reviews.² Newspaper commentary on it involving need for the public to support good movies without bang-up shoot-em-down sequences caused us to go for more than the usual reasons, though we don't often frequent movies where the audience is chiefly children exhibiting other kinds of aggression, like noisily sucking up the dregs of drinks with straws.

Since we had known the movie to be over an hour from home, we took turns driving so one person could read out loud the first half of Chinua Achebe's 1958 novel *Things Fall Apart*, about the Nigerian Ibo.³ Before returning home we ate at the Raja Restaurant in the Little India section of west Houston, for reasons that may become apparent in the course of the first narrative.

Good (hedonic mode) wins over evil (agonistic mode)
The Little Princess featured Sara, a prepubescent girl who moved from India to a New York boarding school for girls because her widowed father went to the front in World War I. Her mother had died giving birth to a little sister when Sara was younger. Because she was daughter to a very wealthy father, Sara was lovingly nurtured by Indian men and women who were not only servants but mentors about life. Her wonderful father surrounded her with loving gentle story-telling people, not least of whom was himself. He was highly involved with his only child of whom he was greatly proud. Completely non-exploitative and still devoted to his lost wife whose presence he sensed in his daughter, he was also aware of his meaningfulness for the little girl. He spared no expense to assure his beloved child's welfare and we witnessed high quality time spent by the two together.

Sara's environment during her pre-New York time was portrayed as completely hedonic, symbolized by beautiful, languid scenes of her climbing with playmates on the statue of an ancient deity while a frolicsome elephant in the shallow pool below squirted water roundabout. A warm lovely mother

substitute with a sari and a red spot on her forehead told an ancient romantic story that later echoed helpfully for Sara during the troubled times of her life in New York City. And she learned fruitfully too. Later in her first minutes at the Minchin School, she showed her French to be impeccable.

But what contrast to India life at Minchin's School entailed. Miss Minchin was severe, forbade speaking at meals or even play not under her direct control. She compelled the children to pay close attention to her whenever she was in their surroundings, as though the movie-makers had read Chance's description of agonic mode. Sara's father had outfitted her with a choice corner room with extraordinarily lavish furnishings and appointments and even more importantly, insulated her from possible bad things through imagination. He gave her a doll that was to be his surrogate as an audience should she feel a need. Further, he suggested she should try imagined magical communications with him should there be trouble. And he left with her a locket that had belonged to her mother with her parents' photographs within. On seeing it, Miss Minchin stridently told of a rule against wearing jewelry but in our first taste of Sara's quick thinking under duress, we see her negotiate successfully — with her admiring father still present — that she nevertheless be able to wear it in the privacy of her room.

Despite the troubled clearly agonic atmosphere, Sara remains relatively serene. Tall amongst the girls and self-assured, she calmed a smaller, tantruming fellow orphan when the school authorities had been hamstrung by the screaming. She galvanized the entire group by improvising stories when everyone had been falling asleep from boring routine recitations of the classics. This escaped Miss Minchin's control. She played the harp during the evening readings and the new stories spoiled her sense of best atmosphere. Partly from the rebuff, we sense, she reacted furiously and forbade all such doings in the future. But eventually, after hours and secretly, Sara became the beloved substitute mother of nearly the entire student body by telling stories to them in her corner room where they sought her out after hours.

To use the serotonin metaphor (and findings) of Michael Raleigh and colleagues, we might expect

that if it had been measured, Sara might have had high levels of this important ligand in her blood and nervous system.⁴ Leaders and dominant monkeys may have more serotonin in their blood and brain than in subordinate monkeys. Psychiatrist Peter Kramer tells that Prozac puts people more in charge of their lives.⁵ Certainly Prozac given to subordinate monkeys unequivocally elevates their rank. Sara seemed to have had natural Prozac although how a contented mother in charge of her infant might show up on the serotonin front has not been investigated. Depressed women clearly get better from serotonin enhancing medications, but Raleigh et al's results featured male monkeys only in mixed sex settings. If there were a single male in a grouping, his serotonin was not elevated.

But regardless of whatever Sara's serotonin turned out to be, I suspect it would contrast in its elevation or normal levels to that of the formal leader, Miss Minchin. From the artful photography of the movie-maker, we sense that the headmistress was reactively severe, not herself a natural leader. She seemed to wish in her heart for some of the warm attention provided by Sara to her fellow girls at the school. Another motive for nastiness included great jealousy of Sara's abilities and serenity despite terrible problems. The movie was even more explicit on her feelings about Sara's real world resources. When it later seemed that Sara's father had perished in the war, the headmistress moved immediately to confiscate all of the former riches (including the important locket) and made Sara work as a degraded servant girl while sleeping in a mouse-infested attic.

With all her hostility and frustration-aggression, we might expect Miss Minchin's serotonin to have reflected the well established finding of lower levels in her brain and cerebral spinal fluid which have been found to correlate with hostility, aggression and violence — indeed as the provocations were incrementally felt by Miss Minchin, she neared thresholds of physical violence.⁶

Sara sadly accepted her sudden dramatic change in formal status with a sober assessment of reality, but did not seem diminished in her self-esteem. She was perhaps numbed and upset, but carried out with dignity what was newly required. Moreover, she still

commanded the attention of the needy other girls, but not by thrusting herself upon them, not herself seeming to require them. She remained simply there, still available with her wonderful stories for their rapt audienceship even more surreptitious than before, though now in the attic, not the corner room. Not that Sara was passive. For instance, she cleverly and with energy responded to an insult from a hostile former classmate who moved into that choice corner room and taunted the dispossessed owner when Sara the servant had to build her a fire. Clearly dominant still, Sara responded by suddenly flinging her fingers toward the other girl as though casting a spell to the rival's discomfiture and distress, especially when Sara's parting shot mentioned her hair.

A core sequence of the movie had the now demoted Sara in dramatic confrontation with Miss Minchin implementing a theme that had been sounded by the sari-clad mothering woman in the beginning idyllic sequence. Sara had found the following idea a foundation for her peace of mind, something like, *each of us, each girl, each woman, is in fact a princess*. In the tensioned sequence, Sara found herself echoing this to her adult enemy, saying even to Miss Minchin something like, "And so are you, Miss Minchin, so are you a princess!" To which the older woman could respond only with continued fury and threats, defeated and unable to leave agonic mode, her serotonin having plummeted, we imagine, to still greater depths, ever more defeated in fact as the movie progressed.

Indeed, the entire movie involved the power of hedonic mode to overcome agonic. Playfulness, story-telling, bonding, consideration were ultimately all triumphant over nastiness, grasping selfishness, stinginess, thievery and verbal aggression. The fairy-tale nature of the movie precluded all physical aggression except for pictures of Sara's father being overcome by mustard gas on the front with many muddy corpses all about. The audience heard and saw the flash of cannons in the distance, but never saw Sara beaten in this fairy tale of a movie where nice people made things turn out the way they should be. This movie was in the mode of the comforting stories of mothers and fathers who make everything alright for the troubled child from the earliest days of parent-child communication.

Agonic mode triumphs but not without cost.

Things Fall Apart, on the other hand, featured hedonic mode in less flattering light. This narrative from tales of Achebe's childhood featured tribal stories written in well educated finely fashioned English. They especially focus on Okonkwo, a high ranking, wealthy man nearly 40 years old who was extremely severe with his household of three wives and assorted children. He was hard-working, scowled frequently, and beat people when they didn't pay attention or disappointed him for various reasons.

The narrator shows us how he came to be that way in the major theme of the beginning chapters. His father, it turned out, had been the opposite of agonic mode, but rather generous, fun-loving, a flute-playing musician, never happier than when at gatherings, full of good humor and laughter, relaxed and somehow very persuasive in his requests for money and supplies despite the well known fact that he had already accumulated enormous debt which he would- clearly never repay, even when the need was considerable and the request ceremonially made. The father in adulthood lived a lazy adult life with great poverty, able to eat only because Okonkwo furnished the wherewithal as his culturally prescribed filial duty.

This son in contrast had scrambled from an early age to work hard, to profit through hard work from meager beginnings, to overall do his best to escape his father's example. The first page of the novel describes how he had in a fight achieved notoriety that helped him lifelong. He also beat his third wife. In another instance, when his second wife mocked him, he attempted to shoot her (unsuccessfully — to his private but not public relief). To show his courage in still another instance, he participated in the slaying of young man — Ikemefuna — from another tribe, a boy whom in fact loved and for whom he grieved for days. Ikemefuna was killed in a ritual sacrifice after living with Okonkwo for three years because the oracle at Agbala said finally that it must happen. The proximity of living together, Ikemefuna's helpfulness to Okonkwo's son, and his generally positive personality had endeared him to the not completely sour older man.

For three years, Ikemefuna had seemingly been forgotten by the tribal fathers despite the earlier

implication that he would be sacrificed to atone for the murder of a woman by the other tribal group. Directly after the murder, war had been threatened but feared by the murdering tribe so that Ikemefuna had been sent instead (along with a virgin to replace the murdered woman as a wife for the deprived husband). Because he had good status in the village, Okonkwo became the boy's host. But recall how Okonkwo had shot at his second wife. She, as it happens, was a good friend of a widow — like a sister even, though not genetically related. The widow favored the second wife's daughter, a charming girl. At times the widow was the voice of the Agbala oracle. Achebe shows us how that widow found out all about the fired shot and near miss. Only a short time after, the oracle spoke about the need for the sacrifice. I conjecture the oracle's voice knew perfectly well of Okonkwo's attachment and accordingly made a revengeful pronouncement, an agonic curse — a toothed version of Sara's curse on the hair of her newly superior rival.

The tribe used various ploys to contain agonic mode aggression. Okonkwo beat his third wife after she had stayed with a friend to plait hair at a time he had expected her to make his supper. That he had adequate reason to beat her was not at issue in the village, but his timing was poor. He became provoked during the Week of Peace that by tradition preceded planting the cash crop of yams. Okonkwo forgot in his rage that being unpeaceful at this time of year could jeopardize the entire year's production for the entire village. So he was severely fined and murmurs circulated about recalling how such transgressions in the tribal past were punished by parallel miscreants being dragged and killed, then left unburied in the evil forest. But one had to be careful too, the narrator suggests, because too many people dying that way could mean vengeful ancestral spirits might badly affect village life. Checks and balances for agonic behavior often fundamentally economic in nature were ever present in the Achebe's narrative, similar to anthropological accounts of similar societies, and certainly figuring in the modern world envy Miss Minchin felt for Sara, the little princess.

The economics of concentrated resources foster agonic mode as well as being factors in the origination of city-state and agricultural economies that

replaced the hunter-gatherer lives preceding these developments.⁷ Agonic Okonkwo was honored (albeit held in check in various ways) but his hedonic father died without honor and was left unburied in the evil forest. Okonkwo had to put himself constantly at a distance from the other mode. The agricultural economy of Achebe's Ibo had production and its management as constant factors in tribal doings. The essential outlines can be seen in other species. Concentrated resources seemed to play a role in Margaret Power's analysis of what happened with Goodall's chimpanzees whose behavior seemed markedly and permanently affected via artificial supplies of rich food resources but with access strictly — agonically — limited in the early years of the Gombe observations.⁸

Storylines as hedonic checks on agonic mode.

I believe the large brain of the human has been adaptive fundamentally for its ability to form and receive stories (storytelling and audienceship). *The Little Princess* with great specificity put forth this theme: stories overcome agonic reality. Allies are accumulated and maintained by their audienceship. *The Little Princess* abundantly bears out his theme if we can suppose Sara to be a youthful leader. Howard Gardner has written a new book that holds successful leaders to be so because their storylines are the right ones for the people they lead.⁹ These must be cultural storylines into which leaders fit. Achebe's book tells how these work to regulate the tribal interactions, from the Week of Peace to the Feast of the New Yam, but also including the important oracular pronouncement, which Achebe cleverly lets us see as an interpersonal adjustment by presenting the story without interpretation. The power of tribal customs and Okonkwo's unquestioning response to the storyline meant that he participated in the killing of the young man he loved, seemingly unaware that his assault upon his wife determined his loss.

Returning to *The Little Princess*, recall that it principally involved women and children along with the gentler sides of men. This reminded me of a speculation that recurrently occurs to me, involving who were the primary speakers and audiences for the early storytellers that fostered the development of language? We know of Merlin Donald's helpful idea

of a dramatic, storytelling mode using nonverbal means that probably preceded language.¹⁰ We think of Homer and his large early Greek audiences, but storytelling had gone on for numerous millennia prior to him. If storytelling might have been a major factor in the enlargement of the human brain, how and where did it begin?

I wonder if it happened in the campfire version of the nursery. We know that the Broca's area for motor speech resides in the left frontal lobe, third convolution down, far laterally and near the mouth region, nowhere near the noise making centers for other primates which are on top of the motor strip, as it curves medially. Alarm calls are the primary function of their vocalizations, but the area Paul Pierre Broca labeled is nearer the gustatory and eating apparatus, with speech seemingly a variation on oral rhythms.¹¹ Of course, I would like to think that the deletion site for the natural experiments of Angelman and Prader-Willi syndromes (AS and PWS) on chromosome 15q12 might allow investigation of those oral rhythms, as we see no speech at all but much laughing in AS and great appetite and overeating in PWS (perhaps another kind of oral rhythm). PWS patients also typically have a hard to pin-point difficulty in articulating their speech.

Back to my speculation on earliest speech. I wonder if mothers telling their children stories might have been an extension of gustatory murmurs and mumbles including audible changes in breathing that helped to form loving connections to little ones looking raptly up at her as we know how new born babies do, mirroring not only her appearance (smile, frown) but also her murmurs perhaps so they can later tell their own optimistic and comforting stories to others as the need arises in the course of assumed new roles of their own. The stories related in the *The Little Princess* are anti-agonic in content and in purpose, mellowing the mustard gas of World War I so that her father in the end was restored to life. This returned Sara to ample resources and consequent happiness for all (except the undeserving evil Miss Minchin).

A yearly Feast of the New Yam in Okonkwo's village had the result of evening out the food resources and thereby reducing the agonic propensity of concen-

trated supplies. In addition generosity and good will fostered hedonic atmosphere. All the previous year's yams — none were to be retained — were consolidated by farmers into fantastic dishes to be consumed by everybody in a great festival just before harvesting the fresh ones. No-one was allowed to sequester. This cultural storyline seemed designed by natural selection of cultural history to not only contain agonic mode, but to increase hedonic mode.

To quote William Calvin in his *The Throwing Madonna*: "But the cerebral cortex, important as it seems to be in the brain of modern hominids, is only — to use a singularly appropriate metaphor — the frosting on the cake."¹² I believe that Calvin's appropriateness referred to the superficial location of the cortices. The discussion above provides an additional appropriateness. From *The Little Princess* and the Feast of the New Yam we see that the storytelling cortex helps foster a hedonic sweetness that makes Calvin's metaphor even more apt than before. Evenly divided prosperity helps hedonic mode, whether the prosperity is limited or limitless but not frustrating like those Gombe bananas or all those stories of televised riches that invade the homes of poor people and then elevate the blood pressure of those tempted but never able themselves to achieve the human equivalent of sequestered bananas.¹³

Calvin goes on in his book to attribute a variety of creative features of humankind to early women. Perhaps this occurred in combination with her being attuned to the creativity of her offspring. As we saw from Sara's profiting from her Indian mother substitutes, their audienceship to maternal stories adds to their fitness. And ours. Suzie and I experienced the five hours of experienced narrative positively and with profit because we remain human children no matter what our age. Another quote from the same page of Calvin's *Throwing Madonna* constitutes a singularly appropriate ending to this discussion: "Our attempts to describe human brains are still the fledging efforts of the child with watercolors, but we look forward to the various schools of brain art which may emerge." Some of the colors that must be used are tints from Michael Chance's palette.

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Limerence Research¹

At its core, human ethology involves the search for species universals. Yet the image of human beings as controllers of our own destinies so permeates human conceptions that even human ethologists balk at inevitabilities and resist notions of fettered, hard-wirednesses exempt from will or culture. They prefer instead to think of tendencies and predispositions.

Seeking long range, phyletic, evolutionary, explanations, human ethology is concerned with how existing traits contributed to reproductive success in the environment in which the adaptation took place. That a trait appears to enhance reproductive success in contemporary environments is in itself weak evidence for its having been biologically selected. This is especially true for variable traits for which proximate mechanisms are unknown.

I offer here a theory of complex reactions designated by the term limerence. The limerence reactions springs full blown, is phenotypically uniform is unaltered by will or by culture, and directly affects reproduction. Experientially, it is a state of being unrequitedly "in love". It is probably controlled by the limbic system; it follows a rigid, unyielding, and predictable algorithmic pattern.

THE ALGORITHM

If when a person, A, is in a state of receptivity, and an attractive member of A's "sexually preferred" class, person B, exhibits amorous interest in A, then A will enter a state of limerence with B as its object.

The reaction is posited as automatic provided the conditions hold, i.e., A's receptivity and B's apparent interest. State of receptivity is at present unspecified, but research would be expected to produce physiological markers, probably hormonal. Pheromone and unconscious processes may be crucial. The considerable information on, and conjecture concerning, mate selection are no doubt relevant to determining attractiveness. However, although limerence includes, it is not equivalent to, sexual desire. John Money's love maps come to mind, but they refer mainly to sexual attraction which can exist

in the absence of limerence.

Returning to the algorithm, once the transition to the limerence state occurs, intensity of desire for mating with B and amount of involuntary thinking about B, are dictated by B's expression of interest in A. If B shows interest, A becomes at least temporarily elated. But, paradoxically, if A perceived full reciprocation by B, A's limerence diminishes. Furthermore, if B exhibits little or only periodic interest, yearning and preoccupation (hallmarks of limerence) will persist.

A's condition continues to be controlled by perception of B's behavior until one of three conditions occurs.

- 1. B is removed in a manner that gives A absolutely no hope for reciprocated union.** But note that rejection must be unalloyed to be effective. And it must be sustained.
- 2. B reciprocates and enters into a committed, enduring and monogamous relationship with A.** But note that marriage alone may not satisfy this condition if B, as spouse, continues to emit behaviors that signify some degree of rejection or non-limerence.
- 3. Transference of limerence takes place to a third person, C. The algorithm is still in force; the object is changed.** This alternative is probably more frequent in an environment that contains many possible available persons.

The research on which limerence theory is based began with questionnaires administered to college students who responded anonymously as part of a course assignment. The results were largely uninterpretable. There was no way to know whether the questions asked were in fact the ones answered. Interviews revealed that the word "love" was indeed used differently by different people and in different contexts.

Further progress occurred when the assumption was discarded that attraction for a potential love object could be ordered along an intensity continuum. Instead, the picture began to emerge of a distinct

either-or condition, one that seemed always to be similar whenever it appeared.

That change of focus gave a large boost to the process, but a second was yet to come when it was discovered that the condition was totally unknown to some people and that others had experienced the state for the first time later in life, sometimes quite late. Eventually, interview strategies were changed. Instead of eliciting descriptions, informants were presented with a description and asked whether it coincided with their experiences.

This procedure had several advantages: First, the type of interviews which first evoked descriptions of "limerence" were extremely time-consuming and evoked considerable personal revelation and there seemed to be no reason why responding to a description should be less valid than producing one. Second, ethical problems were reduced with reduction in the need to revealing personal details. Furthermore, those who disliked the subject were not excessively subjected to it, and those in the state of limerence were not encouraged to worsen the situation by focusing on it.

A compelling source of data has been the response to the book, *Love and Limerence: The Experience of Being in Love*, following its publication in November, 1979, and continuing to the present. These roughly 2,000 voluntary testimonials submitted by readers of the book have been a primary motivating factor to my continued interest in the subject.

Limerence theory is not immune to criticism. Not only is it unusual in its dependence on personal testimony, but limerence theory is scientifically unsatisfactory, or at least unsettling, in a number of ways. For one thing, in limerence theory we do not have experimental results, only conjectures based on a type of data traditionally considered too unreliable to form the basis of scientific theory.

Regarding the supposed unreliability of self-reports, two points might be considered: First, high reliability has been found in psychophysical experiments in which stimulus intensity is experimentally manipulated and the dependent variable is a subject's description of an experience not otherwise available

to the investigator. Second, there is at present no other means by which certain phenomena can be explored. I do not imply that a theory based solely on personal testimonies is without need of verification. However, insistence on empty objectivity may be putting the cart before the horse. Description comes first. Later, when appropriate methods are available, the phenomenon can be placed under objective scrutiny.²

The term limerence does not imply strong emotion. A specific algorithm is operative. Intensity of yearning and cognitive preoccupation varies overtime and circumstance. Experiential intensity can be quite low even while the algorithm is in effect.

Although limerence may well be an adaptation selected during evolutionary development, it is not necessarily an aid to reproductive success in the contemporary environment. People no longer under its spell consider that it so interfered with other aspects of life that it is often retrospectively viewed as disadvantageous to personal welfare. On the other hand, it induced monogamous sexual union which may (or may not) enhance reproductive success.

In sum, limerence research raises three questions: (1) Does it really exist as described? (2) Are methods which support an affirmative answer scientifically valid? and (3) Would they be applicable to the study of other psycho-behavioral characteristics?

Attempts should be made to learn about the biochemistry of the phenomenon, but identification of the algorithm was an essential first step. Without it, the investigator is trapped in a morass of verbiage with indeterminate referents.

The evidence suggest the limerence operates by immutable rules, occurs across sexual, racial, age, culture, and other categories, occurs to many, but not to all, induces feeling of suffocation in those who are unwilling object, endures as long as the conditions of hope and uncertainty which sustain it continue, and rearranges the individual's motivational hierarchy to place achievement of the limerent goal at or near the top, above other aspects of living, and other relationships.

During limerence, reciprocation is most desired. Failing that, is desire to simply be in the presence of the person. Failing that, is the wish to talk about the person or to write letters, essays, poems, and diaries. Frequently, letters from readers of *Love and Limerence* begin with "Thank you for telling me I am not alone. I have experienced exactly what you described." These sources also indicate that it often, maybe typically exists outside of the mating relationship, in secret.

Data is not available relating limerence to increased jealousy or violence. It is my guess, but only that, that very intense sexual jealousies may occur outside the limerent state. Famous fictional cases do not conform to the expected pattern, e.g. Flaubert's *Madame Bovary* and Hollywood's *Fatal Attraction*. But limerence combined with psychopathology may produce results which escaped inclusion in the data base.

Other researchers, e.g., those who relate hormonal processes to feeling of sexual and love interest, might have more success in teasing out the ongoing processes if they could detect the presence of limerence and take it into account in their analyses.

Despite its image of objectivity, science is a deeply personal process. What we do, how we do it, what we object to and what we applaud as self-conscious and professionally recognizable scientists depends on such extremely personal matters as our emotional reactions to particular problems, our basic philosophy, our training in and awareness of methodology, our political opinions, our prejudices, the surround into which we might be published (or be unpublishable) and the various human, financial, and technological resources available for carrying out the research.³ How would science differ if all possible projects were placed in a hat and selection by researchers at the outset of their careers was done by lottery?

The topic of limerence elicits very personal reactions. When not glorified in drama or poetry, limerence is hard to admit to—one eloquent anonymous letter writer called it "embarrassing." Each step of the process, not only of topic selection, and research methodology, but also of communication and discussion, is influenced by personal reactions.

Those who are limerent find it difficult to believe in the existence of those who are not. The topic is unpleasant to those who are not currently caught in its grip, particularly to those who have been its object or who may have exploited the condition in others. The limerent person is a willing sex partner and help mate, but Lothario doesn't want to hear about it.

Let me end with a reminder. The idea of automatic love mechanism is not new. Shakespeare was not the first to posit the existence of an external force inducing attraction. There is also the ubiquitous image of Cupid's arrow piercing the heart. Furthermore, the notion of a chemical changes associated with amorous inclinations pervades folklore. Humans have long searched for eternal youth and love potions. The former still eludes us, but perhaps limerence theory takes a step toward realization of the latter.

Postscript

Following presentation of the above paper at the International Society for Human Ethology, Toronto, Canada, in Fall, 1994, the audience members were asked to fill out and return a brief, anonymous questionnaire. The results were: Of the 43 questionnaires distributed, 3 were not returned and 3 were returned unmarked. Of the 37 remaining, 30 (81%) selected the item "I have experience limerence as described," one person selected "I have never had been in the grip of limerence but from observation of the behavior of others, I am open to admitting that it may exist as described," 3 selected "I have had partial experiences but not such extremes as described," none selected "I do not accept limerence methods or conclusion," 3 selected "Self-report methodologies are scientifically unacceptable," and 3 selected "The essence of science is restrictions on, not celebration of, the personal." (The numbers add to more than 37 since some persons selected more than one category.) Among comments were "only in adolescence", "painfully", "data needed", "measurement should be easy", "definition needed", "definition is very clear", "physiological correlates needed", "cross-cultural measurement would be useful".

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The Wounded Healer

The italicized section in this column displays an amended portion.

The Wounded Healer is a superb book by David Sedgwick, a Jungian Psychoanalyst and Assistant Professor of Clinical Psychiatry at the University of Virginia. This volume appears to be the first Jungian book exclusively on countertransference, even though Carl Jung was a pioneer in using countertransference as a therapeutic technique. The book is divided into four parts: 1. Introduction, 2. Review of Jungian approaches to countertransference, 3. Two case illustrations, and 4. Discussion of a theory and model of countertransference.

The primary thesis of the book is taken from Jung: "only the wounded [therapist] heals". A further supposition is that the therapist be conscious of his or her woundedness and use this, that is, his or her reactions to the patient, or countertransference, as part of the therapeutic technique. David Sedgwick, models this approach to countertransference by his own personal disclosures. In the two case illustrations, Sedgwick is refreshingly honest about his own process: his wishes, fantasies, wounds, fears, and remorse. *He even shared his erotic fantasies and emphasizes the difficulty but the necessity of doing so. For example, Sedgwick has the courage to be open to incestuous feelings only to sacrifice them through "acting in" by means of reflection and analysis, ideally through supervision and consultation, rather than "acting out"—something Jung was involved in and which underscores the pitfalls of self-analysis.* Sedgwick demonstrates how valuable the symbolic "analytical marriage" is for healing to occur—but again only if there is awareness of this process by the therapist.

Sedgwick offers the following practical and helpful model of countertransference, which has eight stages or phases:

1. Preliminary (Developing as much self-knowledge and self-awareness as possible).

2. Clearing the field (Establishing an open, centered, meditative, and reflective state).
3. Reception (Accepting and taking-in the patient).
4. Selection (Allowing oneself to be guided by silent responses to countertransference feelings).
5. Containment (Holding the tension of the opposites, for example love and hate, and not acting-out to relieve the tension).
6. Working through (Amplifying and elucidating countertransference fantasies and feelings in the service of the question: How am I reacting to this? Grappling with the basic issue: Is it the patient or is it me?)
7. Incubation (Choosing to sit with anxiety-ridden states and working them through. The question then becomes: Have I changed or has the patient?)
8. Validation (Noting indications of change in the patient, such as direct statements, dream images, and most important behavioral changes. Also, this final phase involves returning to the key question: Is it the patient or is it me?).

Sedgwick's model of countertransference is "a specific brand of mutually transformative, countertransference-based interaction". He has characterized countertransference in a way that both the therapist and patient can grow and develop. It's a both/and perspective: one that is welcomed and applauded.

Regarding types of countertransference-inducing situations, Sedgwick mentions the importance of countertransference and suicide, but he does not underscore that danger of "countertransference hate" and the inadvertent precipitation of suicide.¹ Sedgwick shares a case vignette of a suicidal patient (p. 138), which fortunately has a good outcome. It seems to me that what Sedgwick did was to help his patient commit egocide and undergo transformation.² Most likely, Sedgwick, by attending to his own countertransference issues was able to put into practice his eight stage model which enabled him to "stand by [his patient] at the crucial time (p.153)." Sedgwick cites Hillman's *Suicide and the Soul* as

relevant to his patient (also p. 153).³ However, because of the nature of this case, and its positive outcome, the inherent danger of Hillman's "provocative meditation on suicide" is not outlined (likewise p. 153). Hillman regards suicide as a rational deed to be understood and accepted and recommends that therapists maintain "dispassionate scientific objectivity" toward the action. I disagree with Hillman's perspective, which creates serious problems in clinical treatment. In fact, Hillman's cold and detached view could be interpreted as "countertransference hate" and precipitate actual suicides.⁴

By now readers of *The ASCAP Newsletter* may be

asking themselves: What does *The Wounded Healer* have to do with evolutionary biology? The answer is that the underlying principles of countertransference, such as acceptance and empathy are at the core of the healing process for our species and others, such as the primates. Elsewhere I've outlined the innate nature of the healing doctor-patient relationship.⁵

In conclusion, *The Wounded Healer* is well written, concise, and integrity-full. I recommend it wholeheartedly.

References on page 20

ABSTRACTS & EXTRACTS ...

Bradshaw, Harry R: Displacement Activities potential covert signals in primates

Shyue S-K, Hewett-Emmett D, Sperling HG, Hunt DM, Bowmaker JK, Mollon JD, Li W-H: Adaptive Evolution of color vision genes in higher primates

Gebhard R, Zilles K, Schleicher A, Everitt BJ, Robbins TW, Divac I: Parcellation of the frontal cortex of the New World monkey *Callithrix jacchus* by eight neurotransmitter-binding sites

Bradshaw, Harry R: Displacement Activities potential covert signals in primates *Folio Primatol* 1993;61:174-176.

Displacement activities are behavior patterns (mainly body care activities) exhibited by an animal that are 'apparently irrelevant' to the situation in which they appear.¹² As non-human primates invest considerable time in their performance it is reasonable to assume that they serve some adaptive function and

it has therefore been suggested they may serve a role in social communication. For example, they may convey information about an animal's motivational state and hence be relevant in all kinds of social interactions in which the assessment of another's intention is crucial.³ Alternatively, they may have the immediate function of distracting the partner or opponent from certain physical features of the performer that might elicit aggressiveness or conceal the performer's intentions.³ In the present report, I argue from a theoretical position that: (a) it is extremely likely that subtle 'covert' signals are widespread in primate social groups, and (b) despite the apparent lack of supporting data, at least some behaviours which are classified as displacement activities in fact serve a communicative function.³

Shyue S-K, Hewett-Emmett D, Sperling HG, Hunt DM, Bowmaker JK, Mollon JD, Li W-H: Adaptive evolution of color vision genes in higher primates *Science* 1995;269:1265-1267.

The intron 4 sequences of the three polymorphic alleles at the X-linked color photopigment locus in the squirrel monkey and the marmoset reveal that the alleles in each species are exceptionally divergent. The data further suggest either that each triallelic system has arisen independently in these two New World monkey lineages, or that in each

species at least seven deletions and insertions (14 in the two species.) in intron 4 have been transferred and homogenized among the alleles by gene conversion or recombination. In either case, the alleles in each species apparently have persisted more than 5 million years and probably have been maintained by overdominant selection.

Gebhard R, Zilles K, Schleicher A, Everitt BJ, Robbins TW, Divac I: Parcellation of the frontal cortex of the New World monkey *Callithrix jacchus* by eight neurotransmitter-binding sites *Anat Embryol* 1995 191:509-517.

The most extensive development during primate brain evolution involved the cortex of the frontal lobe, especially its prefrontal region. The distribution of neurotransmitter receptors is unknown in this part of the cortex of New World monkeys. The respective distributions of eight different receptors for the transmitters L-glutamate (L-glu and NMDA), γ -amino-butyric acid (GABA_A), noradrenaline (α_1), acetylcholine (M₁ and M₂) and serotonin (5-HT₁ and 5-HT₂) were therefore studied in cortical areas of the frontal lobe of the lissencephalic New World monkey, *Callithrix jacchus*. The results are compared to earlier data on Old World monkeys in order to obtain insight into evolutionary trends at the level of chemical neuroanatomy. Our results indicate that the density and laminar pattern of some receptors change precisely at the cytoarchitectonic boundaries between different cortical areas, while for some others receptors do not exhibit measurable changes. For example, the premotor area 6 can be distinguished from prefrontal areas by its high concentration of adrenergic α_1 receptors as labelled with [³H] prazosin, with only the cingulate area 24 showing higher values. In other cases, the receptor distribution changes within a cytoarchitectonically homogeneous area. Thus, area 8 can be subdivided into dorsal and ventral regions on the basis of the distribution of GABA_A, muscarinic and serotonin receptors. Comparison of these results in a New World monkey with receptor distributions in other primate species reveals much larger interspecies differences in the areas of the frontal lobe than e.g. in the primary visual cortex. This is interpreted as an indication of extensive changes in the neuro-

chemical organisation of this part of the brain during primate brain evolution.

Gardner R, Russell J & Joiner, T: Basic Plans and the Biology of Leadership, Dept of Psychiatry and Behavioral Sciences, University of Texas Medical Branch Galveston, Texas 77555-0428
This was an abstract offered for the 1995 HBES meeting. As is happened neither of us could go, so the paper is yet unwritten. But interest in it has meant we are composing it.

Basic plan theory uses the tinkering metaphor (natural selection modifies molecules in new phenotypic adaptations). EEA mismatch with the present is a fruitful heuristic but nearly all the genomic determinants of the human body antedated the hunter-gatherer human. We propose that a basic plan for human leadership stems from dominance and other alpha states of non-human vertebrates. Lines of investigation include: (1) comparing manic behaviors to those of human leaders, (2) noting effects of serotonergic drugs that enhance a nonviolent "take charge" mentality, (3) comparing features of leadership to behaviors of Asperger syndrome patients. Adaptive components of mania include heightened energy, appetite, planning, enthusiasm, controlling behaviors, and ability to function without sleep. Increased self-esteem from serotonergic drugs may fundamentally be leadership biology generally without impulsive violence (with which low serotonin and frustration-aggression correlate). Expansion of frontal lobes in the human involves restraint, planning, attention, and other requirements for low key, socially involved yet enthusiastic and productive leadership functions. We see its opposite in Asperger's syndrome in which patients have a poor sense of story line, lack social nuance and suffer frontal deficits. Examination of psychopathology and results of drug actions may illuminate the sociophysiology of normal communications.

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Cortina: Remarks p 7

- ¹ Incidentally, since John seems puzzled by Bowlby's use of the term "working model," I would like to say that Bowlby used this terminology to convey the idea that internal models are in principle, modifiable by experience if they can be tested by new experience--in the same sense that we would talk about a "working hypothesis" in science.
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- ² It is relevant to repeat Tinbergen's (1963) statement quoted by Nancy Siegel at the ISHE Conference: "It has been said that in its haste to step into the 20th century and to become a respectable science, psychology skipped the preliminary descriptive stage that other natural sciences had gone through, and so was losing touch with the natural phenomena."
- ³ Research costs are an intrinsic, undeniable, and reportable aspect of a design, but one seldom dealt with realistically or included in the research report as a factor determining procedure.

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Farewell to ASCAP

As mentioned in the article *Storm in the Gulf of Mexico* in this issue, I have been reassigned away from Dr. Gardner. This reassignment includes the *ASCAP Newsletter*. I have enjoyed my brief and interesting position as Managing Editor and would like to thank Dr. Gardner and the ASCAP Society for giving me the opportunity to be involved in such an interesting and worthwhile publication.



Dene Stringer