

# ASCAP

" The nervous system and, in particular, the brain is commonly regarded as the most complex and highly organised form of matter known to man."

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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 psycho-pathologically related states. We are interested in the integration of various methods of study ranging from cellular processes to individuals in groups.

**Across Species Comparison and  
Psychopathology (ASCAP)  
Newsletter Aims:**

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

**The ASCAP Newsletter is a  
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# ADDRESSED TO & FROM ...

## **Update on Humankind!**

Thank you so much for your review of *Humankind the Gatherer-Hunter and Culture* and for publishing my article, *the Era of Evolutionary Adaptation*.

You may be interested to know what we have been doing since 1992, the book's publication date. Kathryn, having spent 8 years researching the book full-time, now works as a committee administrator in a professional institution. Henry remains a financial executive. In order to complete and publish the book, I gave up my finance career in business and took an 18 month unpaid sabbatical. Currently, I work in higher education, lecturing and researching in accounting.

During the past 3 years, Henry and I have had articles published regularly in the leading UK accountancy magazines. We are known as "traditionalists", who oppose the accounting standard setters' introduction of a new accounting paradigm. Our efforts played a small part in ensuring the rejection by the UK accountancy profession of the UK Accounting Standards Board's draft *Statement of Principles for Financial Reporting*.

Nevertheless, apart from my family, *Humankind the Gatherer-Hunter*, remains my priority.

One encouraging aspect for *Humankind the Gatherer-Hunter*, is that the discoveries of archaeologists since 1992, support the book's conclusions. Only yesterday, a leading UK newspaper (*The Daily Telegraph*), reported the discovery of Australian Aboriginal art dated, somewhat controversially, 75,000 BP -58,000 BP. These dates support our belief that humankind has been a complex reasoning hominid for several hundred thousand years. Dr. Chris Knight is quoted as saying about the discovery, "These are clearly competent archaeologists. If their dates hold up, then most prevailing models of human origins, mine included, are in ruins. Such things have happened before, but I will need convincing."

I am also working on a short article about personality traits, which may interest the ASCAP membership.

Michael Davies

## **Psychotherapy from E-Mail**

The literature reports SSRI's and MAOI's to be of help for social phobia as well as benzodiaz-epines — and they have been in my practice.

However, one patient, a single woman in her 50's, had suffered

severe social phobia with severe blushing and anxiety all her life, could not use benzodiazepines because of her recovery from a Fioricet addiction (butalbital) — this was what I had originally begun treating her for, she was extremely sensitive to SSRI's (also venlafaxine) and couldn't take even the smallest quantities of any of them ("Doctor, I'm aloft with Zoloft!"). A sufferer from severe migraine, she did not want to try MAOI's.

However — she responded to dynamic psychotherapy over a period of time, softening the severity of the superego, with disappearance (for the first time in her life) of the blushing, marked decrease in the social phobia, and, as one might expect, emergence of the (formerly defended against) assertive and even exhibitionist (not sexual, just social) tendencies.

So don't give up on psychotherapy (unless the patient is one of those people you just can't get into a serious conversation with).

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I have a case almost identical to Dr. Peyser's. This was a socially phobic woman. Her chief symptom was palm sweating. Very sensitive to the activating side

effects of SSRI's. Could tolerate none of them. Benzodi-azepines helped but she did not like them. Has responded very well to longer term psychodynamic psychotherapy. Actually, now she is terminating after 3 years.

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### ***Viniculturalis t strikes back***

RG's comments in the September ASCAP were such that, had I cut out my tongue and severed my fingers to enforce my own silence, I would have swum the Atlantic and used my forehead to beat out my response in Morse code on your door! There is absolutely nothing in what I have had to say throughout all these years that offends Calvin and Ojemann's six principles for a Darwin Machine. This I now demonstrate, principle by principle:

1. A pattern must exist:

The pattern is that:

(a) In every generation, individual organisms compare their own performance with conspecific peers. In doing, so they manifest what Festinger called the drive to self-evaluate and deploy much the same judgmental skills as are used in mate selection and in determining whether or not they are likely

to win were they to attack a particular rival.

(b) If an individual is able to award itself comparatively high marks, it benefits from hormonal boosts which trigger events serving both to enhance its own reproductive potential and to elicit submissive/cooperative behaviour from others.

(c) If its comparative performance is so-so, it is stimulated first to try harder and then, if this fails, to find some well appreciated support role in relation to the ablest individuals.

(d) If this too proves a failure, it may be stimulated to come up with some viable new behavioural option, perhaps ultimately culminating in speciation.

(e) If all these options prove unavailing, the resulting sense of failure becomes all-pervasive, destroys self-esteem, induces clinical depression and leads to both behavioural and physiological changes which very much reduce or permanently exclude that individual's contribution to the gene pool.

2. For which there is a mechanism for copying:

The mechanism which I have consistently proposed is that of a comparator gene responsible

both for the necessary judgmental components of the brain and the psychosomatic processes which lay at its disposal.

Obviously, the term "comparator gene" is shorthand for what would be a small sub-coalition of genes, or, more properly still, a sub-coalition of parts of a number of genes. Just as with the effects of any other gene(s), the mechanism I have described above has arisen by chance mutation of genes and has been refined and shaped by the forces of natural selection.

Key components will have initially got into place by having the individual-beneficial effects first described by John Price (i.e. the survival advantages of involuntary subordination); but once fixed, it was free (if mindless specks of DNA can be free!) to mutate in ways which further its evolutionary interests by rewarding successful individuals and savagely punishing failures. Because this strategy works, the genes responsible are copied, generation after generation, as is any other successful genetic coalition.

3. Variation on the pattern co-occurs:

The mechanisms central to comparator gene theory are as amenable to discriminative selection as is any other naturally occurring phenomenon, i.e., comparator gene alleles vary in their evolutionary effectiveness and are therefore under a continual process of selection and

rejection by natural selection. As I have said before, night-owls who decide that feather luminosity is THE thing to go for, will not last for very long.

4. There is a competition for a work space.

Once an environmental niche has been filled up, there are always more individuals and more comparator genes than the available resources can support. As with all other genes, the evolutionary more effective comparator genes are favoured, whilst their less effective comparator rivals go to the wall.

5. And there is a multifaceted environment that biases the competition for which pattern version will win.

Comparator gene theory demands no more than the standard Darwinian environment.

6. Finally, a closed repeating loop for the variation and selection steps assures the continuation of the process.

Again, I ask for no more than the generational flow of life.

Were I an impertinent schoolboy, I would now add Q.E.D. Scrutinise what I have said above as closely as possible and shock me if you can. I do not believe that you will find the slightest grounds for the accusation that my ideas are anthropomorphic. There is no hidden hand, no group selection in the true sense;

only a quintessential<sup>^</sup> selfish gene working its mindless way to evolutionary immortality at the cost of immeasurable human suffering.

My own contention would be that the answer to the question: "Are Mike Waller's ideas a theoretical possibility" has to be: "Yes". The real challenge to me is: "But would they work in practice?" With regard the first question, suffice it to say that I think it is still raised because the implications of my being correct are so appalling.

Freud spoke of Copernicus and Darwin having delivered two hammer blows to humanity's self-esteem; the first by de-centering the Earth, the second by de-centering the human species. Freud confidently expected that he would join these giants by introducing (popularising might be more correct) the idea of the sub-conscious.

In fact, good old egocentric humanity rather fell in love with the unconscious, seeing it as reflecting the depth and complexity of human nature. It would be difficult to put such a gloss on the idea that we have been selected to self-evaluate, and that we can be, in effect, our own judge, jury and executioner.

It would even more difficult to swallow if the ultimate beneficiaries are mindless specks of DNA, incapable of giving a damn eitherway. Frankly, threatened

with that, I'd tell Waller he was wrong. [You cannot keep a good *idée fixe* down!!!].

The question of whether it would work in practice is much harder for me to deal with. Russell printed extracts from my exchanges with Peter Frost, but my nemesis came largely from another source. In the past, my papers have usually been rejected on the grounds that as verbal arguments no longer satisfy, a mathematical model is essential.

Thanks to HBES-L (now HBE-L), I have at last been able to find a couple of modellers prepared to test my ideas. Both came out with an answer I did not want to hear: Comparators which kill their still fertile but unsuccessful carriers will be out-evolved by comparators which match all other comparator behaviours except killing fertile failures.

As my models have always been based on personnel selection (where sacking = killing) or stock breeding (where killing = killing), this was a disaster.

My critics' rationale seemed impeccable. They were quite prepared to have the losers put through psychological hell "*pour encourager les autres*"; but, by keeping them "hanging on in", once in a while one of them would get lucky and this would give the non-lethal comparator an edge that would take it through to eventual victory.

I need hardly point out that in mounting such an attack, the modellers had to accept almost all the operant principles of comparators, which others have found so hard to swallow. Nonetheless it was a very serious defeat.

From the outset I could see half an answer. If losers who get lucky are a major threat to comparators, then remorselessly pick on the weak and vulnerable. That way they wont get a chance to get lucky.

Similarly, if strangers may have a more effective strategy, attack strangers. To put it no stronger, such practices do seem sufficiently common in both human and animal affairs to have face validity as a comparator defence mechanism.

However, what seems to me to be a much stronger suit turned up by chance. A recent article in one of our national newspapers, dealing with a treatment for depression, contained the following statement:

*"According to the Royal College of Psychiatrists, approximately one in six women and one in 10 men (suffer from depression) and the latest government figures reveal that in 1994 depression was accountable for 6,454 suicides in the UK..."*

As I have always made clear, math is not my strong point, but there are about 60 million people in the UK, and by assuming our

natural breeding period to be about 30 years, I have calculated roughly that about 0.333% of the breeding population commit suicide. It therefore seems to me that, in terms of the UK suicide data, the comparator mechanism is doing exactly what my critics predict it should be doing: making its losers as miserable as hell without allowing them the easy out of suicide. In terms of my theory it seems to be a case of two wrongs making a right.

Certainly this is my new line of enquiry. I am currently seeking to get my modellers (and anybody else who is interested) to determine by model what the smartest overall strategy would be for a ubiquitous comparator mechanism, assuming that one exists.

I am particularly interested in culling effects and the stage at which they are best applied. [There is, of course, no dispute that morbidity is closely correlated to lowness of hierarchical status]. Once this is settled it seems to me just a question of testing what ever conclusions are reached against actual morbidity patterns in both human and non-human populations.

The incentive would be final determination of whether or not, in RG's neat little phrase, Waller "is clearly wrong". All help gratefully received.

Mike Waller  
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## **Answer to Viniculturalist**

Mike Waller should know that I am not after any of his body parts, not his tongue, not his fingers. I was simply grateful for his generously giving an argument that is so clearly falsifiable. Karl Popper says this contributes more to science that he/she who would prove a hypothesis.

Nowhere does MW rebut that he is wrong to assert that the comparator gene improves the efficiency of natural selection which was the core part of the Waller theorem, which I replicate again. He seems to have forgotten the Waller theorem!! This time, to embolden the falsifiable portion shown to be not a person or person-like entity but a process by the Darwin Machine of Calvin and Ojemann.

*"Although natural selection will generally work towards the reduction or elimination of heritable traits deleterious to the individual, it will strongly **favour such traits in all cases in which they serve to increase its (i.e. natural selection's) own effectiveness.** This condition is met in those instances in which the expression of a deleterious trait is conditional upon the individuals affected being amongst the least well fitted in any population whose numbers exceed resource availability."*

We obtain a measure of MWs commitment to his theory (wishing to prove it rather than

disprove it) as we see him simply ignoring his anthropomorphization.

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## **Announcement**

### *Call For Papers:*

#### Casebook of Evolutionary Psychotherapy

Kalman Glantz and Timothy Miller plan to edit a casebook of evolutionary psychotherapy which will consist of relatively brief papers submitted by mental health professionals interested in evolutionary principles. We are looking mostly for interventions, case vignettes, strategies and conceptualizations. Potential contributors should ask themselves, "*What are the most important ways I utilize evolutionary theory in my clinical work?*"

We will also consider reports of original research derived from evolutionary principles, if such research is potentially useful in clinical practice. We will ask authors to support statements of fact with appropriate citations of primary sources and to integrate evolutionary techniques with the existing psychotherapy knowledge base. Prospective authors, please contact the editors for further information.

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#### **About the Editors:**

Timothy Miller, Ph.D., is a clinical psychologist in private practice in Stockton, CA, occasional contributor to the ASCAP Newsletter, and author of *How to Want What You Have*, a briskly-selling self-help book derived from the principles of evolutionary psychology.

Kalman Glantz, Ph.D., is a psychotherapist in private practice in Cambridge, MA. He is co-author of *Exiles from Eden: Psychotherapy From an Evolutionary Perspective* and of *Staying Human in the Organization: Our Biological Heritage and the Workplace*. He is a regular contributor to professional journals and has given many papers on evolution and psychotherapy.

#### *Cajun joke, Commentary on Waller from E-Mail*

Waller reminds me of a story told (among other places) among the Cajuns in the swamps of Louisiana. There were two hunters being chased by a cougar. One hunter said to the other, "*Why are we running, we cannot outrun a cougar.*" The other one said to the him, "*I am not trying to outrun the cougar, I am trying to out run you.*"

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**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 TX 77555-0428, USA.  
WordPerfect, Microsoft Word or ASCII format preferred.  
Diskettes will be returned to you.  
Thank you.**

## Change in the Psychotherapy System?

I would like to support our Editor's suggestion of a link between ASCAP and the Psychotherapy Section of the World Psychiatric Association. I think this could be achieved without any loss of our usual eclecticism, or our interest in sociophysiology, or our recognition of the importance of a bottom up, as well as a top down, approach to psychopathology.

Three out of six of the board members of the Section are already ASCAP members, and the two others that I met in Madrid are sympathetic to our approach. What is so immensely refreshing is that the Section is free of the sectarianism which plagues so much of the psychotherapy world. It is ready to look at psychotherapy from the perspective of evolutionary biology. This seems to me to be a most unusual and promising trend, and one that deserves to be supported.

This development is largely due to the outgoing Section Chairman, Ferdo Knobloch. Ferdo is Emeritus Professor of Psychiatry at UBC in Vancouver, Canada. He is well known for his *"Integrated Psychotherapy"* published by Jason Aronson in 1979 and since translated into a number of languages.<sup>1</sup> He is a contributor to ASCAP and has developed the promising concept of meta-selection (ASCAP, June 1996) to describe the influence of group processes on sexual selection.

Ferdo, who alas will not see 80 again, was interned in Auschwitz during the War for marrying his Jewish girl-friend to protect her from the Nazis. Somehow, Ferdo managed to survive, but she did not. Then, when the Soviets came to threaten their freedom again, he emigrated to Canada. At the time of writing he is back in the Czech republic where a conference is being held in his honour. And, to continue the process, we are hoping to arrange a joint meeting in Kromeriz (in Moravia in the Czech Republic) for 1998.

Here are a few quotations to give the flavour of the Knobloch's book, which is beautifully written, lucid and logical:

P. xvi *"Experimenting with therapeutic communities of a special kind, at first in a residential setting and later a day centre, we were persuaded that the mutual influence of patients can become the most powerful therapeutic factor known so far."*

P. 18 *"It is sometimes easier and more economical to achieve changes in patients in an artificial group of patients, rather than with their families. This makes the following work with the families easier. For example, in the therapeutic community of the Day House, a young female patient shows the same rebellious attitude toward the female therapist as toward her mother, and the same jealousy toward a female patient as toward her sister. This may change during therapy, and when her mother and sister arrive to attend a mixed group of patients and relatives, the other patients double for them and speed up the change in the family system."*

P. 96 *"By corrective experience understand partial re-exposure to situations which the person was not able to master in the past, but re-exposure under more favourable circumstances, so that successful mastery is achieved."*

P. 101 *"Since we regard it as an integral part of efficient psychotherapy, this is one of the reasons why we avoid talking about family therapy."*

P. 101 *"In a well-functioning therapeutic community, the avoidance of appropriate action is a much more frequent problem than acting out."*

The treasurer of the Psychotherapy Section is Marco Bacciagaluppi of Milan, who spoke in Madrid on the contrasting child care practices of

hunter/gatherer bands and sedentary agricultural communities, and the effect of these differences on factors such as Mark Erickson's familial bonding and incest prohibition.<sup>2</sup> As treasurer of a Section which has no funds he is not overworked at the moment, but we have plans for finding him something to do.

The other Italian on the Board is Piero De Giacomo who is Professor of Psychiatry in Bari. Piero leads one of the well-known Italian schools of family therapy, and I strongly recommend his book<sup>3</sup> which rivals the innovative capacity and logical basis of the Milan school. There is also a Japanese member of the Board, but unfortunately he was not able to be in Madrid.

### **Evolutionary Causes of Psychopathology:**

There are several conceptually different but overlapping possible evolutionary causes of psychopathology, whether one defines that term as social malfunction, reduction of reproductive success or something that the individual complains about.

1. Mismatch of the present environment and the ancestral environment, or, if one prefers the somewhat clumsy term, the environment of evolutionary adaptedness (adaptiveness) or EEA. We were evolved to live in a rural band, but find ourselves living in a megalopolis, and so we get sick. A lot has been written about this.
2. People at the tail ends of a normal distribution get sick. For instance, it might take an average amount of social anxiety to produce good adjustment. Those who have too much suffer from anxiety neurosis, those who have too little suffer from antisocial personality disorder.

If there is a reduction of fitness at the tail ends of the distribution, we would expect the variance in the trait to get less over evolutionary time. Therefore we are interested in those forces which maintain trait variation in the population. Some of these are:

- a. Heterozygote advantage, as with sickle cell trait. Even if the homozygotes are completely sterile, they are generated again in each generation in the Hardy-Weinberg distribution.
  - b. Negative frequency dependent selection. If a trait becomes more advantageous as it becomes rarer, variation will be maintained.
  - c. Temporal, spatial or sexual counter-selection. If introversion is favoured in sparse habitats and extraversion in crowded habitats, variation along the introversion/extraversion dimension will be maintained. The same applies if one end of a distribution is favoured in males and the other end in females.
  - d. Mutation.
  - e. The breakup of balanced combinations. Crossing over during meiosis may generate variation by separating closely linked genes which cancel each other out. Balanced combinations do not actually maintain genetic variation, but store it and protect it from the action of selection.
3. Interpersonal trade offs. "Where there is conflict there is casualty". Men compete with men, women with women, wives with husbands, siblings with siblings, parents with children. If there is not a shortage of real resources, there is always a shortage of symbolic resources (power) to fight over. Not everyone can win, and the losers suffer. This is where Mike Waller's comparator mechanism fits in.
  4. Intrapersonal trade offs. People have more than one objective in life, and the more vigorous pursuit of one objective may jeopardise another objective, such as staying well. This is most clear with people who take physical risks to achieve their aims, but it also applies to

psychological risks. For instance, so much may be invested in a relationship that one is vulnerable when that relationship ends.

5. The function of a seemingly maladaptive behaviour is not apparent. For instance, someone observing a hibernating animal who did not know about seasonal variation in food and water supply might think that the hibernation was maladaptive.
6. Physical and statistical constraints. For instance, in a society in which good mental health depends upon satisfactory pair-bonding, some people will not find partners, if for no other reason than the sex ratio may not approach unity.

I hope that a classification of causes like the above will clarify thinking. Hopefully, other contributors will add causes I have not thought of, or perhaps reduce the above causes to a smaller number of basic causes.

### **Some Thoughts about Psychotherapy:**

Everyone would agree that the world of psychotherapy needs to change. It is difficult to promote change, but at least it does no harm to speculate on the kinds of change one thinks are desirable. I will outline some changes at which I think it would be worth aiming. These are presented for comment and criticism.

#### **1. Specialist Psychotherapists de-skill General Psychiatrists:**

I think all psychiatrists should be psychotherapists. Those doctors who practice intensive, long term psychotherapy, seeing patients more than once a week for a year or more, should be called "specialist psychotherapists" to recognise that they are attempting a task (radical personality change) which the average psychotherapist does not aspire to.

Therefore, for instance, what is now called the Psychotherapy Section of the Royal College of Psychiatrists should be called the Specialist Psychotherapy

Section. And we should rejoice in our title of Psychotherapy Section of the WPA which indicates that it is concerned with the broad range of eclectic and relatively brief psychotherapies which all psychiatrists should practice.

It is becoming recognised, as Freud recognised, that public psychotherapy must be shorter than private analytic treatment, but along with this view goes the idea that shorter treatment is second best. A recent paper contrasted "analytically based psychotherapy" with the "medico-pharmacological model".<sup>4</sup> But for many patients shorter treatment is not second best, and there is a multiplicity of models other than the psychoanalytic for conceptualising the problems of these patients.

Since retiring from full time practice, I have done locums in at least 12 settings, and it is depressing to see a patient referred to the Mental Health Team and allocated to the psychiatrist for drug monitoring and to a psychologist or nurse for psychotherapy. And our new management structure and the market economy are aggravating this tendency, as the vital statistic has become "consultant-patient contact" regardless of the length of each session or the number of sessions.

It is not surprising that managers are coming to believe that psychiatrists are too expensive to practice psychotherapy! One partial solution would be an increased use of family therapy interventions by the psychiatrist, and I hope to return to this theme later. You could take a more extreme view and suggest that all doctors should be psychotherapists. At least they should formulate the patient's problem from the perspective of the patient, and take this into account when planning treatment. If they did this, less people would feel inclined to turn to complementary medicine.

#### **2. Evaluation:**

Our failure to evaluate the various psychotherapeutic procedures is a downright scandal. It shares its scandalousness with our failure to evaluate psychosurgery, and other "important" treatments.

In my view, the evaluation of a treatment cannot be left to those who practice it, or even those who refer patients for it, because their ethical responsibility is to the individual patient which takes precedence over the more general responsibility to evaluate treatment for the benefit of those patients yet to come. No one who practices psychotherapy is likely to advise a patient to run the risk of being allocated to a control group which does not receive psychotherapy, and therefore if it is humanly possible for them to do so, referred patients will evade the trial procedure. Our normal practice of evaluation fudges over this issue, which leads to the paradox that "the more important a treatment is, and therefore the more important it is to know whether or not it works, the less it is likely to have been properly evaluated". I once wrote about this in relation to psychosurgery,<sup>5</sup> but the principle applies equally to psychotherapy, and indeed to lot of other major treatments in medicine and surgery. This is another theme to return to.

### 3. Couple therapy:

I think that, as a general rule, when one of a married couple needs psychotherapy, they should both have it together. If you are not part of the solution, you are part of the problem. Moreover, I have seen individual psychotherapy ruin marriages. There is resentment in the other partner at the expenditure of time and money, and at the development of an intimate relationship outside the marriage. I have seen group therapy destroy a marriage as the development of strong within-group cohesion, associated with special knowledge and jargon, led the wife to despise her husband who was outside all this development. Of course, there are exceptions to this principle, such as when a married person is not keen to stay in the marriage. At least there is a case for a randomised trial between individual and couple therapy for married patients.

### 4. Selection for Specialist Psychotherapy:

Concerning selection for specialist psychotherapy, I have come to use a "rule of thumb" although where I got it from I could not say. Patients who need specialist psychotherapy have usually been damaged

in childhood, and have failed to develop the normal confidence in themselves and basic trust in others that we associate with adult mental health. In my experience, this damage can occur at one of two main stages of development, and the difference has a bearing on choice of treatment.

Some people do not feel loved and valued by their parents in early childhood, or are actually abused by them. These patients do not develop a basic self-confidence in themselves or a basic trust in others; they need a "re-run" of the parent/child relationship, and therefore need long-term individual psychotherapy so they can learn from the therapist the lessons they failed to learn from their parents (what if they are married, you will say - well, that is a problem). They need what the Knoblochs call a "corrective experience" in the transference situation.

Other patients had satisfactory relations with their parents but did not establish membership of their peer group in adolescence. These patients need a "corrective experience" of the peer group relationship and therefore need group therapy, so that they can learn from their fellow group members the lessons of acceptance and belonging which they failed to learn in adolescence.

This rule of thumb, which seems so obvious to me, does not seem to be accepted by specialist psychotherapists, and I would be grateful for any comments, and for references to such a practice in the literature.

I note that in *Integrated Psychotherapy* the Knoblochs describe in detail the case of David, one of whose problems was a disturbed relationship with his father, and this problem was dealt with during a six week course of treatment in the day hospital. This might suggest that even for parental problems brief psychotherapy should be adequate.

However, in the case of David the paternal relationship was satisfactory up to the age of nine, by which time basic trust is thought to have formed, and also in the case of David his father was able to join personally in the group treatment to good effect. It

is an empirical matter as to whether patients damaged by their parents before the age of nine can benefit from short term group therapy, or whether they require longer term one-to-one treatment. At the moment the practice in the UK is for these patients to be referred for specialist individual dynamic psychotherapy.<sup>6</sup>

### **5. Symmetrical Relationships:**

A fundamental problem for many people is that they cannot form equal, symmetrical, reciprocal relationships. They either crawl or boss. This is not surprising if we accept that the egalitarian hunter/gatherer band (if it ever existed) lasted a much shorter time in our evolution than the group based on a dominance hierarchy. The equal relationship which is possible between same-sexed adults (and between opposite sexed adults) is a pinnacle of social evolution and is not achieved by everyone.

A major factor in preventing such relationships is bullying in schools, so that children learn the lesson, "get on top of him before he gets on top of you"; another factor is the general acceptance of the pernicious "Peter Principle"<sup>7</sup> which states that, "he who is not one up is one down." This is another problem which can be addressed by group therapy, as it was in the case of two patients whose treatment is described in detail in *Integrative Psychiatry*, Anne (pp. 148-161) and David (pp. 231-273). This inability to form equal relationships has been called "the authoritarian personality".

### **6. Co-Counselling:**

In co-counselling, two people meet regularly and counsel each other. They take it in turns to counsel and be counselled, dividing the time equally between the two roles. They may meet a teacher or facilitator every so often, either as a couple, or, more usually, in a group of about five co-counselling couples. This method should be investigated thoroughly in various cultural groups. It is clearly an inexpensive form of psychotherapy. Also, it is a way of combining group and individual

therapy. Also, it helps to address problems of symmetry in relationships, and it avoids the dependence which may be created by traditional psychotherapy. Describing the method in her book, *The Barefoot Psychoanalyst*, Rosemary Randall emphasises that the counsellor should not adopt a superior attitude to the counsellee.

### **7. The Shivering Model:**

ASCAP readers will be familiar with this model which sees an episode of depression as a de-escalating strategy operating at MacLean's reptilian brain level. Using the analogy of shivering in response to cold, we say to patients that, if we were treating shivering, we would not start massaging the muscles and injecting them with muscle relaxants -rather, we would be asking questions such as, "Why haven't you turned on the central heating?" Likewise, in treating the depressive response to social adversity or failure to achieve goals, we say, "Why haven't you dealt with this problem at the higher level, either carrying out a successful escalation in spite of your depression, or de-escalating by backing off or getting the Hell out of the situation or relationship?"

Russell Gardner, who, like me, has used this to effect in psychotherapy, has a concept of ATP in which the patient is advised to recruit Allies, to Think, and to Plan.<sup>8</sup> To plan a strategy in the presence of friends and family is a powerful antidote to the spontaneous operation of the reptilian brain. I would like to see this technique applied to a series of depressed patients to determine the causes of "not switching on the central heating."

In the October issue, the Editor pointed out that the shivering model often requires the patient to give up something, and in this it is similar to David Rosen's concept of "egocide". Here is discussion of the need to give things up by another exponent of integrative psychotherapy:<sup>9</sup>

*"Another aspect of schema change during psychotherapy is a process much like mourning. Very often a resolution of conflict has been derailed*

*because the person cannot tolerate states of mind that have to do with giving up something he or she desired, or from which he or she benefitted in the past. By entry into the usually warded-off state in a safe situation of therapy, the person may re-rail a process that was derailed. As the process continues, the person may experience useful mourning. The person gives up an old attachment and may give up an old way of being, and with that relinquishing may gradually form a new self-schema, more supraordinate self schemas leading to better self-organisation, and also the ability to enter into new relationships that will, with repetition, lead to schematic change in such inferred structures as role-relationship models."*

### **8. Self-help Groups:**

Self-help and other community groups are important. It would be useful to have "action research" into how the general psychotherapist can facilitate such groups and offer himself as a consultant in case they get into difficulties.

### **9. Community Groups:**

A major problem in our society is the decline in church membership. People get a lot of both tangible and intangible benefits from being members of a church congregation, and at the moment those who are unable to accept such membership lose out on these benefits. I realise that Julian Huxley tried hard to establish a humanist "religion" and totally failed, and it is possible that it is necessary to accept and share apparently irrational beliefs in order to make such membership worthwhile. Nevertheless, the problems of loneliness and alienation which non-church members suffer would indicate to me that further attempts to offer a secular alternative to religion should be made. Having written the above, I read that Carl Jung made this point in a letter to Freud in 1910.<sup>10</sup>

#### **10. Therapeutic Communities:**

We need to know a lot more about the dynamics and effectiveness of treatment in both residential

communities and the sort of day hospital described by the Knoblochs. Needless to say, no-one has carried out a randomised trial of either of our national NHS therapeutic communities (The Henderson Hospital and The Cassell Hospital). Regional therapeutic communities have risen and fallen in this country, usually established on egalitarian principles by charismatic figures like Maxwell Jones, only to collapse when their less charismatic successors are outwitted by the "group seducer".<sup>1</sup>

In the private sector, residential communities based on the "Minnesota Method" for the treatment of chemical dependency (and more recently also for eating disorders and "co-dependency") have mushroomed and appear to have great success, not only in helping people to give up drugs and alcohol, but also in general personality development. This kind of treatment is not available on the NHS, and we have a problem with people who want it but cannot afford it, and want the NHS to fund it.

#### **11. Believers in the Schizophrenic Patient's Delusions:**

Finally, a pet scheme which is based on our group-splitting evolutionary hypothesis of schizophrenia.<sup>10,11</sup> Looking at the schizophrenic patient as a failed cult leader, it might be possible to replace the real cult with the virtual reality of computer-generated cult followers. It is possible that the negative features of schizophrenia are due to the failure to get the boosting and validation which the cult leader gets from his adherents, and if we could replace this process, we might be left with functioning patients with bizarre beliefs, but no more bizarre perhaps than the shared beliefs of the majority.

#### **Afterword:**

This is not a manifesto of the Psychotherapy Section of the WPA. They are my personal views and aspirations. I offer them for debate, in the hope that an evolutionary psychiatry<sup>12</sup> based on evolutionary psychology might be able to effect some change in what looks to me like a very change-resistant system. The time seems right. c8

## Comparator Gene Theory: An Exchange

### Assault on Comparator-Gene Theory

Finally catching up on a backlog of HBES-L postings, I see that Mike Waller's comparator-gene theory is back in the news. Mike and I had a long (and fun) off-list debate a while back on this in which he was soundly defeated (though that's not the way he'll tell it). As he evidently remains unconvinced by my argument, I thought I'd give it one more shot and take this to a jury of our peers.

The majority of the comparator-gene idea seems entirely sound and uncontroversial to me. Social organisms no doubt have mechanisms of one sort or another designed to track their position in local hierarchies and to contingently guide behavior according to the current assessment. Winners behave differently from losers, at least in part by virtue of their self-assessment of previous winning and losing. Humans experience this ongoing self-assessment (or, perhaps more accurately, assessment of others' assessment of them) as "self-esteem." Psychology is up to its gills in data showing the importance of self-esteem for motivating and directing behavior (though they seem relatively clueless as to what exactly self-esteem IS or why it's there).

The rub, however, concerns the contingent strategy adopted by "losers" - those individuals who deem their current standing (and thus future potential) to be poor. The controversial part of Mike's proposal is the idea that when an individual's self-assessment ("self-esteem," in quotes) falls below some criterion level, physiological and/or behavioral responses kick in that function to hasten the individual's demise. It crawls in a corner and dies, gives itself up to a hungry lion, or whatever. (Remember that poor stranded water buffalo, or whatever the hell it was, of HBES-L legend?) These losers thus remove themselves from the competition, presumably to the

advantage of other population members who carry the same gene (a crucial assumption) as a result of reduced competition for resources, etc.

This sounds on first blush suspiciously like the proverbial "altruism" gene directing its carrier to sacrifice itself "for the benefit of the group." Mike argues adamantly (and persuasively) that this is not a fair comparison, because his comparator gene codes for CONTINGENT behavior: It causes "altruistic" (self-destructive) behavior only in those carriers who have no future anyway. Thus, he argues, it is not vulnerable to displacement by "selfish" cheaters - the presumed fate of any pure altruism gene.

This point is well taken, but I still think the comparator-gene's strategy is not an ESS because it inevitably loses out to a purely "non-altruistic," non-self-destructing, competing strategy. Imagine a population in which all individuals carry a comparator gene that codes for contingent strategies as Mike describes: Part of the strategy is that when an individual's "self-esteem" (i.e., self-assessed status, success level, or whatever you wish to call it) falls below criterion level X, it begins some kind of self-destruct sequence.

Presumably there will be some genetic variability in the exact level at which this criterion is set: Some individuals will "give up" a little more easily than others do. Or, perhaps a mutant arises that sets the self-destruct criterion a little lower than the norm (say, X-1). Individuals carrying this allele don't give up quite as readily, and while others in the population with comparably low levels of "self-esteem" are busy self-destructing, these organisms hang in a little longer. I think these "less wimpy" genes will do better than, and eventually replace, the original comparators.

Why? Because of factors that render the future less than perfectly predictable. First, there will always be some "measurement error" in the comparator mechanism's self-assessments: Some individuals might erroneously underestimate their current success level (and hence future reproductive potential), and thus self-destruct prematurely. Second, there are many sources of randomness and unpredictability in the environment itself: Hanging around longer means the opportunity to capitalize should things take a turn for the better -for example, due to a sudden thinning of the population (competition) resulting from disease, natural disaster, predation, etc. Among individuals whose current self-assessment falls below criterion X, those carrying the comparator gene self-destruct and thus can pass on no copies of the gene, whereas at least SOME of those carrying the less-wimpy alternative will, despite seemingly poor prospects at one point in time, survive long enough to take advantage of better circumstances should they come along, and thus pass along copies of the less-wimpy gene.

In short, hanging around and putting off self-destruction a little longer than one's neighbors should be a successful strategy in a population of comparators; at least some individuals who do so will survive and reproduce where those carrying the wimpier genes will not. And once this process starts — i.e., somewhat-less-wimpy versions of the comparator gene out-reproducing wimpier versions -it isn't clear where it would stop. Eventually, it seems to me, the population will come to be dominated by less and less wimpy versions of the gene, and eventually the "self-destruct" component of the comparator mechanism will disappear altogether. Mike's objections notwithstanding, the problem really does seem analogous to the altruism problem, where "giving up less readily" is akin to a selfish cheater strategy.

It seems to me that the only way the comparator mechanism could be an ESS is if individuals are capable of estimating their reproductive potential WITH PERFECT RELIABILITY. If a currently unsuccessful individual could be certain that its

long-term reproductive potential was truly ZERO, there would be nothing to lose by self-destructing -the genes aren't going anywhere anyway - and there might be something to gain for the other carriers of the gene in the population. But so long as hanging around longer leads to some non-zero probability of reproductive success in the future, avoiding self-destruction will confer reproductive advantage relative to comparators who self-destruct when things look bad. The self-destruct component of the comparator mechanism eventually will be selected out.

Ain't that right, Mike?

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### ***Kirkpatrick on Comparators***

I think Lee has given a very fair summation of where he and I got to after a lengthy series of exchanges a few months ago.

I found, and still find his argument both challenging and frustrating.

A few nights ago Peter Frost posted the following:

*"I have known a few people who have started up small businesses and are now successful. During their initial startup period, however, they went through bouts of depression, self-doubt and, yes, thoughts of suicide. Things are never obvious during the period when more is going out than coming in. In such a context, it's far better to let the market be the final arbiter and not unreliable feelings about one's self-worth."*

To quote another proverb: *"It's never darkest than before the dawn."*

I have quoted the section in full so that it can be seen that Peter wasn't trying to help me. He was raising essentially the same point as Lee.

However, it is to the opening two sentences that I now draw attention. I say now, as I said then, this is the downside of the comparator mechanism in action. Obviously, I don't rely solely on what Peter had to say so recently.

I have case studies of self-identified failures doing just about everything conceivable to take both their own genes and the genes of their children out of the gene pool.

A few days ago one of our national newspapers ran a small piece saying that about 40% of heart attacks were now thought to be psychological in origin. In preparing our paper for Evanston, Howard Bloom and I were readily able to support the following claims:

*"A sense of being unwanted leads to low self-esteem, depression, and a range of physiological changes which, in the natural world, would sharply increase the chances of death. The effectiveness of the immune system is impaired, the perceptual apparatus is dulled; the appetites for both food and sex shrink or are lost; and the whole mind set becomes permeated by feelings of lethargy, negativity and hopelessness."*

*"In males, sperm count and motility fall, and for both sexes the longer term brings heightened risks of heart disease, cancer, thyroid disorder, ulcers and mental illness. Those depressed by social rejection worsen their position by producing a variety of covert and overt signals which drive others away, thus marginalising the victim.."*

*"We could cite as an example a business failure losing all interest in his wife, treating his children in ways certain to cause psychological damage, suffering a reversal in health, and spending much of his time pointlessly reviewing his finances. Others simply commit suicide...."*

I have just finished watching an episode of Inspector Morse on TV. I cannot help thinking that the great detective would say: "These are facts, Lewes, facts! And where does theory stand in relation to that?"

Remembering my experience with Lee, I have proposed and had accepted what I call terms of trading, reproduced below. I have to say that my modeller is as sceptical as Lee, but at least I feel that basis of exchange is somewhat better defined.

My problem is that I have a theory which seems to stand counter to the mathematical computational models used to evaluate these things.

Your problem (what's it like to stand representative for a whole discipline?!) is that I have facts of everyday life (i.e relating to self-destructive behaviour etc, etc.) which seem, at best, to sit awkwardly with the models you have to offer.

I make this point at this stage, because, if having run myself ragged in trying to accommodate my ideas within models which I will never fully comprehend, I fail, then I will still be left with the (to me) compelling facts which set me off in this direction in the first place.

Can we therefore see as our joint objective the bringing together of the facts which bother me with the models you have to offer, regardless of whether or not the construction I now place upon the facts proves to be valid?

All that said, from here on in, I will fight like hell to show that it is!

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### ***Last night as I lay on my pillow.....***

Last night, as I lay in bed thinking about the vicissitudes of being a revolutionary thinker (good example of British modesty), I thought with some envy of the old film routine in which the hero, beset by opponents, simply takes the verbal flack until one challenger says something which annoys another, a side fight starts and our hero slips away. Could I do likewise? Suddenly, it struck me that perhaps, metaphorically, I could. The card which

Lee Kirkpatrick is convinced his trump is the notion that the self-destructive element of the comparator mechanism could not be evolutionary stable because another mechanism which matched the comparator, feature for feature, except for the self-destruct element, would inevitably out-compete it. This because the non-self-destructor would:

- a. Always have more carriers on the ground, albeit the extra ones would usually be of inferior fitness; and
- b. Every so often one of these apparently sub-optimal carriers would turn up trumps with a valuable new adaptation denied to the comparators.

In my water (a most unscientific fluid) I remain convinced that this idea is flawed. I think that the whole thrust of the evolutionary process turns upon (a) there being very many more individuals than there are resources to support them; and (b) those who get eliminated being the ones least well endowed to cope.

Therefore, maximising the resources available to the best fitted by accelerating the exit of the least well fitted is likely to be a very stable strategy, not least because the extra first class individuals this sustained are much more likely to come up with a valuable adaptation than an equivalent number of also rans.

However, my numerate friends tell me that this simply cannot be so and I must find another tack, or shut up. Herewith another tack:

My ideas first appeared in *Nature* in 1991. One of the critics (M.S. Fazeli, Royal Free Hospital School of Medicine) wrote as follows:

*"It also occurs to me that, in most cases, depressive illness, like many other CNS disorders, appears to strike after most people have had their heirs (median age for depression is 40, and for bipolar disorders about 30). Thus the psycho-Darwinist theory, if it were true, would have little influence on the evolution of mankind."*

I replied thus:

*"Some apparent difficulties are caused for psycho-Darwinism by the phase in the human life cycle at which the onset of mental illness is most likely to occur, as M.S. Fazeli points out."*

*"One possible explanation turns upon the exceptionally long period of nurturing the human child requires. Because of this, in the natural state, the incapacity or elimination of a parent as a result of a mental disorder would, in almost all cases seal the fate of the child, and genes common to both. Given that it is not always the most eligible partner who proves to be the most effective parent, there may be greater evolutionary stability in applying the relative success/failure test with greater rigour well into the nurturing phase, rather than before reproduction. "*

*"Two other, mutually exclusive possibilities are (1) it "pays" to rely upon reproductive suppression, rather than mental illness and death, throughout the fertile period in case the individual eventually finds something it is relatively good at; or (2) in nature, natural selection operates on the incipient stages of mental illness, thus achieving elimination long before the mature phase we treat clinically".*

Reading this again after five years makes me think (a) I was brighter then; (b) there lies therein a possible answer to the Kirkpatrick/Frost "just hang on in" thesis. Perhaps the comparator mechanism does achieve something like the perfect knowledge that Lee calls for. It lets us run our reproductive course and then decides.

P.S.I actually believe that the above is just one of the comparator mechanism's strategies. It is adopted in cases where there are at least some prospects of future success. Convince yourself at any stage in your life that you are absolutely worthless and without hope or prospects and it will take you then, as, inter alia, our burgeoning young male suicide figures so sadly attest.

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# ARTICLE:

by Claire Russell & W.M.S. Russell

## Population Crises and Population Cycles 3. North Africa and Western Asia.

(Reproduced with permission from the Galton Institute Newsletter, September 1995.)

**Editor's Note:** This is the 3rd installment of this article. The 2nd installment appeared in last month's newsletter. The reference list for this article will be put with the 4th installment in next month's issue. The 1st installment appeared in our March 1996 issue, however bear in mind that as mentioned in that issue, there are 11 parts to this series. The 5th, 6th, & 7th will be out in the near future.

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The 'dry belt' of North Africa and Western Asia extends from Morocco to the centre of the Asian continent. It was called the dry belt by W.M.S. Russell in 1967, because throughout its extent rainfall is irregular and often scanty. There are large areas notably in flood plains, where the soil can be enormously fertile, and support a very dense population, *provided it is suitably irrigated and drained*. But these settled enclaves are everywhere bordered by seasonal grasslands merging into totally arid desert. Instead of a homogeneous land-mass with grasslands on its northern border, as in China, the belt is a mosaic of juxtaposed areas of settlement and more or less nomadic herding peoples.

Hence it was only once, and briefly, politically unified, by the Arabs in the early 8th century A.D. But ever since then the belt has been culturally unified by the heritage of the Arab conquest, the religion of Islam. The eastern border of the belt can be set at the River Talas in Kazakhstan, where the Arabs defeated the Chinese in 751 A.D., but were unable to invade China.

Though the belt naturally lacks the regular censuses of China, there is abundant evidence of recurrent population crises, with their usual accompaniments, for instance of inflation, famine, violence, and epidemics. In the great crisis of Babylonia = (Sumer + Akkad, see **Figure 1**) in the mid-second

millennium B.C., the price of barley tripled and economy relapsed into barter. Towards the end of the Egyptian Old Kingdom (**Table 2**), the skeletal figures of starving peasants appear on a temple bas-relief. During the ensuing population crisis, an Egyptian writer produced a moving lament: "*All is ruin. Blood is everywhere ...*" In 1060 A.D., up to 10,000 people a day were dying of plague in Cairo.

The resulting massive fluctuation of population are attested by tax records and especially by archaeological surveys of density of settlement. Under the Sassanian Kings of Persia (226 A.D. to 637 A.D.), the tax receipts of Khuzestan, in southwestern Iran, reached a figure 12 times as high as under the Achaeminid dynasty (539 B.C. to 331 B.C.). By the 10th century A.D., the receipts had fallen to 40% of the Sassanian figure, and by the 14th century to 6%.

In the Diyala Basin east of Baghdad, the number of settlements fell by more than 80% between the 19th and 13th centuries B.C. The population cycles in these 2 regions are shown in **Table 1**. Notice the peaks, not in the present as in China, but under the Sassanians and the early Abbasid caliphs (750 A.D. to 902 A.D.). Grotesque underestimates of ancient and medieval populations in the belt have been published by those who ignore these kinds of evidence.

In 1377 A.D., the great Arab sociologist Ibn Khaldun of Tunis outlined the course of events in a typical region of the belt. Settlement led to high civilization. But then overpopulation set in, with its accompaniments of overtaxation, inflation, famine, violent revolts, and anarchy. The weakened state would be conquered by a horde of barbarous sheepheaders from the adjacent wilderness, often fanatics. They would set up a new dynasty, which would become civilized, and the pattern would be

repeated indefinitely. In his own Maghrib (North Africa - west of Egypt), such herder dynasties included the Almoravids and Almohads.

Elsewhere there were the Amorite and Chaldean dynasties of ancient Babylonia, the Hyksos in ancient Egypt, the Parthians, and various Turks in later periods of Western Asia, and the Wahhabi Arabs in Arabia. But Ibn Khaldun noted that some invasions were enormously destructive. In the 11th century A.D., a roving Arab tribe, the Banu Hilal, destroyed forest, settlements, and irrigation works all over the Maghrib, and the Mongols did much the same later in Western Asia. Ibn Khaldun used archaeological evidence (the ruins that covered the region), to show that the Maghrib had a populous and flourishing civilization before the Banu Hilal raid, and he also noted that the lands ravaged by these invaders had become completely arid desert.

The juxtaposition of settled areas and wilderness, that made all of this possible, was already evident when civilization began in the region of Western Asia, called by J.D. Breasted, in 1926, the "Fertile Crescent", shown in **Figure 1**. South of the settled crescent lay wilderness with barbarian herders, and north of it mountain ranges with wild mountaineers, who also sometimes invaded and founded dynasties, like those of the Gutti and the Kassites. In the 8th to 7th centuries B.C., the whole crescent was unified by the Assyrians, in a water-shed empire as horrible as that of the Ch'in in China.

After this empire collapsed, Western Asia alternated between more civilized empires and a kaleidoscopic pattern of states with continually shifting rules and frontiers. A simple table for the whole belt, such as we provided for China, is therefore impossible. But a few specimens will give one a fair representative sample of cycles (not always in phase), throughout the belt. So besides those of **Table 1**, we present the cycles of Egypt, in **Table 2** and **Figure 2**. Population density was already so high in Ptolemaic Egypt (304 B.C. to 30 B.C.), that the curve for Egypt shows little rise between then and the 20th century A.D. Throughout the rest of the belt, there has been a MI, as in **Table 1**. The population of Iraq, for

instance, has been estimated at 30 million around 800 A.D.; by the early 20th century, it had shrunk to less than 5 million.

Because of their climatic and geographic vulnerability, recurrent population crises in the settled regions of the belt caused increasing devastation of the environment: hence this unusual characteristic of their population graphs. One effect of the population crises was salinization. Already in Sumer (**Figure 1**), as in China, overpopulation had led to competition for water between the city-states on the Euphrates. As a result, the Tigris was also canalised, and eventually a large area of Sumer was irrigated from both rivers, as shown in **Table 3**. Later salinization also affected Akkad, and by medieval times, the regions of **Table 1**. In Khuzestan, in the 9th century A.D., a desperate attempt was made to remove the saline surface crust, using massive slave labour imported from East Africa, but the only result was a devastating slave revolt.

Neglect and destruction of irrigation works during the crises led to excess deposits of silt. Deforestation by the invading herders, to create more pasture, and overgrazing by their sheep, led to massive erosion, silting, and the formation of deserts. Throughout the belt, ancient records and the study of ancient wells show that rainfall has not diminished since at least Roman times, and a survey in Iraq in 1962, showed that all the deserts there were man-made. "*In the rivers of my city*", wrote a Sumerian poet during a population crisis, "*dust has gathered*". It is this accumulation of environmental damage that has reduced the carrying capacity, and hence the population density of the whole belt.

The course of environmental devastation has been superbly well-documented by A. Reifenberg for the Levant (modern Syria, Lebanon, Israel, and Jordan). The region attained a peak of prosperity in Roman times, thanks to a number of very ingenious devices for catching, storing, and distributing water. It was totally ruined by a succession of population crises in medieval times. Here we can only give 3 striking illustrations. Much of the region was still covered

with forests in Roman times; less than 1% of the Levant is woodland today.

As for erosion, since Roman times, enough soil to make nearly 4,000 square kilometers of good farmland has been washed off the western slopes of the Judaeen Hills, and the Roman theatre at Beit-Shan is covered by silt to the top seats. In the plain of northern Syria around Qal'at Sim'an, by the mid-20th century A.D., the ruins of 42 ancient towns lay scattered among the 14 villages still occupied, in a desert littered with ruined oil-presses and wine-presses; the hill of Testaccio, on the banks of the Tiber in Italy, is made up of the remains of huge broken jars that once contained the wine and oil imported to Rome from this now desolate region.

From the 16th to the 19th century A.D., in the ravaged environment of the belt, the magnificent civilization of medieval Islam virtually disappeared. Islamic science, which had done wonders for centuries, was stifled by ignorant fanatics in power. The stresses of recurrent population and barbarian invasions produced what we have called stress culture, a complex of behavioural aberrations socially transmitted through the generations, whose notable feature is the subjection of women.

The same thing happened in China, where the horrible practice of binding the feet of girl-children had become widespread by the 10th century A.D. At about the same time, in the later 10th century, the seclusion of women was becoming customary in Islamic lands. This has nothing to do with religion.

The Prophet Mohammed (circa 570 A.D. to 632 A.D.), with an enlightenment far ahead of his time, did his utmost to promote equality between the sexes. The misogynistic remarks ascribed to him are known to be spurious. The pagan institution of the veil was first used under the horrible Assyrian regime, to distinguish free women (not to be assaulted in the street), from slave women (fair game). In times of high Islamic civilization, as late as the 9th century A.D., there were free women who went unveiled, held salons, achieved distinction in politics and even commanded troops.

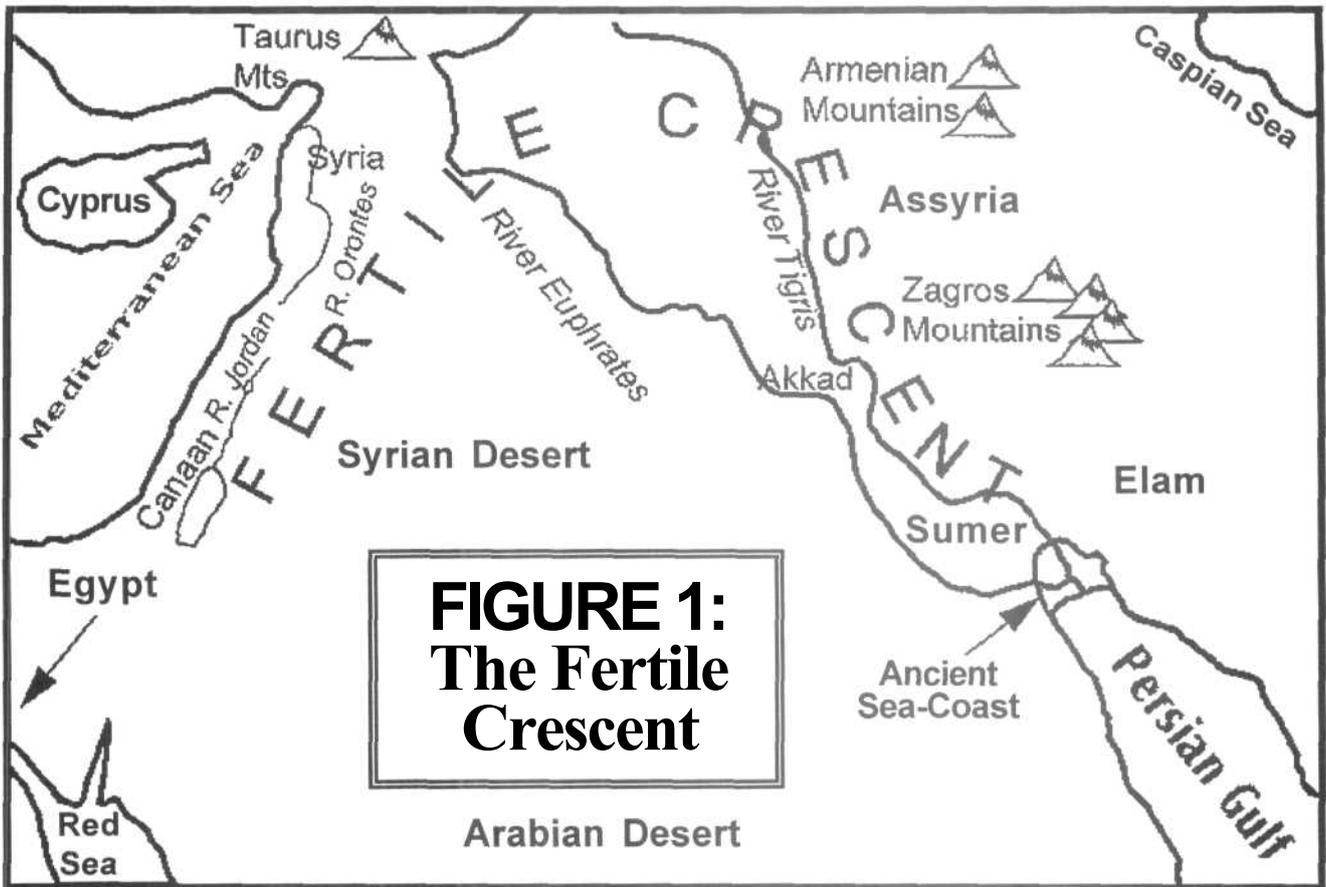
In the 19th century A.D., with a much reduced population, Islamic civilization began to revive. Painting, hitherto banned by the fanatics, spread in the belt, a printed press developed, and great Moslem reformers were active: Muhammed Abduh, who called for a revival of science, and Qasim Amin, who published a classical book on the emancipation of women.

By the 20th century, serious attempts were being made to restore ruined land and reconstruct the sophisticated water control technology of ancient and medieval times. But, as usual, population growth was soon outstripping the resulting increase in resources. By mid-century, the population of Iraq had doubled again, though still below the Abbasid level. Overpopulation now threatens the whole belt with widespread violence, a relapse into barbarism in the treatment of women, and renewed degradation of the environment.

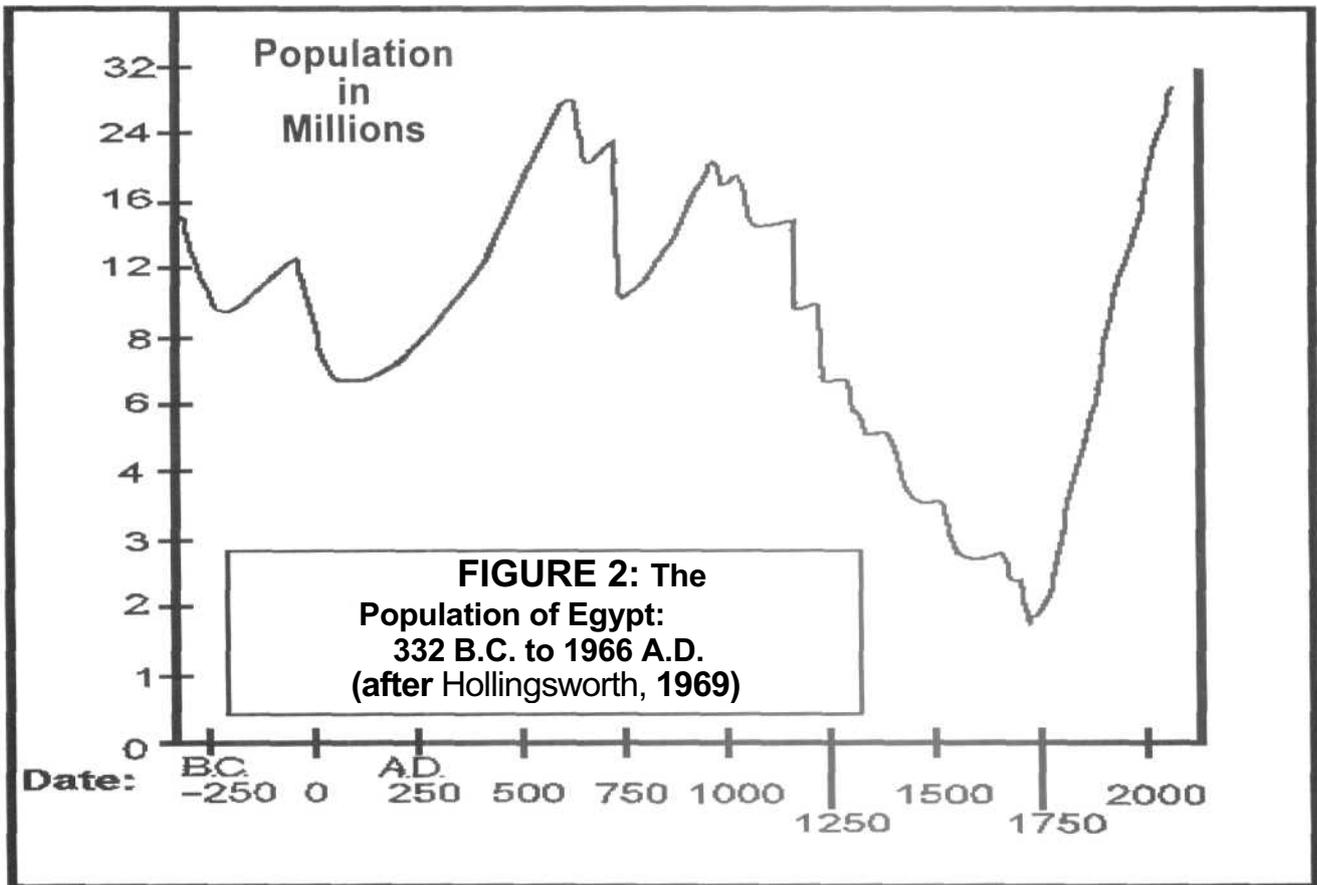
In Egypt, overpopulation and modern technology combined to produce the Aswan High Dam, which is finally ruining the millennial prosperity of the Nile Valley, and fisheries of the Eastern Mediterranean. Only immediate massive programmes of voluntary birth control can possibly avert further disasters in the great dry belt where civilization first began, and where it reached such glorious heights in earlier times. c8

#### Modern Map of the Levant and the Middle East.





**FIGURE 1:  
The Fertile  
Crescent**



**FIGURE 2: The  
Population of Egypt:  
332 B.C. to 1966 A.D.  
(after Hollingsworth, 1969)**

<b>Table 1: Relative</b>	<b>Density of Settlement in Two Regions.</b>	
REGION:	<b>DIYALA BASIN</b>	<b>KHUZESTAN (ancient Elam)</b>
LOCATION:	<b>Central Iraq, east of Baghdad</b>	<b>Southwestern Iran</b>
SOURCE OF DATA:	<b>Jacobsen and Adams, 1966</b>	<b>Adams, 1966</b>
ROUGH DATES:	SETTLEMENT DENSITY:	
<b>3000 B.C. to 2300 B.C.</b>	<b>Moderate</b>	<b>Moderate</b>
<b>2300 B.C. to 1800 B.C.</b>	<b>Low</b>	<b>Moderate</b>
<b>1800 B.C. to 1700 B.C.</b>	<b>Moderate</b>	<b>Moderate</b>
<b>1700 B.C. to 700 B.C.</b>	<b>Low</b>	<b>Moderate</b>
<b>700 B.C. to 100 B.C.</b>	<b>Low</b>	<b>Low</b>
<b>100 B.C. to 300 A.D.</b>	<b>Moderate</b>	<b>Moderate</b>
<b>300 A.D. to 650 A.D.</b>	<b>High</b>	<b>High</b>
<b>650 A.D. to 750 A.D.</b>	<b>Moderate</b>	<b>Moderate</b>
<b>750 A.D. to 1000 A.D.</b>	<b>High</b>	<b>Moderate</b>
<b>1000 A.D. to Present</b>	<b>Low</b>	<b>Low</b>

### **Table 2: The Population Crises of Ancient Egypt.**

Note: During the 3rd and 2nd millennia B.C., absolute dates are in dispute (ours are rounded), but there is no dispute about the sequence of events.

<u>B.C. Dates</u>	<u>Periods</u>	<u>Foreign Invaders</u>
2700 to 2200	Old Kingdom	
2200 to 2050	Population Crisis	
2050 to 1700	Middle Kingdom	
1700 to 1550	Population Crisis	Hyksos
1550 to 1050	New Kingdom	
1050 to 664	Population Crisis	Libyans, Ethiopians, Assyrians
664 to 525	Saite Dynasty	
525 to 332	Population Crisis	Persians

The Old, Middle, and New Kingdoms, and the Saite Dynasty, were periods of relative relief from population pressure, with prosperity and cultural flowering. In 332 B.C., Alexander the Great conquered Egypt. There was a relief period under the Macedonian Ptolemy Dynasty, but no more native kings.

<b>Table 3: Salinization in Sumer.</b>					
(Data from Jacobsen and Adams, 1996; and Roux, 1980.)					
<b>DATES</b> (B.C.) (rounded cf Table 2) B.C.	<b>POLITICAL</b>	<b>OVER-IRRIGATION</b>	<b>SALT PATCHES RECORDED IN TEMPLE</b>	<b>PROPORTION OF WHEAT TO MORE SALT- TOLERANT BARLEY</b>	<b>CEREAL YIELD IN LITRES PER HECTARE</b>
3500				50%	
2400	and Lagash. Umma, higher up on the Euphrates, interferes with the irrigation system of Lagash.	Entemena, ruler of Lagash, responds by building a canal from the Tigris.			2,537
2300			First such records	16%	
2100			More patches recorded.	2%	1,460
1700	Sumer is permanently ruined; political power shifts North to Babylon in	Irrigation by this canal has been extended to a large area of Sumer.		None	897

### ***Classics & Mediterranean Archaeology Home Page***

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# ABSTRACTS & EXTRACTS...

**Magurran, A.E.: Battle of the sexes.**

**Fink, G., & Sumner, B.E.H.: Oestrogen and mental state.**

**Just, M. A., Carpenter, P.A., Keller, T.A., Eddy, W.F., Thulborn, K.R.: Brain activation modulated by sentence comprehension.**

**Ellis, L: Dominance and reproductive success among nonhuman animals: A cross-species comparison.**

**Alatalo, R.V., Mappes, J.: Tracking the evolution of warning signals.**

**Friston, K.J., Tononi, G., Sporns, O., & Edelman, G.M.: Characterising the complexity of neuronal interactions.**

**Magurran, A.E.: Battle of the sexes. *Nature*, 1996;383:307**

**Extract:** Sexual conflict can result in rapid evolutionary change. Rice found that male and female fruit flies, *Drosophila melanogaster*, are continually forced to counteract adaptations in the other sex to maintain their fitness ... Rice concluded that: "intersexualco-evolution"... [can]contribute substantially to genetic divergence among physically isolated or semi-isolated populations." But does sexual conflict invariably operate as an 'engine of speciation'? There is at least one case where it appears to have the opposite effect.

The guppy, *Poecilia reticulata*, is a small poeciliid fish, native to Trinidad and northeast South America. It is an ovo-viviparous species with a promiscuous mating system. Guppy populations in Trinidad show marked differentiation and have become a classic example of evolution in action. Natural selection, in the guise of predators, accounts for much of the variation: experiments have revealed rapid population divergence following a shift in predation regime. For example, heritable changes in male colour patterns, life-history traits, and antipredator behaviour occur within a few years (from 10 to 100 generations) of a reduction in predator pressure.

[N]ot only natural selection ... drives evolution in this species; sexual selection is also a significant diversifying agent with the potential to reinforce population differences that predators have generated. Female guppies exert choice and base their mating preferences on individually variable male colour patterns. Female preferences and male coloration co-vary across populations. Houde has uncovered a genetic correlation between male coloration and female choice which may facilitate speciation. Once mating has occurred, females can store sperm and fertilize several broods without further contact with a male. A single female can even found a viable population. ... [G]enetic drift resulting from such severe founder events may further magnify population differences.

Although many of the elements required for rapid evolution are present, guppy populations, in Trinidad at least, do not appear to be speciating. Populations ... separate for about 2 million generations, will interbreed if given the opportunity to do so. How might this paradox be resolved?

[W]hile many aspects of the behaviour and biology of female guppies hasten differentiation, a number of male traits hinder it. Wild female guppies are subject to a barrage of sneaky mating attempts,

receiving, on average, one per minute. The relative success rate of sneaky matings is unknown. However, the high incidence of sneaky matings is such that only a few need to be successful to undermine female choice. Female preference may be further compromised by competitive mating among males. In addition, male guppies are much more likely to emigrate than females .... The net result is that the geographical scale of gene flow is large relative to the scale of the selection regime and reproductive isolation, which is the precursor of speciation, has little opportunity to develop. Of course, sexual conflict is not the only factor that shapes the destiny of guppy populations, but it must play a significant, if previously unrecognized role. The battle of the sexes does indeed have profound evolutionary consequences.

**Editor's Note: The author of this article has an E-Mail. It is: aem1@st-andrews.ac.uk.**

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**Fink, G., & Sumner, B.E.H.: Oestrogen and mental state. *Nature*, 1996;383:306**

**Extract:** Oestrogen is thought to exert powerful effects on mood, mental state, and behaviour in women.

Here we show that an acute surge of oestrogen in the female rat induces a significant increase in the density of 5-hydroxytryptamine<sub>2A</sub> (5-HT<sub>2A</sub>) receptors in high centres of the forebrain, suggesting that this may be a key mechanism in the psycho-tropic effect of oestrogen.

The role of oestrogen in affective disorders (depression and mania), is suggested by the fact that menopausal and post-natal depression are associated with a massive drop in plasma oestrogen concentrations, and oestrogen has been reported to be effective in the treatment of depression in women. Differences in the age of onset and symptoms of schizophrenia in women compared with men, has also implicated oestrogen in schizophrenia.

Affective disorders have long been attributed to defective serotonin transmission.

Psychopharmacological data suggest that defective serotonin transmission may also be responsible, at least in part, for schizophrenia... Clozapine and Risperidone,... highly effective in the treatment of schizophrenia, bind with much greater ability to 5-HT<sub>2A</sub> than to dopamine receptors.

Oestrogen, in its positive-feedback mode for triggering the ovulatory gonadotrophin surge, stimulates a 3-fold increase in the amount of 5-HT<sub>2A</sub>-receptor messenger RNA in the dorsal raphe nucleus of the female rat, indeed, a single pulse of oestrogen significantly increases the density of 5-HT<sub>2A</sub> binding sites in cerebral cortex and the nucleus accumbens. These findings were based on autoradiography using as ligand [<sup>3</sup>H]ketanserin in the presence of prazosin (to block binding to α<sub>1</sub>-adrenoreceptors). ... [I]t was crucial to verify these results with a highly selective 5-HT<sub>2A</sub> ligand ....

We now report that oestrogen significantly increases the binding of [this ligand], in anterior frontal, anterior cingulate, and the primary olfactory cortex and in the nucleus accumbens, essential brain regions for cognition, emotion, mental state, and mood, as well as neuroendocrine control. As [<sup>3</sup>H]ketanserin and other 5-HT<sub>M</sub> ligands, in frontal and cingulate cortex the density of [this ligand], binding sites were greatest in laminae IV and Va.

The concordance between the present effects and our previous findings, provides compelling evidence that the acute effects of oestrogen on mood and mental state are mediated at least in part by an increase in density of 5-HT<sub>2A</sub> receptors. Our experimental model mimics the changes in plasma oestrogen concentrations that occur during the human menstrual cycle, immediately after parturition and at the time of the climacteric (menopause onset). Because oestrogen also affects expression of the gene for the serotonin transporter, the target for highly effective anti-depressants such as Fluoxetine..., further investigations are required.

**Just, M. A., Carpenter, P.A., Keller, T.A., Eddy, W.F., Thulborn, K.R.: Brain activation modulated by sentence comprehension. *Science*, 1996;274:114-116**

**Abstract:** The comprehension of visually presented sentences, produces brain activation that increases with the linguistic complexity of the sentence. The volume of neural tissue activated (number of voxels), during sentence comprehension was measured with echo-planar functional magnetic resonance imaging. The modulation of the volume of activation by sentence complexity was observed in a network of 4 areas: the classical left-hemisphere language areas (the left laterosuperior temporal cortex, or Wernicke's area, and the left inferior frontal gyrus, or Broca's area) and their homologous right-hemisphere areas, although the right areas had much smaller volumes of activation than did the left areas. These findings generally indicate that the amount of neural activity that a given cognitive process engenders is dependent on the computational demand that the task imposes.

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**Ellis, L: Dominance and reproductive success among nonhuman animals: A cross-species Comparison. *Ethology and Sociobiology*, 1995;16:257-333**

**Abstract:** This paper updates and extends Dewsbury's (1982) review of the literature on dominance and reproductive success (RS). The findings from approximately 700 studies are included, over two-thirds of which were unavailable to Dewsbury. In order to give a highly condensed and yet meaningful overview, the main findings are represented in 4 tables, one for male non-primates, one for female non-primates, one for male primates, and one for female primates. In the tables for males, findings are analyzed in terms of 6 different indicators of RS, and in the tables for females, in terms of 8 RS indicators.

Outside the primate order, evidence largely supported the hypothesis that high-ranking males enjoy

greater RS than do subordinate males. For females, studies are more evenly divided between those supporting the hypothesis that high rank and RS are positively correlated and those indicating no significant rank — RS relationship. This may reflect both the lower saliency of hierarchical relationships among females, as well as the lower variability in RS among females, relative to males.

Among primates, a complex picture has emerged, especially in the case of males. Much of the complexity appears due to the importance of age and seniority in affecting dominance rank. Also, in some primate species, female preferences for sex partners seem to have little to do with the male's dominance rank, at least at the time mating takes place. Nevertheless, the majority of studies suggest that high-ranking to middle-ranking males have at least a slight lifetime reproductive advantage over the lowest-ranking males.

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**Friston, K.J., Tononi, G., Sporns, O., & Edelman, G.M.: Characterising the complexity of neuronal interactions. *Human Brain Mapping*, 1995;3:302-314.**

**Abstract:** This work addresses the complexity of neuronal interactions, the nature of this complexity and how it can be characterised in real neurophysiological processes. A measure of complexity has been introduced recently (Tononi, et al., *Proceedings of the National Academy of Sciences -USA*, 1994,91:5033-5037), that is sensitive to the joint constraints imposed by 2 principles of brain organisation: functional segregation and functional integration. Functional segregation implies that the dynamics of a cortical area should reflect the multi-dimensional attributes for which that area is specialised (in other words, regional dynamics should show a low entropy). Our measure is based on the profile of entropies of different-sized regions of the brain. Complexity is high when smaller regions have (on average) a relatively high entropy with respect to the entropy of the whole system. This measure is equivalent to the (average) mutual

information between all small regions and the rest of the system in question.

We have applied this measure to non-linear simulations and to neurophysiological data obtained with fMRI during photic stimulation. Because patterns of activity in the brain are intermediate between a state of incoherence, with regionally specific dynamics, and a state of global coherence, we predicted that simulated non-linear processes with similar characteristics would have a high complexity. In the language of non-linear dynamics we hypothesised that the greatest complexity would be found somewhere between high-dimensional, chaotic behaviour and low-dimensional, orderly behaviour. Equivalents, using the metaphor of loosely coupled oscillators, we predicted that complexity would be highest in the domain between asynchronous oscillations and global synchrony. This hypothesis was confirmed, using non-linear simulations. In addition, we demonstrate that the complexity of neurophysiological data is easily measured and can show a significant complexity, when compared to suitable control processes.

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**Alatalo, R.V., Mappes, J.: Tracking the evolution of warning signals. *Nature*, 1996;382:708-710**

**Abstract:** Evolutionary studies are hampered by a lack of experimental ways in which to test past events such as the origination of aposematism, whereby unpalatable or poisonous prey signal their unprofitability, often by being warningly coloured. Inexperienced predators do learn to avoid unpalatable prey as a result of such signals, but in addition there may be an inherited cautiousness about attacking when common or conspicuous warning signals are evident. As current predators are not naive in the evolutionary sense, it is still not resolved whether aposematism originated only in aggregations of prey, or among solitary prey as well. Here we explore this controversy in evolutionarily naive predators by creating a novel world with warning signals not found in the environment. Initially, the aggregation of prey

favoured the warning signals supporting Fisher's view of kin aggregations as the evolutionary starting point of aposematism. However, once predators had experienced warning signals, pre-existing avoidance seemed to facilitate evolution of Mullerian mimicry complexes with similar types of signals even among solitary prey.

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Contact Dr. Gary Malet, [gmalet@healthtel.com](mailto:gmalet@healthtel.com) for comments and corrections.

# As CITED BY.....

## Cover page

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## CHANGE IN THE PSYCHOTHERAPY SYSTEM?... page 8

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## Announcement

### *Evolutionary Psychiatry - A New Beginning* by Anthony Stevens & John S. Price

Challenging a medical model which has supplied few effective answers to long-standing conundrums, *Evolutionary Psychiatry* proposes a new conceptual framework for psychiatry based on Darwinian theory.

Anthony Stevens and John S. Price argue that psychiatric symptoms are manifestations of ancient adaptive strategies which are no longer necessarily appropriate, but which can best be understood and treated in an evolutionary and developmental context. They propose theories to account for the widespread existence of affective disorders, borderline states, and schizophrenia, as well as offering solutions for puzzles, such as sadomasochism and the function of dreams. This comprehensive introduction to the new science of Darwinian Psychiatry is readily accessible to both the specialist and non-specialist reader. It describes in detail, the disorders and conditions, commonly encountered in psychiatric practice and shows how evolutionary theory can account for their biological origins.

Anthony Stevens is a psychiatrist, Jungian analyst, and the author of several books, including *On Jung*.

John S. Price, NHS Psychiatrist and Chairperson, Psychotherapy Section, World Psychiatric Association. He has worked for the Medical Research Council Psychiatric Genetics Unit in London. He is a former Senior Lecturer in Psychological Medicine at the University of Newcastle-upon-Tyne.