

ASCAP NEWSLETTER

Across-Species Comparisons And Psychopathology Newsletter
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"The achievement of social goals depends not only on what the individual does, but how others react to them.

At some point in evolution animals become able to predict the effect their social signals may have on the other."

Paul Gilbert¹

The ASCAP Newsletter²
is a
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the

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

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

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New Officers

We have a new President, Paul Gilbert,
as our new IASCAP year begins in July.
Welcome and all success!

As you will see in his tribute to John
Price, Paul in, his presidential year
wishes to reach out to researchers in
areas related to ours.

This wish has guided me in a brief discussion and update (below) of our relationships to other organizations from a Galveston perspective.

Paul gives tribute below to John Price as outgoing president. John has put forth great effort to unite, conciliate and otherwise bond our membership at times hardly restricted to his presidential year, and the rest of us join Paul in looking forward to John's continuing contributions.

The Executive Council has agreed with my suggestion to do away with the office of Treasurer because at this stage of the organization's history, money exchange occurs solely with respect to the Newsletter. It is being replaced with the offices of First and Second Vice-Presidents with the expectation of an orderly succession of officers. We wish to welcome John Pearce as President-Elect, Leon Sloman as First Vice-President & Dan Wilson as Second Vice-President, the first holders of these new positions.

Other organizations & IASCAP - HBES

Some **IASCAP** members are presenting at the Human Behavior & Evolution Society annual meeting at the State University of New York, Binghamton, NY, in early August, 1993, especially in a symposium on *Relevance of evolutionary biology to psychotherapy* organized by Leon Sloman: SAT AUG 6, 1993, 10 am

- John Price & Leon Sloman: *Evolutionary strategies and psychotherapeutic interventions*

- Russell Gardner: *Alpha state, as a desired outcome of psychotherapy*

- John K Pearce & Kalman Glantz: *Banality of evolutionary psychology*

In the afternoon of the same day, there is a paper session entitled, *Evolution and psychiatry*:

2:30 pm -- Russell Gardner: *Sociobiology of we-they: delusions and proximate causation*

2:50 pm - John S Price: *Expression*

of hostility in complementary relationships

3:10 pm - John V Wylie: *A General theory of mental illness*

3:30 pm - Alexander C Chester: *Sick building syndrome as a predator defense*

3:50 pm - Richard G Burright, Patricia E Yoder, Peter J Donovick: *Pica: an evolutionary adaptation to nutrient deficiency*

4:10 pm - Kent G Bailey & Helen E Wood: *Psychological kinship theory: social behavior and clinical practice*

John Price will organize informal meetings of **IASCAP** participants.

Other organizations & IASCAP - AAPP

AAPP refers to The Association for the Advancement of Philosophy and Psychiatry. I met Michael Alan Schwartz from Cleveland, who is the current president of the AAPP, at the annual meeting of not the AAPP but the AAP(!) (Association of Academic Psychiatrists) in Charleston, SC.

He was kind enough to offer the use of his suite for my presentation on Sociophysiology (I was housed at another hotel and we were supposed to find our own site for the workshop form of presentation). He also presented at another time and told us of their new association whose 5th annual full-day meeting was immediately before the APA meeting. They have a fairly large number of members and a European counterpart that separately evolved. They also have a newsletter and are developing a journal; we were cordially invited to provide papers as our concerns were seen by Dr Schwartz as being very similar.

I went to the AAPP meeting in San Francisco in May and was impressed: topics resembled **IASCAP** interests to some extent, it featuring distinctive human mental processes (metaphor), neurobiology, and philosophers of science (eg, a contrast between Pop-

per and Edelman).

Several days after, Dr Schwartz told me that next year they have planned for a two-day meeting in Philadelphia (May 22-3, 1994), again before the APA meeting and wondered aloud with me whether AAPP and IASCAP should have a half-day joint meeting as part of that. I told him that I would take it up with the membership, which this piece is so doing at this very moment. I said that I would be glad personally to discuss the sociophysiology as a Harveian basic science of psychiatry in a manner similar to my presentation at the AAP meeting in Charleston. I mentioned the possibility to John S Price who supposes this might be a good time for him to be returning from New Zealand where he intends to work this coming winter as a guest scholar.

How do the rest of you feel? Can you think of what topics should be covered and who should be invited to a possible joint session of **IASCAP** and AAPP?

Other organizations & **IASCAP** – APA

Michael Alan Schwartz told me other relevant information that might have guided us differently with respect to the APA (American Psychiatric Association) annual meeting. It turns out that they (as was true for **IASCAP** concerning the 1993 meeting) were turned down in their application for a symposium at the annual program. But what they did instead was to request the APA apparatus to help them put on an allied society meeting, which the APA was happy to do!

We at **IASCAP** had toyed with a similar idea, but decided to make it contingent upon symposium acceptance. Retrospectively, we might have done as did AAPP, but then I might have missed their meeting and the col-leagueship that unfolded.

IASCAP's future

But not to second guess ourselves too much. **IASCAP** is small and growing gradually but solidly. Meetings at the gatherings of other organizations are very useful and perhaps the more informal and spontaneous the better. Like plants with tendrils that respond to environmental factors with various possible growth patterns, but with vigor evident in the particulars, we seem to have a propulsion and growing force of our own.

This life-of-its-own quality impressed me June 27, when I called John Price at Odintune and found that a *de facto* **IASCAP** congregation was at that moment occurring after the meeting on evolutionary biology and behavior at the London School of Economics! Next issue, John provides us a report of two meetings, the large one in London and the small informal one at Odintune. John's view of his **IASCAP** presidency has featured fostering collegiality and group bonding.

So with that theme in mind, one might ask what hurry is there for formal meetings? In keeping with this, bonding is also the message of Leon Sloman, our new First Vice President, who is another advocate of connections – as befits a child psychiatrist who uses family interventions in his practice. (Leon's proso-cial activities extend to the proposal two years ago this July of **IASCAP's** founding at a previous Odintune meeting). We are grateful that he has consented to be in line for the **IASCAP** Presidency.

As we are grateful that sparkplug Dan Wilson is the second VP, the second such member of the Boston group to assume that responsibility – John Pearce, our President-Elect, was the first. Is there something about being from Boston that causes sparking action? We also recall reviews of HBES by Kalman Glantz of that group in years past that sparked

rebuttals and discussion.

John Price's Presidency

by Paul Gilbert

It seems extraordinary that yet another year has slipped past, and with it, time to thank John for his presidency of **IASCAP**. I was pleased to see that the 1992/1993 era was a time when John was able to publish a number of papers in academic journals. We should remind ourselves that John has been a most innovative thinker since the early Sixties and Seventies. He was one of the first to link human psychopathology to the underlying mechanisms of the control of rank behaviour. Looking back, the Sixties produced two major evolutionary theories of psychopathology: attachment and rank. It is wise to remind ourselves that John Bowlby's attachment theory had a very major struggle to survive in the early days. Many were very skeptical about an evolved system that controls attachment behaviour, and it wasn't really until the evidence began to come in, fueled by people like Harry Harlow and others in the animal literature and later by Anisworth in the human literature, that attachment theory became established as a major theory of psychopathology and also established itself within mainstream psychology.

Sadly, early on John was not able to gain enough colleagues and supporters to fight similar battles against the skeptic, and it is only now, some twenty years later, that people are beginning to take the ranking hypothesis of psychopathology seriously. It seems to me that John's very major contribution to our discipline has been to link the concept of resource holding power to that of an internal mechanism that controls mood and energy. This idea seems very fundamental in helping us understand animal-primate-human continuity. To

my mind, it is an absolutely fundamental piece of a jigsaw. Once one understands how this mechanism evolved, and may now work (eg, via social comparison of various forms), many things that seemed puzzling and contradictory fit into place. The importance of social comparison, shame, the tendency to feel socially inhibited in certain kinds of social environments, the loss of energy, the reduced initiation of positive behaviours, and so forth, all seem to make sense as being linked to part of a non-challenge strategy. The fundamental decider or mediator of these biological patterns evolved because of the importance of RHP as a controller of agonistic and resource-acquiring behavior.

One of the challenges for us in the future is to make these evolved mechanisms more clearly understood and to continue to devise methodologies which will tease them apart. One of my disappointments has been that the RHP concept - along with Russell's concept of psalics are still at the theory level -- they have yet to generate methodologies to test them. Moreover, recent interactions have shown that we still have a major way to go in clarifying how the RHP mechanism works, and many still seem to have misunderstood the basic theory. The key point is that it is derived from social competition.

Although John passes from presidency, his influence will be felt for many many years to come, as will his ideas. On a personal level, I have found John to be one of the most provocative thinkers, who is able to link concepts as distant as evolutionary psychology to some of the English literary giants, such as Theocrat and Shakespeare. Anyone who can do that certainly deserves some kind of prize. To me, John has been extremely personally supportive, reading and commenting on much of what I write. His criticism has always been

extremely hedonic, sharp, insightful and highly valued.

I shall try to continue in that spirit, arguing that we are on the brink of moving toward new understandings of human nature and suffering and must begin with the hard process of developing methodologies and research. I am sure that when we do this, we will find some of our insights are supported, and we will be surprised at how well they are supported, whereas others will fall by the wayside since they cannot carry the data. Over the next year, in our department we have at least three projects planned and two coming to an end. We see a linkage between the RHP concept and shame. Indeed, shame has now become a major theoretical construct with many books being published in the last five years. I would also think that we can reach out to the interpersonal theorists with whom we can tap into some of their methodologies. They have a particular interest in the interpersonal circle which sees human behaviour distributed in two dimensions, such as dominance/submission and love/hate (attachment).

Readers will know, however, that John Birtchnell has redefined these axes recently. But however they are defined, there are some fascinating findings in the interpersonal literature, as well as methodologies, and it is to be hoped that maybe we can begin to explore these areas and see what our joint interests are. As many have argued many times, attachment and rank are probably the two most significant dimensions of human behaviour. I do remember John Crook, with a smile saying, "Where's the sex? Without sex it won't work." Well, the sexual dimension is a separate one. It interacts with both attachment and rank dispositions.

Let me end with the view that I see my presidency as hopefully opening up bridges to other ongoing research en-

deavours.

Letters; 5-11-93

By now you've gotten my membership dues for IASCAP. The ASCAP Newsletter is a real resource. I wrote Anthony Stevens and urged him to join your organization. He responded saying he would. Also he said that Paul Gilbert would like the enclosed comments (he wrote about Anthony's book for Texas A & M University Press) to be published in The ASCAP Newsletter. I think that this is a great idea, since what Anthony has done will be of great interest to all interested in this area.

22 July 1992. Re Dr A Stevens: The Two-Million-Year-Old Self. Thank you very much for asking me to read this manuscript and to offer my endorsement, which I am delighted to do. I thought the work fascinating and beautifully written. I understand that the title is now changed but refer to it here as it was sent to me.

Recent developments in sociobiology and neuror psychology remind us that the human mind was shaped by evolution. In this fascinating and timely book Dr Stevens explores how evolution is both a source of species-specific social strategies and, at a subjective level, of our passions, dreams, imaginations, creativity and needs. With exemplary clarity of exposition he shows how Jung's concept of archetype is the missing link between the evolved process and subjective experience. Personal meaning arises from the marriage of the biological and social and gives birth to symbols of expression. There are few works that succeed in tracing these links successfully and still remain accessible. Dr Stevens achieves both, and this work will be a welcomed and valued companion for those interested in the evolution of mind and the nature of subjective experience. I recommend this as a deeply illuminating volume.

Paul Gilbert June
21, 1993

Thanks for the superb job you are doing with the ASCAP Newsletter. I enjoy reading the issues when they arrive....

Thanks for the notice about my joining IASCAP. I will be pleased to keep

*you informed of our work at Texas A&M.
David H Rosen, Texas A&M, USA*

Letters (continued): 28 May 1993
*You might be interested in the
foreword that I wrote when Throwing
Madonna was reissued in 1991:*

In this new Bantam edition, I have refrained from tampering with the essays (except to correct errors and provide a few updated leads for further reading); I was pleased to see, when rereading them, that they represent something close to my modern writing style, without the awkwardness that one might expect from developmental exercises. I do sometimes wish that I could change the book's title, as it has been a source of confusion to people who have not read the book but know about my "throwing theory" for language origins from other sources (it was published in the Journal of Theoretical Biology about the same time as this book first appeared). The Throwing Madonna is, in the tradition of essay books, simply the title of one of the included essays -- but it is not the one about my throwing theory.

In my opening essay, I parody "Man the Hunter" theories for right-handedness by developing an equally-plausible explanation involving women hunters (and have some fun with the capricious nature of "explaining" things in an evolutionary sense). Neither the male or the female version, however, is likely much more than a sideshow to the main event: Evolving a brain that can do a lot of novel sequencing tasks (versatile throwing, but also language, scenario-spinning, music, dance, and our many serial-order games). The truth about right-handedness surely involves a lot of things not mentioned in the parody, many of which happened long before projectile predation began to influence hominid evolution and open up a new niche in the temperate zone.

The throwing theory proper was further developed in The River that Flows Uphill in 1986, extended as "The brain as a Darwin Machine" in Nature in 1987 and elaborated in the final chapters of The Cerebral Symphony in 1989. It then evolved into the "cortical consensus" in chapter 9 of The Ascent of Mind in 1990. Had I known in 1983 how much the throwing theory would subsequently develop, I would have avoided confusing the issue by using the word "throwing" in the title of the unrelated parody.

But, as parents and teachers come to realize, you never can tell what your efforts will develop into. *William H Calvin, U Washington, USA*

Another quote from Calvin includes: Projectile hunting seems to be a form of hunting not practiced by other mammals in competition for the same resources: this "action at a distance" hunting is a very important invention. It reduces the chance of injury to the hunter, keeps one out of range of horn and hoof. From an evolutionary standpoint, throwing is not a one-step invention: it has aspects such as accuracy and length of throw that may be improved, time and again, for additional advantages, generating a long growth curve. The type of throw, the distance of the throw, the weight thrown, the accuracy of the throw, the suitability of the object thrown -- all can be improved again and again."⁶
p177-8

Letters (continued): June 3, 1993

I have found The ASCAP Newsletter very stimulating and I am learning concepts that I was not very familiar with. Just the kind of dialogue that I will enjoy. Since you thought of using Emanuel Peterfreund's concept of stereotyped approaches to psychotherapy, I should give the reference that by mistake was not in the reference that I wrote. The book is Peterfreund E: The Process of Psychoanalytic Therapy: Models and Strategies. Hillsdale, NJ: Lawrence Erlbaum, 1983. Peterfreund is one of the pioneers in using an information-processing approach to the understanding of the mind. I very much admire his work.

Thank you for inviting me to contribute to the newsletter. My main interests are in the field of developmental psychology and psychopathology. I have always been fascinated by evolutionary theory and have thought of ways to incorporate this in our work. In my essay on contingency, I would today add the enormous importance of thinking about emergent phenomena, both ontogenetically and

phylogenetically. The full appreciation of emergence in natural processes is another antidote that avoids the reductionistic fallacy. I think Eric Erickson was a pioneer in his efforts to articulate these phenomena with his concept of epi-genesis. Perhaps I could rewrite the essay for the newsletter?

I have just finished reading the book by M. Mitchell Waldrop *Complexity: The Emerging Science at the Edge of Order and Chaos*, 1993. I find the book a fascinating and deep meditation on life. Among other things, Waldrop describes the efforts by a group of scientists to develop some models that help understand emergent phenomena with an inductive, non-reductionistic methodology. I am so enthusiastic about the book that I want to recommend it to everybody! Mauricio Cortina, Washington, DC, USA

RG: Thank you for the references to Peterfreund and Waldrop.

Please do provide ASCAP your transmutation of Erickson's epigenesis.

Report on AAPP and APA meetings in San Francisco, May, 1993 by RG

I went to both AAPP and APA meetings in May and learned much though most sessions weren't involved with evolutionary biology. At AAPP, G Lakoff from U Cal Berkeley has published extensively on metaphor and went over a number of basic metaphors used by present day humans.⁷ He referred to cross-cultural data, and is very interested in brain functions, pointing out that whatever we learn is in the context of things previously known. Metaphor accomplishes that previous context. He disappointingly didn't refer to Merlin Donald, whose stunning work on human evolution discusses the importance of drama and metaphor as precursor activities before language captured the

center-stage of human communication.

At APA, I attended lectures given by Eric Kandel, Ulla Bellugi and Dominick Purpura, each concerned with behavior and the brain. Kandel has begun working with the hippocampus of mammals again after many years with aplysia—the sea-snail—with the new work also focused on the molecular level and benefiting from the earlier and he reported on the biochemical dissection of long-term potentiation (LTP) known important for learning & short term memory.

That the hippocampus has a role in short-term memory is known especially by the famous patient HM from Connecticut who had this structure removed on both sides of his brain decades ago. Thereafter, he can attend to a task and can use immediate memory but when that attention is broken, he can no longer recall it; he can remember things that had happened before his brain surgery (long term memory).

To analyze this functionally, Kandel and his Columbia colleagues have confirmed and extended the work of Solomon Snyder and colleagues from Johns Hopkins that a gas (nitric oxide) is used by neurons downstream to feed information to those upstream in a fashion that maintains the LTP. One doesn't ordinarily think of neurons receiving information feeding back to the neurons sending, of course, nor of using a gas as a neurotransmitter, so these new kinds of recent information are amazing.

Bellugi from U Cal San Diego has worked with the deaf who use sign language, asking: what happens when they have strokes? She found that laterality for language is the same as for people who have vocal-audible language. She also works with retarded children with the rare Williams Syndrome, in which the children are retarded, but their disability does not extend to their verbal and relating skills, which are superb, at least superficially. In a fashion

more typical of adults than children, they are animated, charming, tactful, and initiate conversation. They seem to engage in "cocktail party" chatter. She showed a video and pointed out that this seems opposite to autism. Presence of such a syndrome is interesting for how dimensions of relating and communication are organized. She is interested in brain imaging correlates and chromosome location of this condition as we are with people with mental retardation from deletions of chromosome 15.

Purpura from Albert Einstein college of Medicine in NYC also discussed retardation but from the molecular level. In a wonderfully instructive metaphor, he told how to "make a brain" in ten easy steps:

1. Take 200 billion neurons and a trillion glial cells (*neurogenesis*);
2. Mix with 100 neurotransmitters and modulators (*chemogenesis*);
3. Add 2 dozen growth factors and hormones (*trophogenesis*);
4. Arrange neurons in 500 sets and distribute nonrandomly (*migration; place specification*);
5. Allow growth of dendrites & axons (*neuronal differentiation*);
6. Wire up neurons each with many others for 10 connections (*synaptogenesis*);
7. Eliminate redundant neurons and connections (*programmed cell death*);
8. Insulate rapidly conducting neurons (*myelogenesis*);
9. Use networks often and meaningfully (*functional modulation*);
10. Don't abuse product with toxins, trauma or trivia (*good health habits*).

I went to other brain-focused presentations. Jeffery Cummings from UCLA, for instance, related in the most succinct form I've so far heard - frontal lobes have five parallel functional systems.

Frontal cortex relates neuroanatomically to subcortical structures in a way that implies information funneling. Damage to each downstream component causes a functional disturbance seen also after damage to the

frontal area: without the loop, the function can't get accomplished.

Thus, the cortical component is biggest and funnels down to a striatal stage (the striatum is composed of the small-celled caudate and putamen) which in turn funnels down to the globus pallidus. (The striatum and globus pallidus together are the basal ganglia, cellular or nuclear gray structures below the cortex but high in the brain.) The large-celled globus pallidus seems to receive convergent messages from striatum and then relays them in turn to the thalamus which has a nerve tract that then goes back to the frontal lobes.

Table 1 Frontal cortex >>> Striatum >>> Globus pallidus >>> thalamus. From thalamus, information loops back to frontal cortex.

The five systems he listed are the premotor and motor system (not discussed) and the three in the following table that are very much the concern of investigators of behavior:

Table 2

	Frontal area	orbital (above the eyes)	anterior-medial
Behavioral	inability	absent	apathy
Pathology	to plan	social graces	
Usual Function	executive abilities	tact, restraint	energy

A measure that assesses the dorsolateral-executive system is the Wisconsin card sort test, accomplished poorly with damage to the dorsolateral area and its counterpart caudate or other subcortical lesions. In this the subject (S) responds to stimulus cards provided by the experimenter (E). These combine color, form and number of designs. E says 'right' or 'wrong' when the subject goes through a pack of cards and matches each with stimulus cards.

The trick is that after each ten

consecutive correct matches according to one criterion (eg, color), E switches the criterion (ie, first to form and then number). The test measures if S can get the hang of this switch - can S sense and handle that the criterion for Tightness and wrongness has changed? Many patients with schizophrenia, and certainly those with dorsolateral frontal lobe lesions cannot seem to shift their planning strategy along with the task assignment. People with low intelligence can't either, which is a finding appearing lately in new research. Somehow gray matter convexity just the other side of our skulls from our temples is involved with flexibility of set & anticipation of the future.

This frontal damage seems to limit the patient to the alternative of per-severation which means using the same response repeatedly. When patients with frontal damage are seen clinically the symptom may be seen as such or in other forms of being locked into the stimulus provided by the examiner, eg, if the examiner raises one's arms, the patient seems to be constrained to raise the arms also.

This testifies to the importance of this large brain structure for interpersonal communication: when the structures have missing parts, the remaining portions do what they do with fewer options, in this case mimicry. Again we are reminded on Professor Donald's emphasis on mimicry and drama in the prehistory of our ancestors in that period of prehuman history before language.

Response to Carolyn Reichelt

by Leon Sloman

I would like to comment on some observations by Carolyn Reichelt in the 5/93 ASCAP. Reichelt makes some interesting criticisms of my brief communication in the 2/93 ASCAP. As part of her criticism, she presents her own ideas about the function of

depression. She gives an example of a man who is forced to take early retirement because his company downsizes. She states he is "designed to keep on hunting and gathering and this retirement seemed to threaten that ability; it threatens my (unconscious) need to survive to reproduce in the future. It made me feel that I am worthless, a failure, helpless - and I became depressed." She proposed that depression is associated with awareness that one is not able to fulfill one's biological function. This leads her to speculate "that depression occurs in those animals with sufficient cortex to image success or failure, to recall a vanished superiority, to feel the pain of changed circumstances, to recognize loss."

Although her ideas have an intuitive appeal, they do not throw light on the possible adaptive function of depression and therefore fail to explain why this common maladaptive disorder has not been weeded out by natural selection.

A major flaw in Reichelt's criticisms of my ideas is that they are based on a lack of understanding of the terms that I have been using. I acknowledge that my brief communication in ASCAP of 2/93 did not have good definitions of terms or a clear exposition of my ideas. It focused on the relationship between social hierarchy theory and attachment theory and did not go into either model in any detail. Reichelt's understanding of the term "yield" follows general usage, not the specific way I and others have used the term. In my brief communication in ASCAP of 5/93, I argue, as did Paul Gilbert, that because our use of the term "yielding" can be easily misunderstood, we should consider using other terms. Indeed, I am now arguing that we use the term he deployed, "involuntary subordinate strategy."

It is noteworthy that Reichelt

starts out by using the term "yield" as applying to a person who is forced to retire against his will, but then she goes on to distinguish between "giving way," which apparently refers to what happens when a person is forced to retire, and "yielding," which in her usage means that one no longer feels the need to fight back.

I see depression as originating in an escalating conflict between anger which spurs one to fight and one's reaction to one's awareness that one cannot win. I distinguish between not two but three mechanisms. The first mechanism is the reaction of helplessness and hopelessness, accompanied by feelings of inadequacy and inferiority that are associated with losing an agonistic encounter. This is what we now call the involuntary subordinate strategy. This strategy has several functions, one of which is to trigger the act of submission. Another closely related function is to trigger a psychological adjustment characterized by an acceptance of defeat, an end to resentment and a giving up of unrealistic aspirations. This is what I call "self-reconciliation." Self-reconciliation may accompany submission. In the case of the person who retires against his will but continues to feel much resentment, this person is submitting without self-reconciliation. One can also show self-reconciliation without submission. For example, in some situations one may accept that one cannot win and just leave the scene. Self-reconciliation is the crucial mechanism that turns off anger and enables one to give up unrealistic aspirations. Self-reconciliation prevents the escalation of conflict that culminates in depression.

Within this model, feeling helpless, hopeless and inadequate that is the yielding strategy has important survival value. If the "involuntary subordinate strategy" is quickly followed by "self-reconciliation" and

submission, there may be very minimal subjective discomfort. In certain cases there may be a constellation of factors at work that contribute to an escalation of anger or aggression, which in turn triggers an increasingly powerful involuntary subordinate strategy. Because of the strength of the aggression and subordination response, the person is unable to terminate it by self-reconciliation" and submission. On the one hand, the person feels angry and frustrated; on the other hand the person recognizes he cannot win, which generates feelings of helplessness and hopelessness. Because of the strength of these feelings, the person just cannot accept the situation. Because the person is unable to win and equally unable to concede, the struggle goes on, at least at an internal level. Many clinically depressed people exhibit this picture. I suggest that the "involuntary subordinate strategy" is part of everyday interactions, so that when we're feeling a little discouraged when we're losing a tennis match or when we are losing an argument, this is a sign of it, which, in turn, triggers submission and self-reconciliation. As a result of these reactions, one may be able to say to someone, "Yes, I guess you are right," - this may end the conflict, or one comes to accept that one cannot win the tennis game so that one continues to play for the enjoyment of playing. I argue that the difference between the subordinate strategy in these everyday interactions and depression is intensity.

Finally, Carolyn takes me to task for my use of the term "voluntary yielding." As it happens, I agree with her criticism. John Price and I agree about most things as far as this model is concerned, but whereas he still likes to speak of "voluntary yielding," I feel this term is misleading. John would say that if I

decide that I cannot win an agonistic encounter and am able to either avoid it or quickly end it, this would be voluntary yielding. I disagree with John because I feel if I am aware that I am losing an argument, for example, I would experience a slight feeling of inadequacy or hopelessness, which has the effect of prompting me to say, "I guess you are right." I believe that I may not be fully aware of these feelings when I make this concession.

For me, Reichelt's criticisms highlight the necessity of coming up with appropriate and clearly defined terms for the concepts we have presented. If ASCAP readers have further suggestions for still better terms, I would be most interested.

Response to John Pearce

by Lee G Reichelt

While not disagreeing with the overall premise of Dr Pearce's excellent short summation of chaos theory – that chaos theory is "fatally flawed for psychology," – I believe the term "semi-predictable" is not useful as a descriptor in this situation. Something is either predictable or it is not, so I would like to explore some other possibilities.

Chaos theory seems to describe systems or events behaving on a set course but cutting a wide swath – rather like pulling a farm implement behind a tractor: it's all over the road, but eventually it will get to its destination. So "probable" seems a better word than "semi-predictable" when something is less than precisely predictable but the odds are that something will happen. We can predict that Tuesday will follow Monday, but while it appears that the earth will eventually come to an end, there is a low probability that it will happen Wednesday.

Weather predictions are presented in terms of probabilities – a 20%

chance of rain tomorrow is forecast. Possibly we could "forecast" situations in which an event is only predictable in a broad sense. Perhaps it would be more accurate to just say a prediction is a prediction. Only time will tell if it's wrong or right. (As an aside – it's like 100 stock analysts who make a range of predictions about the market. A handful will be right. If the same handful repeat their success a few times, there's a high probability that they'll become experts! It's been more fashionable to predict a decline in the market in recent years, and sometimes it has, but it's been making many corrections along the way. Well – that's only marginally relevant, so back to my point.)

While chaos theory appears to be useful in areas like hydrogeology, blood flow dynamics, and so forth, the interactions of chaotic events appear to approach randomness. Take two asteroids in space. They are on wobbly orbits that will eventually lead them into collision, but the orbits can be so erratic as to make prediction of *when* all but impossible. The *when* becomes a random event.

Or take global warming. Chaos theory influences predictions on warming, but we are talking about the interaction of so many chaotic equations that it becomes more and more likely that predicted temperature trends globally are inaccurate, that global temperatures are actually random. In light of warnings of global warming, if predictions for the Summer of 1992 in the USA Upper Midwest had been made in 1987, they'd have been substantially wrong because they'd not have taken into account the eruption of Mt. Pinatubo – a truly random event.

The forces of nature are so immense that the changes produced by humanity must be small compared to the potential for changes produced by nature: hurricanes, volcanoes, forest fires,

asteroids. In short, at what point does chaos theory cross over into randomness? When does predictability or probability become overwhelmed by so many variables that the only thing predictable is the unpredictable?

Remarks on Gardner, Birtchnell, Price
by Mike Waller

As usual the latest Newsletter (15 Apr 1993) set off a number of ideas which I set out below.

Your own piece (RG) on the competing explanations for the extraordinary rapidity with which the human brain has grown in size over the past million or so years inspired me to flesh out an idea I had following a radio report of some research conducted at Edinburgh U. Carried out over a number of years, this has revealed a consistent tendency for male students to over-estimate their intelligence quotients and for females to under-estimate theirs.

It may be no more than a product of culture laying stress on male assertiveness and maidenly modesty, but I seem to recall that it is very much in line with results from stereotype questionnaires consistently showing that both males and females are more likely to classify men than women as typically intellectual. I also have the impression that when asked to rank the most desirable characteristics in a member of the opposite sex, women consistently give intelligence a higher ranking than men. By some accounts, men are more interested in physical appearance.

This leads me to wonder whether a profoundly mistaken sense of intellectual inferiority amongst women was the great driver in the natural/ sexual selection of increasingly powerful brains. As you reminded us, the acceleration of this process seems to have coincided with the commencement of the ice ages, when adaptive intelligence was presumably at a premium

in a rapidly changing environment.

In such circumstances, what we might call the Miller/Monroe effect would soon start to produce babies with progressively larger brains. Once "solidified" into an arrangement where females had a genetic predisposition to (a) place a high value on intelligence, (b) suffer from the delusion that they were under-endowed with it, and (c) strongly favour those males seen as being exceptionally well equipped with this increasingly valuable resource, the whole process would become unstoppable.

Perhaps the echoes of this particular "big bang" are still being picked up at Edinburgh University!

(As in the UK we are fully sensitive to "politically correct" issues, I have sought above to make clear that any sense of intellectual inferiority natural selection might have built into women would be totally without factual foundation. It would just be another case of their having more than their fair share of the world's woes shoved on their shoulders. It would also cast them as the primary strategists in enabling humanity to survive the devastating effects of the ice ages; whether this is worthy of congratulation, I leave to you to judge!)

I thought John Birtchnell's overview of the complexities of depressive conditions in humans was masterly. It leads me to ask him two direct questions, the first entirely without guile, the other perhaps less so. First, Rensis Likert speaks of people being motivated by those things which "contribute to their sense of importance and personal worth" and demotivated (and presumably made depressed) by those which do not. Does this map on to John's idea of "relating" needs? It certainly seems to work with his Upperness-Lowness / Closeness-Distance cruciform. By this I mean that, like relatedness, it can accommodate

the idea that each of the four cardinal points can have polarly different implications for different individuals. Thus my sense of personal worth may be very low if:

- I am in a leadership position of which I feel unworthy;

- I have no role, or a humiliatingly subordinate one;

- I feel diminished by my desperate need for others;

- I feel enervated by my inability to relate.

Conversely my sense of personal worth will be high if:

- I am in a leadership role which I feel I discharge well;

- I have no stressful responsibilities, or am a valued aide;

- I revel in the closeness of my relationships with others;

- I bask in my emotional toughness and independence.

Presumably, within both groups, the first and last conditions reflect sociotropic personalities, and the second and third, autonomous personalities. However, although this bears out John's multivariate model of human behaviour, it still seems amenable to Dawkins' dictum that many "macromutations are mutations that, although they may be large in the magnitude of their effects, turn out not to be larvae in terms of their complexity." Individuals may seem, and are, very different, one from another, in what makes them happy and what makes them sad. Yet directly underlying these huge differences are a common need to relate, to engender a sense of worth, and to feel relatively successful. In short, we may be predisposed to choose different prizes, but we are working within an identical set of rules.

This leads on to my disingenuous question. John makes clear in the following sentences that he is fully sensitive to the most puzzling of these common rules: "To this extent, I would agree with Nesse, but depres-

sion will act as a spur only if there appears to be hope of success. When hope fades, depression intensifies and the person becomes becalmed, or even suicidal"? My own reaction to the Nesse quotation, initially cited by Leon ("the function of low mood is to steer the individual from less to more productive activities"), is that he is dealing with something analogous to the Yerkes-Dodson Law by focusing exclusively on the rising side of the graph and simply ignoring the decline of performance which occurs once an optimal level of stimulation has been exceeded. John can see the problem. What, in evolutionary terms, is his answer? For that matter, what is Randolph Nesse's?

I also found an item of particular interest in John Price's follow-up to Dan Wilson's piece. This was his reference to the extraversion-introversion/neuroticism-stability schema which I associate with Hans Eysenck and Jungian psychodynamic theory. As you no doubt know, in the later stages of his work in this area, Eysenck sought to include psychoticism as a third dimension of personality. Perhaps because people have a preference for simple, four-cell matrices, the three-way split has not proved particularly popular. However, I have recently given it a lot of thought, trying in my own head to create a single model that would be able to deal, on one hand, with the Eysenckian quartet of extroversion, introversion, neuroticism and psychoticism; and, on the other, with the classifications of behavioural disorders with which I am most familiar: neurotic, psychotic, and antisocial. The first thing I had to get clear in my head was that the traits Eysenck associates with psychoticism - aggressive, cold, egocentric, impersonal, impulsive, antisocial, unempathic, creative, tough-minded - do not cross-match to psychotic personality disorders. On

this basis it seems to me that psychoticism, rather than neuroticism, fits best with introversion and extroversion. By this I mean that these three can be seen as comprising an exhaustive list of viable life strategies, viz:

- extroversion: making your way by cooperating with others;
- introversion: making your way without involving others; and
- psychoticism: making your way by ruthlessly exploiting others.

Obviously these are pure types and most people adopt a mixed strategy; but whatever the personal mix is, for humans and all other sentient life-forms, these seem to me to be the only primary colours available. Treating psychoticism as a primary life strategy also enables us to take antisocial personality disorders out of the equation. After all, if we restrict ourselves to antisocial people who are self-interested rather than covertly self-destructive, isn't the sense of pathology grounded in morality and prudence rather than real disease? Put another way, if Hannibal Lector were a tiger, his appetite and means of satisfying it would remain much the same. Yet, whilst we would still consider him dangerous, we would not call him mad.

In contrast to the other three, neuroticism is not a means of making out, but rather a means of failing to do so. I am not here referring to temporary conditions which can be explained by John Price's defeat model and/or the Nesse quotation given above; but rather to any case in which, to both the sufferer and the observer, the levels of depression or anxiety experienced are self-evidently detrimental to personal effectiveness. Certainly the traits, in addition to depression and anxiety, Eysenck associates with it - irrational, shy, moody, emotional, tense, low self-esteem, guilt feelings - seem far from those which a well-

disposed fairy godmother would bestow on an infant princess. Yet beyond this lies even worse, the realm of psychosis; and beyond that, stress-related illness and death.

I have used these ideas in reconstructing and elaborating Eysenck's original schema. There is one point in particular on which I would appreciate some professional guidance: I infer from Eysenck's work that you can find stable, neurotic and psychotic introverts as well as stable, neurotic and psychotic extroverts. Can you find, as I am suggesting, stable, neurotic and psychotic individuals, all conforming to Eysenckian psychoticism?

In closing I should say that I think my interest in this area will be obvious: it draws together human variability, mental health and natural selection. And, as I think the following quotation shows, in making these linkages I am following in some fairly august footsteps.

In regard to the moral qualities, some elimination of the worst dispositions is always in progress even in the most civilised nations. Malefactors are executed, or imprisoned for long periods, so they cannot freely transmit their bad qualities. Melancholic and insane persons are confined, or commit suicide. Violent and quarrelsome men often come to a bloody end. The restless who will not follow any steady occupation emigrate to newly-settled countries, where they prove useful pioneers. Intemperance is so highly destructive, that the expectation of life of the intemperate, at the age of thirty for instance, is only 13.8 years; whilst for the rural labourers of England at the same time it is 40.59 years. Profligate women bear few children, and profligate men rarely marry; both suffer from diseases. As in the breeding of domestic animals, the elimination of those individuals, though few in number, which are in any marked manner inferior, is by no means an unimportant element towards success.

As is often the case, Darwin's language now seems somewhat harsh and insensitive. However, discomfiting as I find them, I am convinced that these few lines have profound implica-

tions for our understanding of the evolution of mental ill-health.

RG: About the recent Edinburgh findings on male-female differences in intelligence estimates: I can see that females selecting for high intelligence males could be a sexual selection runaway effect for greater intelligence in both males and females. But why would over- and under-estimates of same-opposite sex intelligence have anything to do with your nice point on sexual selection?

About Mike's question on Eysenckian psychoticism, please someone help.

Alias AG: Schizothymia and leadership: an attempt to define a contrasting model for schizophrenia. *Schizophrenia Bulletin* 1993;9:91.

Inability to process information at an adequate pace to hold, say, a sensible conversation, is believed to be a fundamental deficit in schizophrenia. In contrast, numerous studies have correlated leadership with speed of information processing. Torre (5-minute hour, Geigy, 1975), who extensively studied the mental health of world leaders, wrote, "political leaders have certain...traits [that] enable them both to seek out and be cast in a leadership role. The first of these characteristics is high energy [Goodwin & Jamison (1990) have correlated leadership with hypomania]...They are able to process large quantities of information quickly...[they] also have enormous sexual appetite..." Schoenbrun wrote, "I never met a great man or woman [leader] who did not possess that fine quick wit...No one could think more quickly on his feet than John Kennedy." According to the Guinness Book of World Records, Kennedy was the "fastest talker" in public life. When the schizophrenic speaks fast, it may be a "word salad." Typical male schizophrenics have very low sex drive while manics display hyper-sexuality (Kennedy's sexual escapades were legendary). But a great leader is much more than a hypomaniac, owing to his superior "ego-strength" with reference to the following ego-strengthening factors: (i) Rational self-confidence and courage, (ii) dominant and influential disposition in com-

pany, (iii) ambition and initiative, (iv) restraining power over impulses and adaptability to changing environment, (v) selective attention, (vi) ability to organize a number of acts within a limited time without feeling overcrowding or confusion, (vii) ability to choose decisively among alternatives and (viii) effortless systematization in instantaneous reactions when facing a crisis." Nevertheless the hypomaniac disposition in itself can enhance leadership, perhaps in the way that im-IPRAMINE restores some lost dominance in amygdala-tomized cats. Intriguingly, amygdala stimulation causes sexual arousal. I suggest that this ego-strength rapidly falls in men, ideally of comparable intelligence, roughly as follows: A great leader (Napoleon's mind is an apt example) > a functional hypomaniac (eg, Ross Perot) > an average person > a schizothymic > (residual) schizophrenic > a dreaming person.

Abstract: McKenna JJ, Thoman EB, Anders TF, Sadeh A, Schechtman VL, Glotzbach SF: Infant-parent co-sleeping in an evolutionary perspective: implications for understanding infant sleep development and the sudden infant death syndrome. *Sleep (Pediatric Review)* 1993;16:263-282.

Evidence suggests that infant-parent co-sleeping represents the species-wide pattern of sleep in which human infant physiology evolved. The hypothesis evaluated in this manuscript is that the co-sleeping environment may foster development of optimal sleep patterning in infants and confer other benefits, including reducing the risk of the sudden infant death syndrome (SIDS). These postulations by McKenna are considered from different perspectives by the co-authors. Using evolutionary, cross-species, cross-cultural, physiological and behavioral data, our objective was to present a conceptual framework for assessing the developmental consequences of solitary sleeping and infant-parent co-sleeping.

Contents include "An evolutionary analysis of infant sleep (McKenna)," "Pediatric sleep disturbances" (Sadeh), "Solitary or social sleep among infants and children: the relational aspects of sleep" (Anders), "Infant sleep research and ecological validity" (Thoman), "Co-sleeping and the sudden infant death syndrome" (Schechtman), and "Co-sleeping and infant thermoregulation" (Glotzbach).

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