

ASCAP

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October 1997

"What neuroscientists often do is investigate the preparation for movement; that gets us closer to other thought process."

William H. Calvin¹

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

Across Species Comparison and Psychopathology (ASCAP) Society Executive Council:

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ASCAP Society Mission Statement:

The ASCAP 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.

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

The ASCAP Newsletter is a function of the ASCAP Society.

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Previous volumes are available. For details, contact Frank Carrel, the Managing Editor of *The ASCAP Newsletter*, at the address above.

The WWW Address for the The ASCAP Home Page is:

<http://psy.utmb.edu/ascap>

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<http://psy.utmb.edu/ascap/aform.htm>

The WWW address for the European ASCAP Home Page is:

<http://evolution.humb.univie.ac.at/ascap/europe/index.html>

ADDRESSED TO & FROM

Call for Papers

Managerial and Decision Economics is hosting a special issue on *Management, Organization, and Human Nature*. Livia Markoczy will serve as the guest editor.

Over the past few decades, there has been a growing interest in considering human nature when discussing social and psychological phenomena. This has been strongest in cognitive psychology, which is ultimately about the nature of the human mind, but a substantial (if still minority) movement in anthropology has been looking at the relationship between human cultures and human nature. Economists, who always had a notion of homo economicus, have begun looking more closely at aspects of human nature as well when developing theories of economic behavior. Philosophers, biologists, and political scientists also belong on this list. The study of management and organization draws so heavily on these fields that the move toward looking at human nature may profoundly affect the future of the field. Indeed, the effect has been felt, but has not been made explicit. The recent interest in trust, managerial cognition, and social exchange are just some of the places where, implicitly, discussion of human nature and management

coincide. But other areas such as status differences, cooperation, specialization of labor are all areas where the study of management and organizations can benefit from theories of human nature. Furthermore, the development of theories of human nature in these matters can benefit from a study of management and organizations.

The ideal paper for this special issue will:

- ◆ Demonstrate (by example) how the study of management and organizations can benefit from an informed theory of human nature.
- ◆ Demonstrate (by example) how the study of human nature can benefit from an informed theory of management.
- ◆ Explore the range (and the limits of that range) of possible managerial or organizational systems and behaviors.
- ◆ Appeal to a multi-disciplinary readership.

If you have an idea or research which approaches some of these ideals, please consider contributing it to this special issue.

Before final paper submission prospective authors are re-

quested to submit an extended abstract of their proposed paper which will be evaluated according to their suitability to the scheme of the special issue. Extended abstracts should reach the editor no later than **Friday, January 23, 1998**.

After the abstracts are considered, a call for full papers will be sent to those who submitted abstracts. Authors will be advised as to whether their proposed paper appears appropriate.

Manuscripts must be original and unpublished. Manuscripts will be blind reviewed. Additionally, papers which draw heavily from some discipline, will be looked at by at least one person from that discipline wherever possible.

Send abstracts to:

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For more information about this call for papers, including references to the literature, details of

the review process and background material can be found at: <http://www.cranfield.ac.uk/public/mn/mn795/MOHN/MDE-c-all.html>.

Sex Differences in Suicide

This appeared in one of our national newspapers:

Life and death: the cold facts:

- ◆ Overdoses account for one in ten of all admissions to hospital (in the UK).
- ◆ Among 15-19 year olds, 1 in 100 is admitted to hospital with an overdose every year.
- ◆ Not all those who attempt suicide mean to kill themselves. About 25 people attempt suicide for every one who succeeds; amongst the young the figure rises to 100 to one. More than 8 out of 10 suicide attempts are by women. Taking a overdose is their favoured method. But men succeed more often. They are 4 times as likely to take their own lives, and favour hanging and shooting.
- ◆ Choice of method is influenced by availability. Shooting is most common among farmers and land owners with access to guns. Doctors tend to choose poison.

End of newspaper item.

A point it did not make (fear?), I have seen elsewhere, is that men may have greater technical competence. It may no longer be true, but thinking of my generation I would guess that the males would be more likely to know what fixing points would or would not take the load of a hanging body.

I also read an interesting account of an American lady who makes a living tidying up after suicides. She said that whereas males often chose the the living-room couch on which to blow out their brains, women are far more thoughtful about the subsequent clearing up. Of course, it may also be that they have a rosy view of the biological effects of overdoses and prefer to imagine their bodies being found in that state. Either way, the effect would be to drive women to the less certain modes of suicide.

One pure Waller thought. In terms of the comparator mechanism, I view depression as having three functions: first, it reduces pressure on and gives more space and resources to the "fitter", non-depressed people; second, it holds those currently seeming the least well-fitted in suspense against the possibility that circumstances will change and their genes will prove to be of value; third, it is the pathway to suicide or, much more commonly, stress-related illness and death for those judging themselves/judged to be without hope. Allowing that the male role in reproduction is far less constrain-

ing than is womb capacity*, it might not be surprising that there are more male suicides than female. I stress that this is merely a conjecture for which I have no hard evidence whatsoever.

*I remember a comment made by one reviewer of the film about all the women in a small American town being simultaneously impregnated by aliens and therefore producing identical children at the same time ["The Stepford Wives"]. He said that it could all have been achieved "by one sharp lad on a bicycle"!,

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Readings (from E-Mail)

I think Mark Flinn's suggestion for an E-Mail book club is great. I am disappointed that there has been little response to it so far. Lacking a personal contribution. I will offer a web site that has lots of book reviews, some of which may be of interest to HBE-L readers:

<http://www.students.uiuc.edu/-reichler/anncbt/reviews.html>

These reviews have been compiled by the Artificial Neural Networks and Computational Brain Theory forum at the University of Illinois at Urbana-Champaign. Here are some of the books listed:

Churchland, P.M.: *The Engine of Reason, the Seat of the Soul: A Philosophical Journey into the Brain*, Cambridge, Massachusetts: The M.I.T. Press, 1995.

Cheney, D.L. & Seyfarth, R.M.: *How Monkeys See the World: Inside the Mind of Another Species*, The University of Chicago Press, 1990.

Rose, S.: *The Making of Memory: From Molecules to Mind*, Bantam Books, 1993.

Calvin, W.H.: *The Cerebral Code: Thinking a Thought in the Mosaics of the Mind*, Cambridge, Massachusetts: The M.I.T. Press, 1996.

Pinker, S.: *The Language Instinct: The New Science of Language and Mind*, Penguin Books, 1994.

Chalmers, D.J.: *The Conscious Mind*, New York: Oxford University Press, 1996.

Hardcastle, V.G.: *Locating Consciousness*, Amsterdam/Philadelphia: John Benjamins Publishing Company, (*Advances in Consciousness Research, Volume 4*), 1995.

Wills, Christopher: *The Runaway Brain: The Evolution of Human Uniqueness*. New York, NY: BasicBooks, 1993.

Damasio, A.R.: *Descartes' Error: Emotion, Reason, and the Human Brain*, Avon Books, New York, 1994.

Elman, J.; Bates, E.; Johnson, M.; Karmiloff-Smith, A.; Parisi, D. & Plunkett, K.: *Rethinking Innateness: a Connectionist Perspective on Development*, Cambridge, Massachusetts: M.I.T. Press, 1996.

Churchland, P.M.: *Matter and Consciousness - Revised edition*, Massachusetts Institute of Technology, 1993.

Searle, J.R.: *The Rediscovery of the Mind*, a Bradford Book, The M.I.T. Press: Cambridge, Massachusetts & London, England.

Gelernter, D.: *The Muse in the Machine: Computerizing the Poetry of Human Thought*, The Free Press, A Division of Macmillan, Inc. New York, 1994.

Dennett, D.C.: *Consciousness Explained*, Illustrated, Boston, Massachusetts: Little, Brown & Company, 1991

Schacter, D.L.: *Searching For Memory: The Brain, The Mind, And The Past*, New York: Basic Books, 1997.

Holland, J.H.: *Hidden Order: How Adaptation Builds Complexity*, Helix Books: Addison Wesley, 1995.

Crick, R.: *The Astonishing Hypothesis: The Scientific Search For The Soul*, New York: Charles Scribner's Sons, 1994.

Tye, M.: *Ten Problems of Consciousness: A Representational Theory of the Phenomenal Mind*, Cambridge, Massachusetts: M.I.T. Press, 1995.

Baars, B.J.: *A Cognitive Theory of Consciousness*, Cambridge, Massachusetts: Cambridge University Press, 1988.

Trehub, A.: *The Cognitive Brain*, Cambridge, Massachusetts: M.I.T. Press, 1991.

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Brain & Mind Magazine

We have just published the 3rd issue of *Brain & Mind*, a magazine on neurosciences, mental health, psychology and psychiatry:

<http://www.epub.org.br/cm>

Some of the subjects include:

- ◆ How the Brain Organizes Sexual Behavior.
- ◆ Sexual Disorders. 1. Sexual Impotence. (1st installment)
- ◆ The Remarkable Man-Machine Interaction.
- ◆ Mapping the Brain.
- ◆ Stress: The Silent Killer.

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X-Chromosome & Intelligence (from E-Mail)

The work of S.S. Tan and colleagues has produced a remarkable finding in that X-inactivation creates in-brain mosaicism wherein one section will be clonally derived from paternal X, another section from maternal X.

When I first saw the Tan, et. al. article (in *Development*, great photos), I saw the ramifications for fragile X females and prepared a poster presented at a fragile X conference in Norway last year. Since then, several groups are looking at in-brain mosaicism of fragile X knockout mice.

Math skills provide an example. Many high-functioning fragile X females have great difficulty in math, even addition; yet some do very well in higher math in college. Mosaicism of mutated versus non-mutated X?

Similarly, among groups of females with similarly severe

fragile X mutations, there will be much inter-individual trait variation. In males with similar mutations, there will be far more consistency of mutation effects.

The "end points" of this kind of process would be monozygotic twin females discordant for clearly X-located traits. The discordance arises from alternate extremes of X inactivation. Monozygotic twin males will not have that option. Thus, a goodly amount of more recent data has been published.

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The sexes can differ not only on average scores on a trait, but, of course, in amount of variability. Lehrke (1978) suggested that M > F variability in I.Q. scores may be due to an averaging effect of the second X chromosome in women. Does anyone know of more recent data/theory regarding this?

Mike Mills
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The Evolution of Language Conference

April 6-9, 1998, London, UK.

Further information about this conference and an online version of our registration form is available at:

<http://www.uel.ac.uk/faculties/socsci/anthro/confreg.htm>

Please note the new deadline for abstracts is November 1, 1997.

Please E-mail any contributions to ascap@utmb.edu, or mail hard copy and 3.5" HD diskette to: Russell Gardner, Jr., c/o Frank Carrel, Department of Psychiatry & Behavioral Sciences, University of Texas Medical Branch, Galveston, Texas 77555-0428, USA. WordPerfect, Microsoft Word or ASCII format preferred. Diskettes will be returned to you. Thank you.

A Poor Evolutionary Strategy

He says that I outmatch a summer's day.
My warmness doth engender passion's heat.
What started with the easy face of play,
Now has my lover prostrate at my feet.

And I at his; this bond to me is all,
What lies outside are shadows without force.
My blood, long tranquil, when quickened by his call,
Soon has heart's heralds hastening through its course.

And yet this love will wither by degree.
We cannot grant the crowning touch it lacks.
No mirror shows what his mind's eye can see,
And, doubtless, my hopes far outstrip the facts.

These fantasies, cruelly, our limit's set:
Blind, sterile couplings on the Internet.

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Forward and Table of Contents for the October Special Issue of ASCAP

At the ASCAP Meeting this year, President Bailey supported the idea that there be a theme issue in which summaries of the day's proceedings each from 4-8 pages long be published (with some in other newsletter issues as required by the vicissitudes of contributions and space).

This idea was endorsed and discussed. It was decided that we would use the September issue. However, due to space limitations, only 5 articles could be included in the September issue. Here are the rest of them.

The papers being presented in this issue (along with authors' names and page numbers are):

John S. Price -- "Goal Setting in Psychotherapy: A Contribution from Evolutionary Biology" pages 8-11 references - page 28

Andy Thomson -- "The 10 (Plus) Commandments of an Evolutionary Forensic Psychiatry" pages 12-15 references ~ pages 28-29

Lynn O'Connor
& Jack Berry -- "More about Guilt, Depression, and Submissive Behavior" pages 16-18 references ~ page 29

The Bakkers - "Human Territorial Skills Training: A Practical Therapeutic Application of an Ethological Concept" pages 19-21 references - (none)

Leon Sloman -- "Evolutionary Principles in Psychotherapy; The Syndrome of Rejection Sensitivity" pages 22-25 references -29

The following were featured in the September issue:

Kent Bailey -- Welcome and keynote address. "Evolutionary Kinship Therapy: Merging Psychotherapy Integration and Kinship Psychology"

Helen Wood - "Staying in the "Therapy Zone": Kinship and the Art of Therapeutic Process"

Russell Gardner
& Vickie Butler -- "Managing the Unspeakable: Case Report of a Sociophysiological Treatment"

Dan Wilson -- "Inherent Advantages of the Manic-Depressive Polymorphism: A Guide to Psychotherapy"

Ferdo Knobloch - "Integrated Psychotherapy and Evolutionary Psychology"

We hope that all who read this special issue and the previous September issue will enjoy both of them. Much work by these authors went into the making of this special issue.



Goal Setting: A Contribution from Evolutionary Biology

" Please give me the strength to change what can be changed, and the patience to accept what cannot be changed, and the wisdom to tell the difference."

This is the chosen prayer of Alcoholics Anonymous, and, even apart from alcoholics, much of psychotherapy is devoted to helping patients with the components of this prayer. If there are no goals, there is no motivation. If goals are too high, there is failure. The process of achieving a goal which is seen as worth while and not easy to achieve, but not impossible, gives satisfaction and mental health. No controlled study has proved this, but common sense tells us that it is so.

Edward Bibring¹ was the first to emphasise that depressed patients can often be seen to be clinging on to unachievable goals. Klinger² suggested that the biological function of depression is to detach people from unreachable goals. This view has recently been repeated by Champion and Power.³ The unachievable goal is sometimes a representation of the ideal self, which may deviate so far from the real self that the resulting "credibility gap" is a source of stress. And so psychotherapy addresses itself to making the ideal self more realistic.⁴ In more behavioural terms, the object is to narrow the gap between aspiration and performance.

Our evolutionary approach can clarify the relationship between unachievable goals and mood change. To achieve this we need two concepts: the escalation/de-escalation strategy set⁵ and Paul MacLean's concept of the triune brain.^{6,7}

Depressed mood is a de-escalating strategy:

A common quandary of man and his ancestors has been the imminent collapse of an enterprise, in which the resources already invested seem not only

insufficient to complete the task but are themselves in jeopardy of being lost. In such a situation it has to be decided whether to invest more resources in the expectation of final success, or to cut one's losses and try to rescue whatever can be salvaged from the failure.

These two strategies, which are conveniently called escalation and de-escalation,⁵ are part of the inherited repertory of man, and come into the category of archetypes,⁸ evolved mechanisms⁹ or fixed (modal) action patterns,¹⁰ depending on one's discipline. We have proposed that the capacity for mood variation evolved in the context of this strategy set, elevation of mood being related to escalation and depressed mood to de-escalation.⁸

Depressed mood is a lower level de-escalating strategy:

Paul MacLean^{6,7} showed that the brain is not a single unit but has a three-level or triune structure. There is the lower level "reptilian brain" which occupies the corpus striatum; the middle level "paleomammalian brain" which is based in the limbic system; and the higher level "neomammalian brain" which is represented by the neocortex. Each brain contains its own "central processing assembly" or decision-making process for dealing with changes in the environment. For instance, in response to cold, the lower level may decide to shiver while the higher level may decide to switch on the central heating.

Clearly, the decisions at the various levels interact, in that turning on the central heating may either pre-empt or terminate shivering. In fact, if we were in the position of "treating" shivering, we might ask: "Why has this person not turned on the central heating?", rather than apply our remedies to the fasciculating muscles themselves.

In the face of social adversity, the higher, neocortical level makes what we would call a conscious or rational decision to escalate or de-escalate. Higher level escalation strategies involve "sticking to one's guns", deciding to "take the matter further" or even to go to "the highest court in the land"; higher level de-escalation strategies take the form of either acceptance/submission or escape/withdrawal.

At the middle or limbic level the strategy is manifested by emotion; escalation is characterised by anger or indignation; de-escalation is manifested by depressed or dysphoric emotion, which may take the form of shame, humiliation, guilt, fear or the sense of being chastened. In the lower or reptilian brain the strategy choice is between elevated mood and depressed mood. Elevated mood provides the basic resources for escalation such as energy, confidence, optimism and rapid decision-making capacity. Depressed mood blocks escalation by taking away these resources, and it also alters thinking and feeling in such a way that a higher level de-escalation strategy is more likely to be adopted.

Depressed mood can be conceptualised as the downgrading of three important biological variables: resource-holding potential, which is an estimate of fighting ability and is probably the primordium of human self-esteem; resource value, which is an estimate of the importance of whatever is being fought over; and entitlement, which reflects the state of ownership as opposed to that of being an intruder on someone else's territory.^{5,11,12}

The lowering of these three variables affects the climate of thinking in the higher brain, inclining it towards de-escalation. The drop in resource-holding potential favours an evaluation of not being able to succeed, the low resource value reduces the desire to succeed, and the low sense of entitlement gives the idea that the individual does not deserve to succeed. Thus, even if at the outset of the decision-making process, an escalating strategy is adopted at the higher level and a de-escalating strategy at the lower level, the influence

of the lower brain on the higher brain is likely to induce the latter to switch to a de-escalating strategy. As a result, in the normal course of events, there will be a coordinated, triune, de-escalating strategy, and the effect of this is likely to be to resolve the conflict and to exit from the social adversity. Then, its work completed, the lower level de-escalating strategy may remit.

If, however, for any reason, the "depressive" influence on the higher brain does not succeed in getting it to switch to de-escalation, the individual finds himself adopting incompatible strategies at the different levels, and, in particular, the reduction in resources due to the lower-level de-escalation prevents the successful prosecution of the higher level escalation strategy and he is caught in a chronic losing situation: the lower level de-escalating strategy becomes both intense and prolonged, and it is then that it is recognised as "illness" and given the label of depressive state.

Causes of strategy mismatch:

According to our model, the cause of depressive illness is not social adversity, or losing, or failing, because it is normal for human beings to lose and fail and to be confronted with adversity. Rather, the cause of depressive illness is the failure of the triune brain to coordinate its response to social adversity. A co-ordinated response ensures either success or successful withdrawal/submission. Often one finds that higher level de-escalation is being blocked for some reason, either in the patient or by a third party. For instance:

1. Higher level de-escalation is blocked by moral scruples.

When someone tries to maintain an impossible position, or clings on to an unrealisable goal, we call it courage or stubbornness, depending on whether or not we sympathise with the attempt. Pride, honour, and moral scruples are all reasons for continuing to escalate at the higher level in spite of crippling de-escalation at the lower level. Milton took on the monarchy, Darwin took on the church,

and many are the martyrs who have refused to bend the knee. Health is sacrificed to principles. We have described a case in which the patient refused to join his work colleagues in dishonesty, was punished by them and suffered depressive illness as a result.¹³ Anthony Trollope provides a paradigm of self-destructive stubbornness in his novel, *He Knew He Was Right*. In such a case the therapist is in the position of the medical attendant of a boxer who insists on fighting more powerful opponents.

In other cases, the unrealistic aspiration may be to carry on life normally in spite of illness or disability. Here the doctor needs to make clear to the patient what should and should not be attempted. In the case of the depressed patient who is working longer and longer hours in an attempt to compensate for depressive slowness and lack of concentration, it is useful to use the analogy of a broken limb, and to say that the mind should be in a plaster cast until it is time to start a gradual rehabilitation.

2. Higher level de-escalation blocked by ignorance or misunderstanding.

Human submission (unlike animal submission) involves obedience, or actively doing what the other person wants. Sometimes this is impossible. A dominant husband may insist on an enthusiastic sexual response, a dominant wife may require that her husband give up an involuntary tic. Sometimes the patient does not know what to do to please the other: a husband did not want his wife to work because he was afraid she would meet attractive men, but he was ashamed to confess this fear, and so he criticised her for laziness and stupidity until her depression made her unfit for work.

3. Higher level de-escalation blocked by a third party.

A wife wanted to please her husband, who insisted that she be at home on Saturday; but her mother, who was even more powerful than her husband,

insisted that she visit and do chores for her on Saturday. Submission to one involved resistance to the other. She wanted to de-escalate in the two most important relationships in her life, but she was not allowed to. In this case the depressive illness remitted when her mother died.

4. Sometimes the patient wishes to escape from an intolerable situation but cannot do so.

Extreme cases are represented by hostages and torture victims, but minor domestic forms occur in the school playground, the prison cell and even in the nuclear family. An emotionally battered wife may be unable to leave because of fear, or because of love for a child.

5. Middle level de-escalation blocked by a sense of injustice.

Many patients suffer insults and wrongs which they cannot let go because of resentment or anger over the injustice of it all. Recent cases of this kind in my clinic include people sacked unfairly from their jobs, a father accused of sexually assaulting his daughter, and parents who feel the education authority has failed their children in some way. These people feel beside themselves with anger, seething with murderous rage.¹⁴ Even if they choose to de-escalate at the higher level, they are still escalating at the middle level of emotional reaction, and this prevents the resolution of the lower-level de-escalation.

Identifying the conflict:

At the higher level, there are many areas of life in which escalating and de-escalating strategies are carried out independently; for instance, one may be escalating one's love life by pursuing an affair, while de-escalating one's parental relationship by agreeing to give up smoking. At the middle level of emotional response, there is still some variety, in that one can be depressed about one issue at the same time as being angry about another - one can even be angry and depressed about the same issue. But at the lower level, the strategy is

unfocused; it is an all-or-nothing matter, and affects all activities and strategies. Depressive mood is pervasive. How does one decide which of the higher level escalations is producing a situation which is causing this lower level de-escalation? This is one of the skills of the psychotherapist. Suffice it to say that it usually concerns one of the patient's salient goals or relationships. The connection between the blocked goal and the depression is often not apparent to either the patient or to those close to the patient. c8

TABLE 1: Strategies to deal with social challenge or adversity: escalating and de-escalating strategies at the three levels of the triune brain (neocortical, limbic and striatal). From Stevens and Price.⁸ Striatal de-escalation plus limbic escalation = the hostile depressive.¹⁴ Striatal de-escalation plus neocortical escalation = Edward Bibring's¹ depressives who cannot give up unrealisable goals. Striatal escalation plus limbic de-escalation may give a mixed affective state.¹⁵

Table 1 - Alternative strategies for dealing with social adversity

| Brain level | ESCALATING | DE-ESCALATING |
|---|--|--|
| HIGHER LEVEL (neocortical) | Conscious decision to fight, to win, or pursue goal | Conscious decision to give up, submit, or escape |
| MIDDLE LEVEL (limbic) | Be: angry Indignant envious resentful | Be: chastened put down humiliated (depressed emotion) |
| LOWER LEVEL (striatal) | Increase of energy and confidence (elevated mood) | Reduction of energy and confidence (depressed mood) |

Psychotherapy for People with Depression Home Page

<http://www.psycom.net/depression.central.psychotherapy.html>

Contents of this Home Page:

- Major types of psychotherapy.
- Training in cognitive therapy for therapists.
- Books on cognitive psychotherapy.
- What is cognitive-behavioral psychotherapy?
- Psychotherapy vs. medication for depression.
- A computer-based cognitive therapy program for depression.
- Psychotherapy for people with heart disease and depression.
- The integration of psychotherapy & psychopharmacotherapy.
- Is psychotherapy effective?
- A newsletter on cognitive psychotherapy.
- An introduction to cognitive psychotherapy.
- A multimedia site devoted to cognitive Psychotherapy

ARTICLE:

by J. Anderson Thomson, Jr.

The 10 (Plus) Commandments of an Evolutionary Forensic Psychiatry

There is now a body of work in evolutionary psychology and psychiatry substantial enough to apply it more systematically to particular disciplines of our clinical work. The evolutionary perspective now serves as an additional lens in all areas of my practice, and my work includes psychoanalytically oriented individual therapy, psychopharmacology, diagnosis and triage of students at a large university, and forensic psychiatry.

I have two forensic practices. One is at a community mental health agency, evaluating defendants who are chronically mentally ill patients with property misdemeanors and young men charged with domestic violence or some form of sexual misconduct. The second one is a private forensic practice in partnership with a clinical psychologist. Our cases are usually major felonies, particularly capital murder.

My focus in this presentation will be the impact of evolutionary thinking on forensic psychiatry. It is an honor and a pleasure to present this material at my first ASCAP meeting and in the presence of several of the people whose writings have shaped my thinking.

The importance of an evolutionary perspective extends beyond enhancing our understanding of a criminal defendant's behavior. An evolutionary viewpoint blunts the worst counter-transference responses which occur in those responsible for evaluating and treating individuals in the criminal justice system. This may be its greatest contribution. Severe unexamined counter-transference responses skew evaluations, alter testimony, and, as we all know, interfere with treatment. Our new knowledge lends itself to "ten commandments" which, if kept in mind by the forensic clinician, can act as a universal acid against illusions and wishful thinking about human nature. These protect the

forensic clinician from dehumanizing the defendant and may broaden the formulation of the defendant's actions. Only if the clinician can come to terms with the terrible aspects of human nature represented in criminal behavior, can he or she offer truly objective assistance to the defendant, his legal counsel, and those empowered to render justice.

I. We are not fallen angels, but risen apes. Man has been favored by natural selection to hate and kill his enemies. Killing can and has increased reproductive success, and it has been favored, especially if it is safe for the killers.¹

It is important to see violence not as an aberration, but as part of the inherited architecture of the human mind. If not seen as something common to us all, a defendant may be stigmatized by clinicians and attorneys entrusted with his defense.

II. Males are violent by temperament.²

Men are primates. They inherit the typical set of mammalian aggressive behaviors, and are temperamentally shaped to use violence effectively. By temperament I mean the predictable emotional reaction to specific situations. Ninety plus percent of violent offenders in the criminal justice system are male. Yet in our theoretical discussions and our metapsychologies we continue to speak of aggression in vague, gender neutral terms. Understanding that violence is a function of male temperament eliminates the mechanistic drive theory of aggression. That old theory tends to isolate savagery from human nature, buttress our denial of brutality in *all* men, and strengthen our wish to disassociate ourselves from malevolence.

III. A man's reputation depends in part on maintaining a credible threat of violence.³

This is particularly important to bear in mind when evaluating or treating a criminal defendant whose macho posturings are hostile, irritating, or seemingly ridiculous. Remember that these behaviors may be exaggerated out of fear, and a clinician's contempt will only lead to his further denigration of the defendant.

Such a counter-transference response is based on a denial of our own posturing. My exercising seven days a week is rationalized to anyone who asks in terms of "avoiding heart disease, good relaxation," etc. At bottom I'm trying to maintain a warrior stance. "Don't mess with me."

Allow me to give another example. A physically slight and mild mannered male colleague, who is psychoanalytically oriented in a department which is rapidly changing its orientation, was asked what he was going to do in the face of departmental pressures. He is nationally and internationally known, and he said he didn't feel particularly concerned at the moment because, "I have friends in high places [in the psychoanalytic world]." This was just a subtle version of "My Uncle Vinny in New Jersey is looking after me."

IV. If theft were related to poverty, the majority of thieves would be women.⁴

Courts and prosecutors focus on economic motives, and defense attorneys as well will want to explain their client's behavior exclusively in narrow economic terms. Although this has always been the case, it seems to have increased as a result of the broad influence of the University of Chicago Law School and their law and economics theories for all areas of law and human behavior, including criminal justice.

It is incumbent upon the forensic clinician to strive for the fullest explanation of the behavior in question, and an evolutionary perspective provides a much needed antidote to the purely economic thinking. (See Commandment IVa.)

IVa. Poor young men with dismal prospects have good reason to escalate their tactics

of social competition and become violent. Dangerous tactics are going to be prevalent where the probability of reproductive failure is high.⁵

All men gain reproductive success by procuring and displaying resources in excess of their own subsistence needs.⁶ Every man will turn to violence, direct or indirect, in pursuit of status and resources. What all men are competing for, both immediately and ultimately, is control over women's reproductive capacity.⁷ Willy Sutton may have answered the question of why he robbed the Brink's bank by saying, "That's where the money is." But, his full answer is, "That is where the money is, and if I can secure that much cash, my inclusive fitness will be significantly enriched."

V. Battering, sexual assault and rape are evolved mechanisms of the male mind. The primary aim, even in rape, is not fertilization, but control of the woman and ultimate fertilization later.⁸

The sexual coercive hypothesis of Barbara and Robert Smuts may be repugnant to some, but in my clinical experience it is true. The reality is that most sexual coercion, even rape, occurs between individuals who know each other. We know that there is an under reporting of date rape and marital rape. The function of sexual aggression is to remind the partner/victim of the male's power and to indicate that the safest route for protection and survival is to bond with that violent male. The unvarnished truth is that over evolutionary time, with our primate kin and with man himself, coercion has worked. A direct clinical example of this comes from three *sequential* cases at a community mental health center. Three men were psychiatrically evaluated subsequent to being charged with rape. Each of the men had been apprehended when several days after raping women previously unknown to them, they had returned to their victims and asked them for a date. The untutored counter-transference response in each case was a roiling of eyes and saying, "Geeeeeeezus, do you believe how stupid these guys are?" The stupidity was on

the part of the examiners who did not realize that the rapes were a strategy by the perpetrators to bind the women to them, and they were merely following up under that automatic evolved unconscious program.

We frequently treat sexual violence as if it were something bizarre or unusual, and I think again that this may distort counter-transference responses and thus the evaluations and treatment. Relationship violence is not bizarre, but actually arises from our being intelligent creatures. We have a social intelligence that allows us to know personalities, to remember, to give meaning to behavior, and to change tactics to try to alter another's behavior.⁹

VI. Parent offspring conflict is inevitable and a bone of contention through all stages of life.¹⁰

Always keep this in mind, regardless of the complexities of a case. For example, a nineteen-year-old young man, Willy G., and his younger half brother, Chris G., were charged with capital murder after slaying their father, Mr. Gary G., and taking his gun collection. The defense theory of the case was that Willy was acting to save his younger brother Chris from the father's sexual assaults. The sexual abuse of Chris by Mr. G. was similar to what Willy had suffered at the hands of the father. The history of Willy's earlier abuse was true and medically documented. The deceased had physically and sexually abused all his children (three boys and one girl), as well as some of his step-children. Yet, the facts of the crime did not fully fit the theory.

During the days prior to the murder, Willy had been attempting to garner his father's affections by buying his father new clothes with his meager earnings from the sale of a motorcycle. The father insisted that Willy leave the house and find another place to live. Chris was to remain. In the background there was a clear conflict over the allocation of parental resources. The boys waited for their father to return from a trip, Willy shot him first, and initiated taking the father's main asset, a large and valuable gun collection.

VII. Male sexual jealousy and proprietariness is the dangerous issue in domestic violence and fuels much other male violence.¹¹

The case of O. J. Simpson is the obvious example, and the theme of potential sexual jealousy has been noted in commentaries and tasteless jokes. Male sexual jealousy is an unappreciated aspect of Lee Harvey Oswald's motivation in assassinating President Kennedy. (The evidence that Lee Harvey Oswald acted alone is overwhelming and incontrovertible.)¹²

In January 1963, Oswald's Russian wife, Marina wrote a letter to a former lover, Anatoly Shpanko, which Oswald discovered. It devastated him. Shortly thereafter she admitted to him her unfaithfulness with yet another man, Leonid Gelfant, several months after Marina and Lee were married in 1961 and while she was pregnant with their first child. It was shortly after learning of these events that Lee Harvey Oswald ordered the rifle which was initially used in an assassination attempt on General Edwin Walker and later on JFK.

Marina Oswald constantly asked about John F. Kennedy. She hung JFK's picture in their apartment, a picture which served as a reminder of her former love, Anatoly. And, she admitted after the assassination that she was also in love with JFK.¹³

VIII. Revenge and retaliation are evolved aspects of the human mind. The purpose is to convince a rival that he can exterminate one only at unacceptable cost to him.¹⁴

All too often revenge as a motive is seen as something aberrant or inexplicable. We forget that deterrence and retribution are not opposites and that our very system of justice is based on retribution.

IX. Violence breeds violence by raising the perceived risk of non-violence.¹⁵

All too often causes of violence are ascribed to imitation or desensitization or cultural conditioning —

too much television. This commandment is essential to understanding group crimes. For example, a sixteen-year-old young man, Shawn C., was charged with capital murder. With his best friend, he had murdered a pizza store owner who had employed and fired Shawn's best friend. The community was puzzled by the sixteen-year-old's participation in the crime and sought explanations. The facts of the case strongly suggested that Shawn felt that being non-violent posed a much greater risk to him. Chris G. in the case illustrating **Commandment VI** was probably in a similar situation, to not follow Willy in firing at their father would put him at risk.

X. Mental phenomena arise from the brain and mental experiences affect the brain.¹⁶

The mind/brain gap is lessening. Although it may present problems for courts and the legal philosophy about human responsibility, much criminal misconduct is less character "badness" and more neurologic impairment over which the defendant has had no choice.

Early abuse affects brain development and function. The abuse disrupts normal stress responses. The orbital frontal cortex which regulates attachment requires the early somato-sensory bath called love in order to be brought "on line". When there is neglect and abuse, particularly in the earliest years, there can be significant harm to developing the neurologic capacity for attachment and empathy. An inability to extinguish fear may also be a result.

Abuse may also damage those areas of the frontal lobes which are involved in rules and flexibility of rules. The individual cannot ignore or discriminate between irritants and may live life on a hair trigger.

XI. Ego defenses are evolved adaptations to facilitate deception and self-deception for the purpose of preserving relationships.

Nesse and Lloyd's¹⁷ paper remains the most

influential single work in my approach to patients. Having trained in a classic psychoanalytic view of intrapsychic conflict, I think their ideas liberate that theory from its errors, ground observable psycho-dynamic mechanisms in evolutionary biology, and provide a more effective framework for our clinical interventions.

The criminal defendant will often use very primitive defense mechanisms. But, when viewed from the Nesse/ Lloyd standpoint of preserving relationships, greater insight into their behavior can be obtained. Willy G.'s self-deception about his motives, insisting they were altruistic desires to save Chris, preserved his relationship with Chris, suppressing his competitive conflict with Chris over parental resources.

XII. When you hear hoofbeats do not think of zebras.

This rule suggests a tragic recurrence of motivation in most criminal misconduct. One should be very careful about assuming something that is an exception to the usual. In a recent newsletter,¹⁸ the case of Darlie Routier was discussed. She stabbed to death her five and six-year-old sons. She is twenty-seven and her husband is twenty-nine. She was not psychotic. A third child, a one-year-old remained alive. The discussion suggested that she was "an outlier of impressive deviancy".

I would submit that when all the facts of her case are known, her motivation will fit the usual motivation for infanticide. For example, she may have been involved with another man and perceived her children as reducing the likelihood of a reproductive relationship with her lover. Whether or not that speculation is true, we should wait before concluding that a criminal defendant's behavior is different from the usual motivation for murder, rape, infanticide, theft, etc.

These 10 plus commandments of an evolutionary forensic psychiatry help focus the examiner on likely motivation. They also mitigate against destructive counter-transference responses which can skew an evaluation, testimony, or treatment. c8

More about Guilt, Depression, and Submissive Behavior

In a recent series of studies, we examined the relationship between interpersonal guilt, depression and submissive behavior. In the first study which we discussed in the March 1997 *ASCAP Newsletter* we found that people who were highly prone to feeling guilty about being better off than others --that is people who are high in what we call survivor or outdoing guilt -- were likely to engage in submissive behavior. These results were congruent with our experience as clinicians, and with our theoretical perspective. In the following note we summarize the clinical theory that underlies our research and some preliminary results from our most recent study of guilt, depression and submissiveness.

Our study of interpersonal guilt --and particularly survivor/outdoing guilt and omnipotent responsibility guilt-- grew out of our prior research related to emotions, along with our clinical interest in the theory of psychopathology and psychotherapy often referred to as Control Mastery Theory. Developed by Joseph Weiss² and tested empirically by Weiss, Sampson, and members of the San Francisco Psychotherapy Research Group,³ this theory suggests that people are inherently organized to want to pursue normal developmental goals, and that as the result of disturbing childhood experiences, they may develop inhibiting beliefs that stop them. We call these beliefs pathogenic, because they lead to inhibitions and psychological problems. Pathogenic beliefs are grim and constricting. They predict danger for the person holding them, and often, for someone they love. For example, a person may have the pathogenic belief that if he has a successful career, he will make his unsuccessful father suffer. Or he may have the pathogenic belief that if he is happily married, he will make his unhappy and unmarried sister feel terrible by comparison. Or he may have the pathogenic belief that he deserves to be rejected, because he was rejected by his parents. Pathogenic beliefs

are not gratifying in any way, and people are always looking for ways to get over them. And psychotherapy is one of those ways. To this end, people come into therapy with a plan -which is often unconscious- to modify their pathogenic beliefs and overcome their problems. In therapy, patients test out these beliefs with their therapist, and the task of the therapist is to help the patient change these beliefs. The idea that patients come into therapy with an unconscious plan is based on an important assumption about how the mind works. In our view the Freudian assumption that the unconscious is chaotic and disorganized -- the seething caldron perspective of unconscious mental functioning- is questionable. It seems highly unlikely that evolution would have selected an inherently self-destructive, anti-social and disorganized unconscious. Based on work with patients as well as the growing literature in cognitive science, we assume that the unconscious mind is organized and organizing, and that people think and plan unconsciously, much as they do consciously; they take in information, organize it, assess it for danger and safety, and then make decisions and take actions, in accord with this assessment. This very much applies to the patient in therapy. The patient is always assessing the therapy situation, the setting and the therapist, for danger and safety. When the patient feels safe, he tells the therapist his secrets, he reveals his feelings and experiences, he tests out his pathogenic beliefs and makes progress. When the patient feels endangered, he backs off, does little self-disclosure or testing, and fails to make progress. And most of this goes on outside of conscious awareness.

In working with patients using this theory, we are particularly struck by the frequency and importance of the pathogenic beliefs linked to survivor guilt, for example the pathogenic belief that tells a person that if he is successful, he will hurt someone he

loves, by making them feel inadequate by comparison. We frequently observe the importance of outdoing guilt in many of our patients. We also see how empowering it is to patients when they became aware of this kind of guilt and its effect on them. When we first focused on survivor guilt/outdoing guilt, we found ourselves noticing it everywhere; people's reactions to a friend's illness, to homeless people on the street, to anyone's misfortune. While some of this kind of guilt seems to be within the norm and most likely relates to the maintenance of relationships and possibly to group and social organization, in many of our patients it appears excessive and linked to irrational pathogenic beliefs, inferred or learned directly, from childhood experiences. In order to pursue the empirical investigation of this kind of guilt that we find so important in our psychotherapy patients and that's emphasized in our theory, we developed a measure of interpersonal guilt, the Interpersonal Guilt Questionnaire-67, and began what has become a program of research, involving by now over a thousand subjects and many studies conducted by ourselves and our students.⁴ Our research has supported our theory and our clinical observations, that interpersonal guilt and particularly survivor/outdoing guilt, or fear of harming others simply by being successful or happy, is highly correlated with many types of psychological problems, including depression and low self-esteem.⁵

Meantime data from all of our early studies were also demonstrating that all of our subjects reported at least some degree of proneness to survivor/outdoing guilt and we began to try to formulate it from an evolutionary perspective. We found ourselves intrigued by the discrepancy between the perspective on depression developed by evolutionary psychologists and psychiatrists,^{6,7,8} that is depression as a self-protective strategy involving an involuntary yielding in a losing situation, and our own, that is depression as a strategy to reduce the guilt a person may feel when they believe they are better off than someone they love. Both perspectives attempt to understand depression as an adaptive strategy; but they differ in the proximate causation. In the involuntary yielding perspective on

depression, a depressed person is primarily self-protective, whereas in the guilt-based perspective on depression, the depressed person is driven by concern about another. We decided to investigate this using a measure of submissive behavior. While we thought that submission is often, on the face of it, clearly related to yielding in a losing situation and fear of harm to the self, like depression it might also be related to survivor/outdoing guilt or fear of harm to others. We concluded that this might be an interesting way to approach some fundamental questions about human motivation and behavior from both an evolutionary and Weissian-informed clinical perspective.

Specifically we were interested in finding out if submissive behavior, in addition to being a response to an agonistic interaction with a higher ranking or more powerful person, might also be something a person might do in reaction to worry about harming another. That is, a person might behave submissively in order to keep another from feeling lesser than, or inadequate, that is for altruistic rather than selfish reasons. We reported on the results of our first study in *The ASCAP Newsletter*.¹ To review, this study demonstrated that submissive behavior may in some cases be related to fear of harm to the self -that is a reaction to a threat from another person- but equally important, it may often be related to the fear of harming another. The results of this study also demonstrated, as in our prior studies, that survivor guilt is associated with depression. In preparing to present this data for publication, our reading went back to primate studies and anthropology, and following the leads in de Waals^{9,10} and others, we found reports of what we think may be antecedents to survivor guilt in higher primates -we found reports of chimpanzees and Bonobos sharing food with those without, and reports of begging behavior in these higher primates, and what might be seen as a guilty response to begging. After discussions with Paul Gilbert, we decided to conduct more studies to pursue this line of thinking, to further explore the relationship between submissive behavior, survivor guilt and depression. Gilbert was thinking that what we were considering to be survivor guilt might

actually be a manifestation of the fear of envy, and not necessarily about fear of harm to others. He questioned how survivor guilt relates to empathy. We were back and forth about unconscious motivation, trying to figure out how to explore it.

Our theoretical perspective leads us to focus on the significance of worrying about the other –true altruism- as a primary human motivation, whereas prior studies on submission informed by an evolutionary perspective have focused on worry about the self. In work with our patients, we were convinced that in fact they often sacrificed their own protection in their efforts to protect others, although often unconsciously. In collaboration with Gilbert, we jumped into our next study, using our measure of guilt, a measure of submissive behavior,¹¹ the Beck Depression Inventory, the Fear of Negative Evaluation scale,¹² a measure of social anxiety,¹³ and Gilbert's fear of envy items. In addition we used a measure of empathy.¹⁴ We have two populations, one a group of students, and the second, psychiatric patients. We have some of the results from the students. A preliminary look at these results suggest that, when controlling for fear of negative evaluation - or fear of harm to the self - there may be a strong association between survivor/outdoing guilt and submissive behavior and guilt and depression in men, but not in women. Thus it appears that in this sample, women may be depressed and submissive in response to what they perceive as an external threat, whereas men may be depressed

and submissive in response to worry about surpassing others. The following table describes our preliminary data analysis.

We are eager to see the results from the data now being collected by Gilbert from a psychiatric population, and to continue analyzing the data from both populations. We are currently reviewing cross cultural literature in an effort to better understand survivor/outdoing guilt from an evolutionary perspective. In our culture, when people come into therapy they are often aware of their shame, of their feelings of inadequacy, their feelings of being one down, lesser than other people. What they don't seem to be so aware of -or they aren't able to talk about until they've been in therapy for a while- is how much they have sacrificed, and essentially put themselves in this one-down position, in order to take care of someone else, or make someone else feel "better off". Virginia Morgan who is now studying outdoing guilt in Sweden has described how much more conscious it is in Swedish culture (personal communication). We are hypothesizing that if people were more conscious of survivor/ outdoing guilt, they would be unable to move in the individualistic and highly competitive style required to be successful in our culture. Our reading of the literature suggests that survivor/outdoing guilt may have been adaptive for the social structure of the EEA,^{15,16} but has become a source of inhibitions in many modern cultures. We are continuing to pursue this research and welcome any thoughts about it. c8

Partial Correlations from Prediction of Submissiveness and Depression from Survivor/Outdoing Guilt and Fear/Threat Measures.

| | Submission | | Depression | |
|-----------------------------|------------|--------|------------|-------|
| | Men | Women | Men | Women |
| Survivor/Outdoing Guilt | .52*** | .02 | .25 | .13 |
| Fear of Negative Evaluation | .20 | .47*** | .27 | .22* |
| Survivor/Outdoing Guilt | .53*** | .13 | .31* | .18* |
| Introversion | .25* | .51*** | .12 | .22* |
| Survivor/Outdoing Guilt | .57*** | .11 | .40" | .19* |
| Social Anxiety | .13 | .26** | -.19 | .05 |
| Survivor/Outdoing Guilt | .44" | .01 | .27 | .13 |
| Fear of Envy | .28* | .25* | .14 | .14 |

Human Territorial Skills Training: A Practical Therapeutic Application of an Ethological Concept

Introduction:

The study of evolution provides us with an increasing understanding of both the form and the function of specific clusters of behavior. Comparisons across species reveal common patterns and stimulate observations, which extend our understanding of human behavior, and create opportunities for therapeutic interventions.

Over the last twenty-five years, we have designed and developed a skills program, based on ethological concepts, and aimed at correcting and/or improving an individual's ability to manage interpersonal transactions. The following is an overview of:

1. How the program evolved.
2. The manner in which the program is presented to the client-student, and
3. Some observations as to how ethological concepts and studies can significantly enhance the individual's quality of life.

The origin of our program and its conceptualization:

In 1970, we initiated an experimental educational program at the University of Washington School of Medicine, Department of Psychiatry, entitled the Adult Development Program (ADP). The intent of the study was to explore the practical limits of assisting people in making major changes in their lives by means of education, coaching, and training. It appeared conceivable to us that a major source of "psychiatric" problems might lie in the interpersonal realm. We, therefore, focused our attention on various aspects of interpersonal interaction - a major one of which was interpersonal conflict.

To both study conflict and develop a systematic approach to resolving it, we conducted groups in which students participated by resolving their own interpersonal conflicts. In the group, in which students presented troubling interpersonal conflicts, we noted that most conflicts could be described in terms of each individual's personal style, the manner in which the conflict was fought, and vaguely described issues of right versus wrong.

Ongoing scrutiny of the interpersonal conflicts considered in these groups made us increasingly cognizant that most arguments were about prerogatives, rights, turf, or more generally "who owned what!" Through this recognition, our long-standing interest in ethology became focused on relevant behavior patterns, notably evident in many species, that could be summarized under the rubric of "territoriality".

Consideration of the territorial behaviors in various species persuaded us to investigate further such behaviors in human beings. This knowledge guided our observations of "humans-in-conflict". We looked at the specific behavior patterns in which humans signaled or advertised ownership, the ways in which they defended their turf, as well as their strategies for acquiring territory owned by others. We also recognized that the "sense of ownership" -which can be characterized as the emotion that lies at the heart of territoriality - encompasses far more than actual square footage of real estate.

Human beings, with their genius of abstraction, have an enduring sense of ownership over such things such as ideas (cf. copyright), prerogatives, functions, access, status, etc. With humans, as with other species, many of behaviors specifically indicate ownership issues. In fact, human territorial behaviors are so pervasive that they usually go unnoticed except in cases of agonistic and disrupt-

tive behavior. It is interesting to note that all criminal and civil law is about human territorial behavior. Our U. S. Constitution and laws spell out our rights and obligations. Etiquette and protocol are concerned with the prevention of interpersonal antagonism and offense caused by one person undermining the status rights of another. We detailed our preliminary observations on these behaviors and the impact they exert on individual and civic life in our book, *No Trespassing! Explorations in Human Territoriality*, (Chandler and Sharp: San Francisco, 1972). Of particularly relevance to our present topic is the therapeutic, clinical body of work we created using the insights inspired by an ethological perspective.

Human Territorial Skills Training:

Observations on ways in which group members handled their interpersonal conflicts revealed great variations in individual ability as well as outcome. Simply put, certain people handled conflict much better than others. Some individuals, who were consistent losers in any territorial struggle, ended up as depressed, demoralized victims. Others seemed to win many battles but at the cost of losing friends. In short, we recognized that the implementation of basic territorial tendencies involved specific territorial skills, which were not equally acquired in the course of a person's upbringing. In fact, many of the serious problems that affected the individual's life seemed to be the result of inadequate or dysfunctional territorial behaviors. Based on these considerations, one of us (MKB-R) set out to develop a specific training program to assist people to learn more effective means of dealing with interpersonal conflict. The skills taught discretely target the identified territorial tasks. Thus, the skillful territorial player is able to:

1. Successfully defend owned territory in a firm, non-antagonistic fashion (Assertion Training).
2. Obtain territory owned by others while promoting interpersonal good will and cooperation (Congressional Training), and

3. Manage interpersonal relations through social contact and alliance making (Affiliation Training).

One of the great advantages of having the ethological conceptualization is that the principles involved are readily understood and provide the student (as the person seeking such training is acting as a student rather than a patient) with a logical foundation for the behaviors he or she is learning to use. Thus, Assertiveness Training (Territorial Model) differs from the usual type of assertiveness training in that one only defends territory, which one rightly owns already. Assertiveness is never appropriate for use in obtaining rights to things one "wants to have" or feels one "should have" (things that still belong to someone else). Training which fails to distinguish between ownership and non-ownership can best be characterized as "obnoxiousness training".

Being familiar with the literature created by ethologists also readily led to the effort of defining specific functional and dysfunctional behaviors based on observations on individuals who were either exceptionally capable or amazingly deficient in territorial skills. Thus, the content of the training program having become increasingly specific and detailed has had extensive application in a variety of locations over the past twenty-seven years.

The role of feelings and emotions in territorial behavior:

Our focus on interpersonal conflict from an evolutionary-biological standpoint also has had the advantage of gaining a perspective on the role which feelings and emotions play in guiding our behaviors along the patterns that have evolved as functional for our species. Feelings such as anger (the burglar alarm) as evoked by an unwanted intrusion on our turf or the feeling of guilt (burglar's unease) when we realize that we intrude on the turf of another are easily understood. This in turn leads to logical strategies for therapeutic interventions. The wedding of concepts from evolutionary biology and the techniques of training individuals in

effective living skills have been of great heuristic value. Recognizing the role of feelings and emotions in the process of guiding the individual into carrying out behaviors which are essential for effective functioning fosters a realistic view of the potential for changing behavior.

To deny the basic territorial nature or our make-up or to lack the skills to successfully implement it is one of the major sources of problems, which bring a person to the office of a therapist.

Conclusion:

While this is not the place to discuss these issues in greater detail, it would seem that our experience over nearly the past 3 decades shows ways in which the concepts, as well as the observational methodology of the evolutionary biologist, can provide ideas and practices bearing fruit for the psychiatric goal of enhancing the quality of individuals' personal life.c8



Ethology and Psychopharmacology

**Edited by S.J. Cooper, University of Durham, UK
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Evolutionary Principles in Psychotherapy: The Syndrome of Rejection Sensitivity

Depressive disorders are commonly associated with a preexisting sensitivity to rejection that was responsible for their vulnerability to this illness. Sensitivity to rejection also leads the individual to overreact to real or imagined putdowns or rejections with rage reactions, pointless power struggles or other "immature" behaviors. A better understanding of the mechanisms that underly rejection sensitivity should be of great value in the primary prevention of depressive illness and could also assist in the treatment of a variety of dysfunctional behaviors.

Donald Klein, in 1979, originally introduced the syndrome of hysteroid dysphoria, characterised by heightened pain in response to loss.¹ He highlighted the physiological underpinnings by showing that, after being given MAO inhibitors (antidepressants), the subjects no longer became dysphoric on loss of admiration, or in response to the kind of rejections that would previously have elicited the dysphoric reaction.

Klein subsequently renamed the syndrome "rejection sensitive dysphoria". Klein saw the pattern of response to loss as a critical factor in shaping personality, self-image, habitual behavior and symptom complexes. Peter Kramer subsequently broadened this concept of "rejection sensitivity" to include those who seek attention through seductive behavior and those who feed "applause addiction" by competitive behavior. He also included those who react to this negative feedback by social avoidance and by disregard for self associated with low self-worth.²

Peter Kramer provided an anecdotal account of the efficacy of SSRI's in treating rejection sensitivity, but also acknowledged the role that psychotherapy can play in some of these patients. One of the

drawbacks of using SSRI's is that many people with "rejection sensitivity" do not see themselves as ill, which makes them resistant to the idea of taking medication.

I now plan to demonstrate how an evolutionary perspective enables us to delineate biological subordinate mechanisms that play a pivotal role in rejection sensitivity. Though these mechanisms normally have an important adaptive function, they can, in certain circumstances, become maladaptive, just as inflammation, which plays an essential role in the fight against infection, can become so severe that it becomes more maladaptive than adaptive. Subordinate mechanisms become maladaptive, when they are prematurely triggered causing the individual to overreact to a real or imagined slight. One possible analogy would be fear, which serves the valuable function of alerting us to danger, but, when the fear becomes excessive, it can also have a paralysing effect.

I will first describe the normal functioning of the subordinate mechanisms and then go on to explore some of the factors that contribute to the premature triggering of the subordinate mechanisms, which is characteristic of rejection sensitivity.

When one participant in an agonistic encounter recognises that his opponent is gaining the edge, he may initially react with increased anger, which usually generates greater effort to succeed. If one continues to fail, despite one's best efforts, the recognition of the inevitability of defeat leads to a triggering of the Involuntary Subordinate Strategy (ISS). When the ISS is effective, the feelings of helplessness, hopelessness and inadequacy and the psychomotor retardation that are associated with the ISS will trigger either escape, or submission and psychological acceptance of the subordinate

role. This serves the function of bringing a potentially damaging encounter to a more rapid and peaceful conclusion.

This resolution of the conflict leads to a termination of the ISS, which frees the individual to pursue other interests. Some people, particularly young children, find that a dramatic display of helplessness elicits support by playing on the sympathies of the other person. This may serve to strengthen the ISS, and, if this becomes a habitual way of relating for that individual, that individual's ISS will continue to be readily triggered and this may play a role in contributing to "rejection sensitivity".

Rejection sensitivity tends to be associated with a fear of humiliation that causes the individual to be exquisitely sensitive to real or imagined slights. Feeling rejected means that one feels rebuffed, dismissed, spurned, or that one sees oneself as the object of disapproval. It has been suggested that these individuals are so perceptive that they are able to recognise subtle cues of rejection, but a more likely possibility is that these individuals perceive rejection, where none exists, and magnify the importance of minor rejections. If the individual has an ambivalent type of insecure attachment,³ which is associated with a need for constant reassurance that (s)he is loved, the failure to receive such reassurance is likely to trigger feelings of rejection.

The initial feeling is likely to be rage or anger, but the person feels that the direct expression of this anger towards the person, who triggered the anger would only intensify the initial rejection. Because the anger is directed at someone, who is more powerful (because the other person has the power to reject), the individual feels that he or she is being forced into a struggle that he or she cannot win. This leads to the triggering of the ISS that is triggered by the perception that one has either lost, or will inevitably lose an agonistic encounter. Individuals with rejection sensitivity tend to have too much anger or resentment, which means that the anger or resentment persist despite the

activation of the ISS. Because the ISS fails to generate submission and psychological acceptance, the conflict remains unresolved. This individual continues to feel that (s)he is engaged in a futile struggle resulting in a continuous activation of the ISS. A persistent ISS may manifest as chronic depression with low self-esteem.

Because of their sensitivity, they react with anger to any perceived criticism or rejection. If they feel too inadequate to express this anger, it may lead to an escalation of the ISS. This creates a self-perpetuating vicious cycle that manifests as "rejection sensitivity". When a major escalation of this vicious cycle occurs, this can culminate in a major depressive episode.

Biological factors may play an important role in contributing to rejection sensitivity. Jerome Kagan⁴ has shown that some infants are born different in terms of the reactivity of their stress-hormone systems and they are therefore more sensitive than others to separation from their mothers. These infants exhibit a greater variability of their heart rates in stress situations. Stephen Suomi⁵ also found that some of his Rhesus monkeys were temperamentally more anxious and "uptight". Experiential factors also play a role in the genesis of rejection sensitivity. These include physical and emotional abuse and an authoritarian upbringing. These experiences can all contribute to a premature triggering of the ISS in later life

The dysphoria in rejection sensitivity may be elicited both by put-downs and by loss of affection. Though these two stresses appear dissimilar, loss of a loved one is, in some ways, equivalent to loss of status, as one's resource holding power (RHP) is directly affected, when one loses a loved one and a loss of RHP also entails a loss of status. Furthermore, the loss of a loved one is generally associated with anger or rage (as Bowlby has pointed out) and, when one feels that one's rage is being directed against a power greater than oneself, the ISS is automatically activated as in other agonistic encounters.

When I see patients with an unresolved grief reaction following the death of a loved one, or following the birth of a defective child, I generally see anger or rage, directed at someone that is seen as responsible for the death or incapacitation of the loved one. Because the damage generally cannot be undone, the patient cannot find a constructive means of channeling his or her aggression. The patient may be angry with God, who is seen as all powerful and also vengeful. When anger is directed at someone much more powerful than oneself, this is likely to trigger both fear and the ISS.

One mother, who denied the existence of God, admitted to feeling rage but said that she could not express it saying "how can I be angry with a vacuum". For her being angry with a vacuum was like being angry with God, because one was angry with a force one could not fight. Interestingly, the mother, who denied the existence of God, still admitted to a fear of retribution, if she were to allow herself to express her anger. It appeared that this lady had a belief in God that was largely unconscious. It is my belief that one single mechanism - the ISS - may be triggered by both criticism and rejection.

Rejection sensitivity can be maladaptive in a number of ways. It can lead to pointless bickering, power struggles, social isolation, or depression. However, even though the premature triggering of the ISS is maladaptive at this time, it may have been adaptive at an earlier stage. For example, it may have been adaptive for a small child with a very punitive or authoritarian parent to avoid confronting their parent by a rapid triggering of their ISS and a quick submission. This could partly explain the origin of the premature expression of the ISS, but, though this pattern was adaptive for the young child, it is no longer adaptive in adulthood. This presents us with the therapeutic challenge of determining how to inhibit the premature triggering of the ISS.

Psychotherapeutic Implications:

If the therapist has concluded that the ISS plays an important role in his or her formulation of the case,

the therapist can convey information about how the ISS operates to the patient by highlighting the biological nature of the ISS, its original adaptive functions and its phenomenology. The therapist can illustrate how feeling inadequate and helpless can have the adaptive function of triggering flight or submission and communicating "no threat" to an adversary.⁵ This information can be reassuring to the patient, because it not only makes their symptoms more understandable, but also tends to normalise them. It can also help interrupt the vicious cycle that contributes to the development of rejection sensitivity and depressive reactions.

Cognitive behavior therapists have demonstrated the close interaction between cognition, affect and behavior. The evolutionary model can be useful in providing a relatively simple formulation of the patient's illness. Communicating this formulation to the patient, at an appropriate time, may be an effective cognitive intervention, when the therapist positively reframes the patient's negative symptoms by showing how they originate from mechanisms that have an important adaptive function.

When the therapist explains how the patient's feelings of inadequacy and inferiority represent a mechanism that was originally geared to preserving the stability of the hierarchy, the patient will likely react by feeling more adequate and greatly reassured. Use of the evolutionary model provides the patient with a sense of direction, when the therapist focusses on possible ways of avoiding prematurely triggering of the ISS.

There is a general recognition among therapists of the value of promoting self-assertion. However, the term healthy self-assertion is generally not clearly defined. Healthy self-assertion does not simply mean blowing off steam - in fact, healthy self-assertion does not, necessarily, require the expression of aggression. Healthy self-assertion goes along with a positive self-image. Teaching healthy self-assertion involves helping the patient to develop sufficient self-confidence to avoid premature triggering of the ISS. One way of enabling the patient to become more self-assertive is to demon-

strate how the ISS is being triggered in situations where the client might well be able to stand his ground.

Another is by assisting the client to recognise how their ISS is being triggered by assumptions that are no longer valid. A 55 year old lady, who I had been seeing for some years, started a session by saying that she had been feeling very angry with me all week, because she felt that, when I kept making reference to her subordinate strategy, I was pigeon-holing her and failing to recognise the complexity of her personality. This lady had previously reacted with considerable anxiety, when she experienced any aggressive feelings towards me. I commented that, on this occasion, she seemed to be able to express her aggressive feelings without triggering the subordinate reaction. She responded that, not only was this the case, but that as she was expressing herself, she experienced a newfound calmness thus confirming my interpretation.

Therapeutic creativity may be very useful, when trying to help clients to discard old assumptions and develop new ones. I was seeing a 50 year old man with rejection sensitivity and a dysthymic disorder, who had been a good baseball player as a youth. With limited success, I had previously spoken to him about ways to avoid triggering his ISS. Several months into therapy, after renting the movie "Mr Baseball" with Tom Selleck, he described how the baseball player in the movie stressed the merit of saying "I am going to hit" as opposed to "I must not miss". The latter statement was seen as being more likely to evoke tension and anxiety. He said that, when I had spoken about self-assertion geared to avoid triggering the ISS, he had understood what I meant intellectually, but, when he saw the movie, these concepts fully resonated.

This vignette illustrates how a dramatic presentation can compliment the effect of an intellectual explanation. The vignette also highlights the crucial role of focussing on winning as a means of avoiding triggering the ISS. However, it is also important to be able to recognise, in advance, when one's chance of success is very slim, so that one can avoid engaging

in agonistic encounters, when defeat is inevitable. The ability to make an objective evaluation of one's own strengths in relation to one's opponent's abilities is, therefore, very important.

When the patient, with a serious depression following a major loss, expresses an anger with God, I may take a theological stance by suggesting that God would be accepting of their anger. My initial intervention would be aimed at enabling the patient to let go of their ISS. The next stage would be to help the patient to let go of their anger - so one's task is to assist the normal mourning process.

When the individual's ISS has been prematurely triggered on a regular basis for many years, psycho-therapeutic interventions can only bring about gradual change and the value of the SSRI's lies in the fact that they can elicit a relatively quick response. There is evidence that the success of anti-depressants in the treatment of both depressive illness and rejection sensitivity is attributable to their inhibition of the ISS. If that turns out to be the case, pharmacotherapy and psychotherapy would be seen as having a similar actions so that each would have the effect of facilitating the effect of the other.

Conclusion:

Because more work needs to be done on determining the precise nature of the different aspects of the ISS, any conclusions from this presentation must be seen as preliminary. New techniques of intervention need to be developed that are geared to enabling the individual's ISS to function in a more flexible and efficient manner. This would allow us to enable our clients to learn to avoid confrontations or submit quickly as soon as it becomes apparent that there is no hope of victory. We also need to find better ways of helping them to learn how to avoid a premature triggering of the ISS, when this has maladaptive consequences for them.

Finally, we need to recognise that a variety of treatment modalities may be effective and these may often be combined - such as psychotherapy, pharmacotherapy and even physical education. c8

ABSTRACTS & EXTRACTS...

Waller, M.J.C.: Organization theory and the origins of consciousness. *Journal of Social and Evolutionary Systems*, 1997;19(1):17-30.

Abstract: Jeffrey A. Gray has argued that a general theory of consciousness must explain, inter alia, why consciousness has evolved, what adaptive benefit it confers, and why a sense of awareness is essential to the function(s) it performs. This article uses principles derived from organization theory to explore these issues. Its conclusions are strongly supportive of Fodorian modular theory and suggest that the operational characteristics of the modules associated with consciousness indicate that they have been specifically selected to problem-solve in conditions of novelty. They are therefore central to the adaptive advantage which underpins humanity's existence as a species. Other insights from organization theory are then used to argue that non-routine problem solving can not be undertaken without the capacity to mentally manipulate self in relation to task. As neuroscientists have already shown that the conscious mind has, at best, a secondary role in determining human behavior, the article concludes that "the sense of self", embedded within consciousness, has evolved to continually maintaining the problem-solving module in appropriate orientation to its tasks. The module itself is subordinate to central control systems in relation to which consciousness has neither direct role nor access.

Cohen, L.G.; Celnik, P.; Pascual-Leone, A.; Corwell, J.; Faiz, L.; Dambrosia, J.; Honda, M.; Sadato, N.; Gerloff, C; Catala, M.D. & Hallett, M.: Functional relevance of cross-modal plasticity in blind humans. *Nature*, 1997;389:180-181.

Abstract: Functional imaging studies of people who were blind from an early age have revealed that their primary visual cortex can be activated by somatosensory input in blind subjects but not

those with sight. The significance of this cross-modal plasticity is unclear, however, as it is not known whether the visual cortex can process somatosensory information in a functionally relevant way. To address this issue, we used transcranial magnetic stimulation to disrupt the function of different cortical areas in people who were blind from an early age as they identified Braille or embossed Roman letters. Transient stimulation of the occipital (visual) cortex induced errors in both tasks and distorted the tactile perceptions of blind subjects. In contrast, occipital stimulation had no effect on tactile performance in normal-sighted subjects, whereas similar stimulation is known to disrupt their visual performance. We conclude that blindness from an early age can cause the visual cortex to be recruited to a role in somato-sensory processing. We propose that this cross-modal plasticity may account in part for the superior tactile perceptual abilities of blind subjects.

Herz, R.S. & Cahill, E.D.: Differential use of sensory information in sexual behavior as a function of gender. *Human Nature*, 1997;8(3):275-286.

Abstract: Olfactory information is critical to mammalian sexual behavior. Based on parental investment theory, the relative importance of olfaction compared with vision, touch, and hearing should be different for human males and females. In particular, because of its link to immunological profile and offspring viability, odor should be a more important determinant of sexual choice and arousal for females than for males. To test this hypothesis a questionnaire was developed and administered to 332 adults (166 males, 166 females). Subjects used a 1 -7 scale to indicate how much they agreed with a series of statements concerning the importance of olfactory, visual, auditory, and tactile information for their sexual responsiveness. The data reveal that males rated visual and olfactory information as being equally important in selecting a lover, while females considered olfactory information to be

the single most important variable in mate choice. Additionally, when considering sexual acitivity, females singled out body odor from other sensory experiences as most able to negatively affect desire, while males regarded odors as much more neutral stimuli for sexual arousal. The present results support recent findings in mice and humans concerning the relation of female preferences in body odor and major histocompatibility complex (MHC) compatibility and can be explained by an evolutionary analysis of sex differences in reproductive strategies. This work represents the first direct examination of the role of different forms of sensory information in human sexual behavior.

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Zuo, J.; DeJager, P.L.; Takahashi, K.A.; Jiang, W.; Linden, D.J. & Heintz, N.: Neurodegeneration in Lurcher mice caused by mutation in $\gamma 2$ glutamate receptor gene. *Nature*, 1997;388:769-773.

Extract: Many neurodegenerative diseases are the result of the loss of specific cell populations. One theory is that this cell loss is caused by (or made worse by) the aberrant function of cation-selective membrane channels that are operated by glutamate. L-glutamate activates many receptor channels in neurons. The various glutamate receptors (GluRs) are involved in fast neurotransmission and have specific roles physiologically. The best known GluRs are AMPA (aminohydrox-methylisoxalate propionic acid) that is mostly permeable to monovalent cations, and NMDA (N-methyl-D-aspartate) that is permeable to Ca^{2+} . Most brain cells possess both receptors. Another GluR is $\gamma 2$ and this receptor is found in dendritic spines of cerebellar Purkinje cells.

When there is an acute injury to the brain, the injured neurons release glutamine which opens AMPA and NMDA-receptor channels in surrounding cells, allows Ca^{2+} influx, and results in toxic death of the cells around the injury. Olney and

Sharpe showed that exposing rhesus monkey babies to glutamate caused brain cell damage. Choi, et. al., repeated this observation *in vitro* and noted that the amount of cell death correlated with the passage of Ca^{2+} into neurons. The ataxic heterozygous lurcher mouse (Lc) has no Purkinje cells in the cerebellum. Death after birth occurs in the homozygous Lc mouse, because of the extensive loss of mid-brain and the hindbrain neurons during gestation. Zuo, et. al., have cloned the Lc gene and found that it is the $\gamma 2$ gene. The mutant gene has a single nucleotide substitution in a highly conserved area. In vitro, the mutant $\gamma 2$ gene produces an active channel without glutamate. Thus, the heterozygous Lc mice have continuous toxic influx of cations.

Schlaepfer, T.E.; Pearlson, G.D.; Wong, D.F.; Marenco, S. & Dannals, R.F.: PET study of competition between intravenous cocaine and [C] raclopride at dopamine receptors in human subjects. *American Journal of Psychiatry*, 1997;154:1209-1213.

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