Newsletter of the Society for Sociophysiological Integration

ASCAP

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"[N]eurons beneath a square millimeter of cortical surface [number about] 148,000 ... The major growth of cerebral cortex, as our ancestors became fancier... primates, was sideways. In chimpanzees and gorillas, the total is less than a ... sheet of typing paper. Humans have .... four sheets ... Rats have less than a square inch."

William H. Calvin & George A. Ojemann[1]

Newsletter Aims

•A free exchange of letters, notes, articles, essays or ideas in brief format.
•Elaboration of others' ideas,
•Keepingup with productions, events, and other news,
•Proposals for new initiatives, joint rescearchendeavors,etc.

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ASCAP Society
Mission Statement

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

Contents

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

ADDRESSED TO & FROM ...

PRECIOUS JEWEL

A counter-intuitive psychotherapy program is a precious jewel indeed. Leon Sloman should write a piece with emphasis on the counter-intuitive aspect.

What I mean by evolutionary psychology being common-sensical is this: We are ambitious. We intend to embrace all of normal and "abnormal" psychology. Our theory of normal psychology should be similar to ordinary good sense. For example, we are concerned with goals (in their rich variety) and ways of trying to achieve those goals. We are concerned with individual variation. Ordinary language and folk assessments are bound to be similar to evolutionarily sophisticated assessments.

Traditional systems of psychology have tried to peek beneath the ordinary appearances of things using systems of analysis that appear now reductionistic and pseudo-science. People with high-falutin' educations are more likely to have pseudo-science built into their ways of thinking. They are the people that are most surprised and put-off by the way we size people up. (My classic example: a woman Ph. D. in psychology says, "You say women are attracted to wealthy and charismatic men? What's your data for that?" An ordinary person would say, "This is news?")

In family therapy it turned out that paradoxical instructions mostly made just ordinary good sense to people -- they were not very paradoxical.

Anyhow, as I said, a real counter intuitive program would be very convincing, so Leon, let 'er rip ...

John Pearce
Cambridge, Mass. USA.

CROWDBEHAVIOR

One of my objectives is to ascertain whether, among the many human crowd formations, there are some that are homologous with flocking, schooling, nesting, etc. among other animals. This, I suppose, is proxemics.

The zoological literature shows that the geometry of animal formations is adaptive, often in two dimensions. The V formation used by some avians appreciably reduces drag coefficient and enhances navigation. Such geometric properties are known and exploited in police and military marching formations; they are artifactual, derived from cultural not physical adaptation.

The only human formation which I am sure is natural is panic flight. Forming a circle around a center of attention may be natural, so may be travelling single file.

Mobbing, I suspect, has a strong natural component, but unless you have a lot more video footage than I do, it's difficult to distinguish from a melee (in some cases) or a shaming/punishment ritual (other instances). I'm satisfied that lynch mobs represent heavily stylized rituals that dovetail into ritual displays (e.g. as in parades). A credible argument for homology would need to have the data on formation geometry and the like. That's data I can't collect, so at that level my published results will be merely suggestive.

When I write up this part of the project, I'll send something to you.

I do find ASCAP a stimulating newsletter. I particularly appreciate your discussion of *Bauplans.*

Hiram Caton
Queensland, Australia.

[Editor's note: An interesting book on crowd behavior was written by an American reporter who decided to do participant observation research on mobs composed of English soccer players: Buford B: Among the Thugs. NY: WW Norton, 1991, 1990.]

POLITICS AND LIFE SCIENCES

As you know, the contemporary revolution in the life sciences has given birth to an incipient revolution in the social sciences. Understanding of the roots of human behavior is fundamentally transformed. This revolution in the life sciences is also generating a formidable array of new policy dilemmas with which we are struggling to cope. I write to introduce you to *Politics and the Life Sciences (PLS),* a scholarly journal devoted to exploring the relationships among politics,

policy, and the life sciences.

Politics and the Life Sciences is the international journal of the Association for Politics and the Life Sciences (APLS). Published semi-annually in February and August, *PLS* is a peer-reviewed, multidiscipiinary journal with readers in more than twenty countries. Its mission is to advance knowledge of politics and promote better policymaking through multidiscipiinary analysis that includes the life sciences.

PLS authors come from highly diverse backgrounds. Thus, nine different countries and thirteen different disciplines were represented in the February 1994 issue. In addition to political science, *PLS* authors and readers come from biology, anthropology, psychiatry, ethology, philosophy, nursing, ecology, economics, public health, psychology, law, social work, sociology, medicine and other fields. This diversity, combined with vital topics and readable writing, makes *PLS* a lively and exciting journal. It is also an increasingly influential journal. Recent articles have prompted discussion at the United Nations, the World Health Organization, the US Congress, the Office of Technology Assessment, the US Arms Control and Disarmament Agency, and elsewhere. One was the focus of a workshop in Germany at which ten countries were represented and to which the United Nations sent an official observer.

Most journal issues include at least one "roundtable", a package consisting of an article, multiple commentaries by diverse experts, and a response from the original author(s). Roundtables are challenging and provocative, often stimulating new lines of inquiry among participants and interested readers.

Each issue of the journal also includes several standalone articles, fifteen or more book reviews, a list of recent books and articles, and news and announcements. Other features that appear frequently -- although not necessarily in every issue - are expert updates or commentaries on current topics, program or organizational profiles, and conference or teaching reports.

As its contents and format suggest, *Politics and the Life Sciences* is an exciting and vibrant participant in the ongoing social scientific revolution stimulated by recent developments in the life sciences. Since ASCAP readers are interested participants in this revolution, it seems likely that you will want to become regular *PLS* readers, authors, or both.

The journal's recent growth in influence is reflected in its growing list of indexes. In the last several months, *PLS* has been added to *BIOSIS/Biological Abstracts,* the *Expanded Academic Index,* the *Index to Periodical Articles Related to Law,* the *Peace Research Abstracts Journal,* the *Social Sciences Index,* and *United States Political Science Documents.*

Further information on the journal *Politics and the Life Sciences* can be obtained from Gary R Johnson, Editor, Lake Superior State University, Sault Sainte Marie, Michigan 49783-1699, USA. Tel: (906) 635-2757 Fax: (906)635-2111.

Gary Johnson
Sault Sainte Marie, Mich. USA.

A NEW BOOK

In a recent phone conversation, Paul Gilbert informed me of your group's interests in the relationships between evolutionary biology and psychiatry. I also am quite impressed with the importance of interrelating these two bodies of knowledge.

Indeed, in a recent book entitled Affect Regulation and the Origin of the Self. I have attempted to integrate current concepts and findings from biology, developmental psychology, and neuroscience in order to develop a model of the origin of adaptive and pathological socioemotional functions. I also present a model of the neurochemistry of dysregulated manic state that bears upon your work on mechanisms in manic-depressive disorders. I am enclosing some advertising copy that describes the book.

I'd very much like to be part of your group's activities and would appreciate your forwarding any information about meetings, newsletters, fees, etc.

Allan N Schore
Northridge, Calif. USA

[Editor's Note: See page 19 for further details on Dr Schore's book.]

by R Gardner, Jr.

REPORT: The Aaron T. Beck ASCAP Essay Contest & 1995 Meeting

Be it resolved that there will be an annual Aaron T. Beck ASCAP essay contest on the topic of evolutionary biology and psychopathology, with the specifics of the theme to be worked out by the incoming president in conjunction with Professor Beck. Eligibility would require status of being a graduate in a related discipline (pre-terminal degree or within seven years of its achievement) or a physician in related specialty training (pre-board eligibility or within seven years of achieving that status). Talented undergraduates, however, would be eligible if sponsored by an ASCAP Society member. A prize-winning essay meeting criteria for high quality would be published in The ASCAP Newsletter after being presented to the ASCAP Society as an important feature of its annual meeting. A certificate and support for the winning candidate's travel costs to the annual meeting would be awarded the winner as would a year's subscription to The ASCAP Newsletter.

The Philadelphia ASCAP group that met May 21 and 22, 1994, decided to honor Professor Aaron Tim Beck. This wasn't reported in last issue's minutes because the group thought it important to learn first how he might feel about it and so that he might help with the architecture of how the idea might play out. Subsequently we (both myself and President John Pearce) have talked with Dr. Beck so we can now announce what was discussed and can tell the ASCAP readers of the evolved plan.

The idea stemmed initially from an evening conversation between John Price and me on the patio of The Garden Restaurant in Professor Beck's own beautiful Philadelphia after our first day of meeting. At dinner also were Kent and Patty Bailey, John Pearce, Kalman Glantz and Suzie Gardner, all of whom helped refine the idea for presentation to the larger group the following day.

Professor Beck had been very helpful in our epochal decision-making about an annual meeting. John Price felt strongly that we should acknowledge his interest in our doings and I not only agreed but also wondered if honoring him might be the solution to another problem: provision of a mechanism for calling the attention of younger people to the society and its mission. A prize contest would, hopefully, entail their interest and subsequent intellectual involvement and society membership. The following day the group talked about this extensively and we came to the resolution **in** the box above.

Professor Beck expressed that he was indeed honored by the resolution and eager to participate. He urged we include recent graduates. President Pearce appointed Mark Erickson, a prize-winner in other organizations in the past, as chairman of the Aaron T. Beck ASCAP essay committee and architect of the procedures to be followed. The three of us (John, Mark and myself) met for several hours on June 17, 1994, during the Human Behavior and Evolution Society meeting in Ann Arbor and worked out the resolution shown above. As mentioned last issue, the annual meeting will be, at least for now, either associated with the HBES or ISHE depending on the wishes of the ASCAP president so that most of the expenses for that meeting would be supported by the award.

Letters composed by Mark will be sent from UTMB to residency and graduate training programs and/or ads will be placed in suitable journals. All ASCAP members will be notified via the newsletter so that associated graduate and undergraduate students become acquainted with the opportunity. We are eager to

hear from you soon about programs and journals at which we should aim. The ASCAP one-page brochure proposed and fostered by Past-President Paul Gilbert and currently being worked out by Erica Ainsbury (in conjunction with the Executive Committee) would be enclosed and bulletin board posting to the various programs would be requested.

Submissions will be sent to UTMB c/o the newsletter and the ASCAP secretary's office. Under Mark's direction, procedures will be worked for (1) determining criteria of quality, and (2) evolving the process whereby ASCAP society members will measure the degree to which the criteria are met. He tells me that he is interested in your opinions about such via the newsletter's pages or the ASCAP email (JKP@world.stp.com).

President Pearce subsequently conversed with Professor Beck about this year's theme and they determined **the theme for this coming year will be "Evolutionary Aspects of Psychopathology."** Thematic modifications of the general topic in future years will be aided by this coming year's experience.

Mark your calendars for the date and location of next year's ASCAP Society meeting. We learned that next year's HBES meeting will begin June 28, 1995. President Pearce has decided that our annual meeting will therefore occur before that meeting on **June 27, 1995. Location is Santa Barbara, California.** Apparently there is a new convention center associated with the University of California campus at that location. HBES program chairs John Tooby and Leda Cosmides were receptive to the Philadelphia ASCAP Group idea that presentations on psychopathology more likely made by ASCAP members might be scheduled early in the meeting. They asked that we write a letter making this request which will be done.

Several traditions have been initiated in this year's meeting that might be extended: policy-making business meeting, Maori introductions of assembled members, informal discussion of scholarly issues, and a presidental formal presentation; new of course, will be presentation of the Aaron T. Beck prize winning essay.

by R Gardner, Jr.

REPORT: Conference Reports

May and June featured several informative conferences attended by this reporter in which I learned various kinds of top-down and bottom-up findings of the sort valued by members of the ASCAP society: these were the American Psychiatric Association (APA) meeting in May and the June 16-19 meeting of the Human Behavior and Evolution Society (HBES). Both meetings were filled with varied and interesting material that can't possibly be adequately summarized. But some highlights follow:

(1) Bottom-up brain-mental experience: cerebral cortex activation from visual experience and visual imagination. Steve Kosslyn from Yale reported at the APA on 5/23/94 that visualizing a small distant object (which happens with the foveal part of the retina) in turn activates visual cortex in the far posterior occipital cortex (area 17 of the calcarine cortex). But attending to something that increasingly fills the visual field (thereby activating the whole retina) activates calcarine cortex in an increasingly anterior direction. In short, the quantity of primary visual cortex activated topographically represents in the brain the amount of visual field paid attention to.

While this is interesting in itself, consider the following finding: if one closes one's eyes and *imagines* visual experience filling varying amounts of the visual field, the same portions of calcarine cortex are activated (though to half the amplitude). In other words, some specific correlates of imagination can be specified and topographically related. The actual

memories, though, do not have this topographic representation. They seem to be stored somewhere in the inferior temporal cortex (think of the underside brain area interior to one's ear) and are connected to the primary visual areas with many neuronal axons.

Now *attention* to the various aspects of one's visual experience is the key feature here: after all, the peripheral non-foveal retina is exposed to other visual stimuli but they just don't seem to be registered in conscious experience or in memory until one thinks about them. Kosslyn used the image of an elephant bearing down on you and thereby filling your visual field! And one attends to the imagined stimuli also. So not only is Kosslyn analyzing vision but attention as well.

Attention and many other issues of brain function during thought and language are reviewed by William H. Calvin and George Ojemann in their new book, Conversations with Neil's Brain (see lead quotation). They spend a chapter on various brain parts concerned with attention of various kinds. Neil of the title is a highly intelligent MIT trained engineer-business owner who is about to have his brain operated on for a traumatically caused temporal lobe epilepsy (didn't have his seat belt on during a car accident 15 years before). Calvin, the narrator, is a neurophysiologist who prepares the patient with many conversations prior to, and during, the surgery (also observed by him as it is done under local anesthetic so that the Neil can speak during focal brain stimulations). Ojemann is the distinguished University of Washington neurosurgeon who performed the operation. The dialog and corresponding illustrations are extremely instructive. John Pearce has read it too and agrees with me in recommending it to ASCAP readers. In fact, Neil is a composite patient which is a technique also used by Calvin in his tale of his trip down the Grand Canyon - four trips consolidated into one.[1] But this matters little: these are master teachers through the written word and excellent illustrations and the points they make about our own brains are made more powerful by Calvin's interactions with someone who could be one of us.

In case this kind of research is enticing, I believe that I heard Dr. Kosslyn mention that he also has a book forthcoming. In addition, the April issue of Scientific American has an article by Marcus Raichle entitled "Visualizing the mind" that doesn't address the above finding by Kosslyn but describes the frontiers of neuroimaging applied to analysis of the neuronal processes involved in vision.[2]

(2) Bottom-up genomic views of wars between the sexes. Robert Trivers presented a plenary address at HBES. As sociobiologists know, he is famous for having suggested the powerful hypothesis that conflict of interest in family members depends on family status and degree of genetic relatedness (selfish genes are selfish phenotype sources of sibling rivalry and parent-child conflict, for example). He has been paying close attention to gene researchers and reported on data that allows further contemplation of selfish genes.

Homosexual men have increased male homosexual kin on the maternal side only. Hamer at the NIMH has apparently shown the existence of a "homosexuality gene" on the X chromosome, i.e., distinctive DNA markers characterize a DNA segment of homosexual men (though not lesbian women). Trivers conjectures that this gene perhaps causes a phenotypic *sexual-interest-in-men* (SUM) regardless of the sex that one happens to have, hence homosexuality if one is male but heterosexuality if female. Since the X chromosome is inherited by men from their mothers only, the distinctive DNA in homosexuals could indicate a coding that causes *heightened sexual interest in men* in the developed brain of not only women but men as well. The mystery of male homosexuality causing little personal reproduction may therefore be explained by the sexual selfishness of this chromosome X. After all, females have twice as many Xs as males. Two thirds of all the Xs are in women at any one time and over the generations there is more total time spent by X chromosomes in women than in men. Trivers labeled the benefit (B)/cost (C) formula as follows: B > 1/2C. Reproduction loss by the homosexual males may be offset by increased productivity by the women in the kindred.

This illustrates sociobiological reasoning based on partial data. It is not an established conclusion

because yet to be demonstrated are data that the women of a homosexual's kindred share the same distinctive DNA sequences and that these are in turn correlated with a heightened female sexual interest in men and consequent increased reproduction. But they are testable hypotheses with the possibility of refutation with added data.

Trivers also noted that imprinting phenomena involve competition between male and female DNA contributions. Males and females imprint the genomes of their offsprings in different ways with contrasting consequences. For example, the male imprint seems to result in greater phenotypic activity levels. He seemed to allude to animal literature, but a powerful and clinically relevant instance of imprinting in humans that he didn't mention bears out the generalization: Prader-Willi syndrome represents the uncountered female imprint of the proximal long arm of chromosome 15: the offspring are initially hypotonic ("floppy babies") and later eat too much. In the counterpart condition of Angelman syndrome, the uncountered male imprint results in general hyperactivity, inability and disinterest in talking, and incessant laughing.

4. Top-down effects of a cultural change on hormones and behavior including the hypothetical condition of Clyde. Again at HBES, Charles Crawford distinguished between conditions that are truly pathological (such as the genetically caused Huntington's disorder), adaptationally pathological (mania and depression to use our familiar ASCAPian examples), and pseudonormal (normal only because common such as recreational sex without reproduction by using contraceptives). He illustrated how direct and indirect stress cause different versions of these.

He ingeniously suggested the pathogenesis of the pseudonormal condition of Clyde with the following example: the baby bottle is a deviation from the hunter-gatherer mode of how the baby via nursing affected the mother's hormonal status. Such mothers, he calculated, had 1/8th the number of lifelong menstrual periods of the modern mother. This relates in part to incessant nursing, increased spacing between babies, and lesser survival to adulthood of babies. There are pituitary consequences of nursing/not nursing. He illustrated how a condition resulting from not nursing could result and present clinical characteristics with which we are familiar in other more familiar "diseases". He affectionately called it "Clyde". Clyde would have inheritance characteristics similar to those of schizophrenia, for instance. In short, Dr. Crawford reiterated that he is not sure of the pathology, just of the pathogenesis!

5. Hypnosis and deception (including self-hypnosis and self-deception) as human-specific body mechanisms that affect the injurious effects of child sexual abuse as well as on the splitting and similar effects seen by both victims and accusers (bottom-up). I heard John Beahrs present three times in as many weeks at the APA and HBES meetings: on crowd behavior, regression, and false-memory/traumatic memory controversies. For the first two he organized half-day symposia. In addition, he and Claudette Beahrs provided a course at the APA and he told me that he substituted for someone who couldn't make it in an evening session. Not having yet expended enough productivity and energy, he is mountain-climbing at 9200 feet at the equator even as this goes to press!

The HBES presentation concerned the post-traumatic stress disorder after sexual abuse *and* allegations of false memories, *both* of which exist in his opinion from mechanisms similar to hypnotic suggestibility, splitting (dividing people into xenophobic enemies and allies) with consequent heated and exaggerated feelings.

He reviewed the primate literature and found little of a like nature described from naturalistic observation, i.e., traumatic consequences of incest and splitting were not observed. He argued that hypnosis and deception (including self-hypnosis and self-deception) are human-specific mechanisms that may affect the injurious effects of child sexual abuse as well as on the splitting and similar effects exhibited not only by the victims but by their opponents in the legal arena, the accused family members. In the several presentations John reminded us that the hypnotic subject leads the hypnotist as much as the

other way around.

We are reminded of the lead quotation of this issue that four sheets of cortex are what humans possess contrasted to one sheet for chimps and a square inch for rats. Are the capacities to relate to others in the form of suggestion and deception part of what the three additional sheets worth of cortex accomplish?

Mark Erickson in the audience reminded us that incest taboos are well documented as occurring in many animal species.

6. We are what we eat, with why lean and mean are a meaningful rhyme (top-down-up). Also at the HBES conference, Mark Erickson presented his hypothesis (put forth preliminarily in this newsletter) to explain a remarkable coincidence in the meta-analysis of large scale studies of lowering blood cholesterol. First, deaths from cardiovascular causes are lowered in the more than 12 thousand men with lower cholesterol compared to 12 thousand retaining their former levels. But total deaths did not lower! More deaths from accidents, suicide and homicide made up for the decrease!

Mark then showed how more of the story was provided from Kaplan's studies of monkeys in which cholesterol was contrastingly lowered and raised from the initial levels in two groups: he discovered that the lowered cholesterol caused lowered serotonin and also greater aggression. Perhaps, Mark speculated, this was an adaptive mechanism: lowered diet *should* cause more aggression for the food-gathering enterprise.

In Mel Konnor's review of paleolithic diets that followed immediately upon Mark's presentation, it appears unlikely that hominids in the Pleistocene ate excessively so that high cholesterol would have been unusual. But the monkeys studied implied that the mechanism existed long before any hominid phase, so that the basic plan for a cholesterol-serotonin-aggression link would already have long since existed. Though not mentioned by Mark, future work should perhaps explore at what point in mammalian evolution it began. Mark pointed out privately that perhaps *change* in cholesterol is more important than absolute levels in causing the changes in threshold to violence. Thus, if one goes from a satisfying diet to one causing hunger, one gets more assertively aggressive. Does this explain my irritability before dinner?

7. The special human-human linkage of the family provides a bond with consequences not analyzed by sociobiologists. I didn't hear Stephanie J. Ferrara give her formulation, which stems from the Bowen school of family therapy, because she spoke just as I did but she provided her manuscript for review and summary. In the manuscript she took the core selfish gene tenets of sociobiology (e.g. the puzzle of altruism in the face of the importance of reproductive success) and contrasted the predictions to those of Bowen's special version of family systems. Bowen viewed families as multigenerational emotional systems, not just groups of people. Degree of responsiveness and influence on one another's behavior is more intense than previously recognized. Each person in the family contributes to creating and maintaining this intensity.

Would Stephanie agree that the family, therefore, is the core unit of interest rather than the selfish gene, argued against in these pages by Cortina and others versus the advocacy of Dawkins that comes our way from Mike Waller? One wonders how Mike's *comparator gene* might be expressed or modified by the family membership of the gene's phenotype.

Ferrara concludes that the core difference between sociobiology and Bowen's view concerns the different views of the individual and the family: an interactive group (sociobiology) versus an emotional system (Bowen). But despite varied vocabularies and different fundamental views of the world, she fundamentally sees the two perspectives as having much to offer each other. Though she doesn't mention them, she also provides later life versions of the familial bonding thesis of Mark Erickson and other writers on the Westermarck effect (that early life contact produces anti-incest aversions).

8. Language evolution in recent millenia. The Harvard trained linguist, Bernard Bichakjian (BB), told the HBES group (as he did in the pages of

ASCAP several years ago) of a steady movement of more complex conservative language forms to less complex forms. Ancient Indo-European languages such as Latin (and his native Armenian) are conservative in contrast to modern English with respect to a number of features that make them harder for children to apprehend and use. He noted that the earlier children learn adult language, the better off they are during their lives. He thus persuasively holds that continuing neotenization of language is ongoing. For instance, he stated, "Language evolution is probably a neotenous process produced by retiming of the regulatory genes that control the biochemical events that make language acquisition possible." But he left unclear to me about what the mechanisms might be of how this brain-mediated cultural evolution works.

Historian William McNeill and I converged on Dr. Bichakjian afterwards to find out why the initial languages would have been more complex and aclultomorphic (my word). I found to my surprise that something I had taken for granted (and explain below) about the BB formulation was not something assumed by either of them. But why not? We didn't talk very long at the meeting about it so I will put forth some of these assumptions as grist for discussion.

I found that I the nonlinguist nonhistorian had assumed that *written* language originating about 10,000 years ago was an economic device that probably concretized language forms. The earliest written languages were formulated for trade purposes and for rituals to propitiate the gods (and thereby harness the collective efforts of worker-bee humans needed for irrigation and other public works projects). I further assumed that written forms would solidify to major extents the vocal forms, with standardizations imposed by priests and overseers.

In other words, the concrete forms of languages from early Mesopotamian cultures would have been formulated by adult business and religiously authoritarian people who would be little subject, probably, to modifications from mothers and children. Therefore, the powerful effect of early child learning that BB argues was probably not known nor available, like the dominant Japanese monkeys who never picked up the juvenile innovation of separating sand from grain by using water.

Indeed one could argue that not until democratic forms were prevalent would such novel sources for language alterations occur, as part of the reforms fostered by leaders such as seventeenth century educator, John Locke. Locke, in addition to being a physician, statesman and philosopher, was an educator whose first book protested the dogmatic unimaginative use of classics (which we note use conservative language). These were the predominant form of education in 17th century Europe, only centuries after the printed word was widespread. His emphasis on *tabula rasa* was to highlight the sponge-like susceptibilities to learning that children possessed.

I gather that BB feels that the use of English as the actual *lingua franca* of the present day or common world language is a result of its child-user-friendly aspects rather than the coincident effects of the British Empire and subsequent world-wide popularity of American culture and the superpower status of the USA, which I suppose is the chief alternate hypothesis. Did Locke and his peers play a role in that?

9. Male jealousy is naturally male but is also culturally determined and can be measured indirectly. A number of studies at HBES focused on socially relevant issues having to do with sexual competition. Sex differences summarized by David Buss from many self-report questionnaires across 38 cultures included jealousy. Jeffery Simpson from Texas A&M presented the investigational paradigm of measuring how much a male tried to listen in to his girl-friend's talking to a very attractive male. He used an investment model to explain different attention levels depending on relationship duration. These were young adults who had dated on average 15 months. They rated each other on 13 attributes such as sex appeal, financial resources, etc. Two relationship factors that explained how much checking the male did included an interdependency factor and an insecurity factor.

Margaret Nesse compared four retellings of the

Guinevere legend in various eras and discovered that the Victorians were least intolerant of her freedom from male control revealed in her affair with Lancelot. There was a cultural change in "paternity guarding". Virgil Sheets noted that males have more homicidal fantasies (extending the work in his abstract in this issue). Donald Aytch and Glenn Weisfeld presented data on 135 felons which showed their parents had shorter term relationships with each other and that there were more half-sibs in the felons compared to a control group.

10. Male recklessness and creativity like the peacock's tail are runaway positive feedback results of sexual selection (and can be measured by male variability on many measures). Geoffery Miller formerly of Stanford and now of Sussex propounded at HBES the virtues of variability versus the usual dependence on population means. He summarized his argument well and promised to send an updated version of his abstract for a future ASCAP issue.

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by J Price & R Gardner, Jr.

ARTICLE: Teleonomic psychotherapy

In Philadelphia, we talked about the contribution of our ideas to psychotherapy, trying to extend ground already surveyed by Leon Sloman et al.[1] We do not want to start another school, but feel, rather, that our ideas may illuminate existing psychotherapies.

We talked about Interpersonal Psychotherapy (IPT)[2] and Cognitive-Analytic Therapy (CAT)[3] as being particularly consonant with our views. Our evolutionary biological approach sees the brain and all the behaviour it produces as evolved through natural selection. We are aware that what now exists may not be adaptations in the sense of George Williams, but it makes sense to us to regard them so for heuristic reasons; and therefore all psychopathology can be viewed as adaptive behaviour, or as exaggeration of adaptive behaviour, or as distortion of adaptive behaviour,[4] possible due to the mismatch of present times and the EEA. This latter possibility was particularly well illustrated by Kalman Glantz and John Pearce, together with the use of the concept in therapy.[5]

The principles of our contribution to psychotherapy can be listed as follows:

1. Psychopathologies represent primitive strategies which are not under conscious/voluntary control, and can be replaced with voluntary strategies to achieve the same end in a more satisfactory way.[6] Our analogies from other systems include the response to cold, in which the primitive, involuntary response of shivering can be replaced by the voluntary response of switching on the central heating; and the response to bright light, in which the primitive response of pupillary contraction (or blinking) can be replaced by the more recently evolved response of buying a pair of sunglasses.

In this vein we regard depression as a primitive form of submission, which can be replaced by voluntary submission (or other voluntary strategies for resolving conflict). Compulsive checking may be a primitive form of insurance, and compulsive cleaning a primitive form of microbe avoidance; although in these cases it appears more difficult to replace them with more rational strategies. Regression is a primitive strategy for eliciting more parental investment, and can be replaced by more mature care-eliciting behaviour such as arranging therapy to help one through a stressful period.[7] Attacks of hyperventilation may represent the inappropriate triggering of a primitive response to impending suffocation.[8]

2. We are impressed with the widespread occurrence of agonistic behaviour and hierarchy formation among vertebrates. We see humans as also having dispositions to the primitive behaviours evolved to manage social hierarchies, like behaviours to maintain both high and low rank, and behaviours for changing rank.[9] These behaviours are discouraged

in most cultures, but occur in places in which society has little influence, such as the school playground, the prison cell and the marital bedroom.

We note that very few animals can maintain cooperative relationships with same-sexed conspecifics of the same social rank, and that the human capacity to do so is a recent evolutionary development. Therefore we might expect problems in this area, and we can point to case reports from existing psychotherapies in which the task has been to enable patients to develop these symmetrical relationships.

3. We accept that much of the variation in relating and in relationships can be accounted for by two dimensions, those of upperness/lowerness and closeness/distance so lucidly described by John Birtchnell.[10,11] The poles of these dimensions also reflect human needs, so that in assessing any patient, or any relationship, we should ask whether needs for upperness, lowerness, closeness and distance are being met, or whether there are any disagreements about these needs between the patient and those to whom he or she relates closely.

4. We go along with Michael Chance that any disagreement as to these dimensions may change the character of relating from hedonic to agonic, and this "agonic mode" may continue until processes of reconciliation have taken place.[12] The agonic mode is one in which the participants are oriented towards fighting, and this not only distracts their attention from more useful pursuits, but also has psychophysiological effects which may be subsumed under "responses to stress". Moreover, the agonic mode is one in which the primitive response of the involuntary subordinate strategy (ISS) is likely to be triggered in one of the contestants.

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by R Gardner, Jr

ARTICLE: Five Harbingers of The Future: Parts (ii) & (iii)

- **Harbinger (ii)**

Donald's mimetic stage implemented for education

The Austin State Hospital (ASH) academy. There has been a partial collapse of private psychiatry in the U.S., but a resurgence of public psychiatry. A number of hospitals became exploitative of third-party funding and became dinosaurs as a result. Many for-profit hospitals are going out of business.

At ASH, however, Robert Gilliland, Robert Price and Jere Fisher discussed in Part (i), are thorough-going professionals in the now valued Texas public sector, thanks to the leadership of William Reid and Dennis Jones in the Texas Mental Health and Mental Retardation Authority. Also, ASH has an outstanding residency program that despite its being hosted by a state hospital (and not a university medical center) nevertheless filled its slots this year (in contrast to most university programs as fewer medical students for the time-being are going into psychiatry.)

ASH filled partly due to there being no other training programs in Austin and partly from the salubrious living in this always popular hill country capital. But its success stems predominantly from Beverly Sutton's leadership which I have observed for several years. I have seen effective work pay off in the above quantitative results and from how her graduates practice, about which she never directly talks but of which she is proud. How does she do it?

She uses many methods to enhance mastery by the residents under her observing eye, but some that I have particularly noted encompass modeling, drama, and physical story-telling of the sort described as part of the mimetic stage of human development proposed by Merlin Donald in his book, Origins of Modern Mind: Three Stages in the Evolution of

Culture and Cognition. Donald posits a stage of language origins prior to language: story-telling took place before language, he suggests; language was a late developing device, the frosting on an already well baked cake. We see the traces in how non-verbal communication, pictures, theatre, dance, movies, and athletics powerfully entice and move us in our daily life. Language is used in most of these, of course, but is not the source of their power (a picture, as we all know, is worth a thousand words).

Modeling data-ingestion. To remain a competent psychiatrist, information acquisition is a never-ending task. Dr. Sutton sets a performance pace, leading by example more than exhortation, though exhortation isn't lacking. Examples include her article "crunches" (one on schizophrenia was replicated in the Abstracts and Extracts part of May issue of The ASCAP Newsletter). She exhibits through various didactics the extent of what there is to learn while providing help in mastering it all, like a parent wolf demonstrating tracking mechanics to the pups using non-verbal means. To the extent that her learners find themselves approaching an article in the same way, they will perhaps be behaving as we assume some early hunter-gatherers did, without complex verbal suggestions as we now use, true, but through modeling and imitation of the actions of others.

I suspect that Beverly's daughter, a modern dancer, may contribute to a belief on Beverly's part that performance powerfully augments verbal transmission of knowledge (who knows whether the daughter absorbed her mother's knowledge, or if the mother instead learned from her daughter's prowess, or both). The residents she manages (one of whom I met is a neurophysiologist!) practice repeated interviews with patients while directly observed and then examined by faculty psychiatrists. They are expected to perform according to very high standards. She estimates that any standard they are later expected to meet after such stringent "rehearsal" will be not be a surprise nor would it be something requiring the usual nervous edge of excitement, just business as usual.

Dance of examinationship. Their practice in the dance of examinationship, that is, demonstrates a courteous alpha state with respect to the patients and to the information -- as did MM in particular, but in contrast to her, the task includes that they be quickly and quietly attentive to the examiners should these quiet alphas have questions. After all, such are *authoritative* audiences. Much of this includes a nonverbal dance, with exquisitely sensitive and nuance-filled indicators of the state and intent, contingent on what the other next does, similar to the points made by W. John Smith in his The Behavior of Communicating.[2]

Some time ago I instructed medical students in their first year in interviewing by employing actresses and actors to play the parts of patients, improvising as they went. I had furnished them families, siblings, histories and symptoms. Amongst all of us, they were the best instructors in their feedback afterwards, drama teachers, helping the students begin to play their lifelong roles as doctors in the theaters of office, clinic and hospital.

Beverly Sutton's educational approach, in short, displays her intuitive awareness of Donald's mimetic stage: the drama and theater inherent in a professional's education. With her informational crunches she is modeling a level of intellectual activity that is also expected of the trainee: energetic, intelligent, quickly working, respectful of the contributions from the archival literature, and knowledgable of the theory behind practice.

Harbinger (iii)
Going for sameness

Genetic catathesis. When I first met Eldon Sutton (ES), an important geneticist for decades now, I learned he had written a basic text now importantly in my book collection, one I have read with profit. During that conversation some years ago, however, I mentioned that for me (thinking of basic plans), individual communalities are more interesting than individual differences. Things are important that are the same amongst psychopathological and normal people and amongst people and other creatures. This is of course the foundation idea of the newsletter and a glue for holding its contributors and readers together.

I was flushed with that idea, but Professor Sutton then flatly and authoritatively told me no, that geneticists by definition are interested in differences only. Such interests are the origins of genetics. He said in essence that differences in Mendel's peas were more compelling for his monumental experiment than the fact that the smooth and wrinkled varieties had their pea-ness in common. I was disappointed in his catathetic signal, but at the time said little more. I was a visiting psychiatrist to Austin at that time too, and the topic concerned one where he was a professor in his home domain. From his point of view, I was in town to talk about patients, not about theories in his area of expertise.

Sameness triumphs. But subsequently, I have been curious to note Professor Sutton's heavy involvement in the human genome project which is massively concerned as a matter of course with things that have stayed genetically the same. (Recall the conserved homeobox genes described by Dan Wilson in his abstracts of the April, 1994, issue of The ASCAP Newsletter).

Moreover, when talking of genetics in 1994, ES describes his latest research on things that are the same (though I didn't hear him refer to them in such simple minded terms). He seemed to remember pleasant previous contacts, not any differences. He tells of the TATA transcriber protein known to be coded for in the proximity of many genes throughout the genome. He is therefore using the radioactive labelled protein to find coding DNA in the midst of huge quantities of DNA present for no clear purpose, much of it called introns and junk DNA.

We talked shop thus waiting for a luncheon table while standing in the foyer of Austin's Jean-Pierre Restaurant. ES's research model provides a quicker way of deciphering the 3 billion base-pairs than the boring (and incredibly time-consuming) tactic of examining one-by-one. Many of the current marker genes used in DNA decoding are known only from that marking function: any proteins they code remain obscure. Enormous difficulties harrass the investigative community in the decoding of the huge genome: in the March 18th issue of Science is the report that the French contingent are examining multi-gene diseases because the pace of activity for single gene diseases is too slow. Similarly, as I understand Eldon Sutton's approach, it is "let's go for functional analyses" as the TATA box modifies the activity of many genes but doesn't associate with junk.

A nice lay-oriented description of the human genome project was provided by the Wall Street Journal in its review of two related books, brought to my attention by James Munro of Galveston.[4] These are Robert Pollack's Signs of Life: the Language and Meanings of DNA[5] and Francis Crick's The Astonishing Hypothesis: The Scientific Quest for Soul. To quote from the review: *"What the vast 15-year effort will yield is a string of three billion molecular letters spelling out the "sentences" that are our genes. Understanding these sentences, however, means learning to fathom the myriad activities of the tiny molecular machines - proteins, that is - whose design they encode.*

"Nor is the overall meaning of the human genome, of which each individual possesses a slightly different draft, simply a sum of the genes that constitute it. Such is the richness, depth and ambiguity of the genetic text we cany in our cells, Mr. Pollack persuasively argues, that the text's significance will never be fully disclosed. So much for the fantasy of reducing complex human behaviors to the action of a few genes."

Audienceship in Austin. Still standing in the restaurant foyer, I was about to note Professor Sutton's change of mind on genomic similarities and genetic differences when he gestured to the entrance of the restaurant where Lady Bird Johnson, escorted by a man from the Presidental Secret Service, was also entering. Low key, looking just like her pictures, she joined one of her daughters and other people already seated.

The secret service agent, a blond husky fellow, then came out into the waiting area, whereupon ES, his attention diverted from telling about TATA, said in a stage whisper, "We just saw "Guarding Tess" last weekend." The agent said, "I heard that!" and engaged in a pleasant conversation about how his work with Mrs. Johnson is nothing like the problem role filled by a movie counterpart. She is considerate and personable. The movie "Guarding Tess" is about the task of being a bodyguard for a very difficult former

first lady, more indeed from all reports like *Mr.* Johnson himself than his widow, Lady Bird.

This was very exciting for me because I have read widely about Lyndon Baines Johnson and his family in preparation for a book on the Biology of Leadership. Lyndon Johnson has seemed a wonderful prototype of a high profile leader, as follows: *"From humble origins he became one of the youngest congressmen in the U.S. House of Representatives, eventually the most powerful Senate Majority Leader of all time, and then the 36th President who healed and consolidated a painfully troubled country in the wake of the assassination of its president. While president, unprecedented changes in the country's policies were implemented owing in large part to his particular vision and persuasive capabilities. Even his disasters were huge, especially Viet Nam. He is viewed by some of his biographers as a Shakespearean tragic hero and by all as a very interesting specimen of leadership."*

Of course, since the topic is biology, and that in turn hardly excludes how the cells and molecules work, how interesting to think about how the TATA transcribers might somehow relate to the leadership exhibited by LBJ. The fantasy of reducing complex human behaviors to the action of a few genes will indeed never occur perhaps, but that was never terribly interesting anyway (at least to this psychiatrist) compared to grasping to some degree the wonderful orchestration of how these genes and their products modified by experience operate in the brain and other parts of the body to determine learning and communicational behavior - topics that will surely occupy the thinking of future sociophysiologists. But for the moment we need more ordinary views of brain and behavior between the TATA box of the genome on bottom-most levels and the exalted heights of national leadership at the behavioral extreme.

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by M Waller

ARTICLE: An amended merge & other matters

Many thanks for the coverage in the May ASCAP. The only fly in the ointment was that probably because I failed to dispatch the second page, two of my arguments got merged. This did much for brevity but little for comprehensibility. I enclose the offending sequence. It was page 2 which did not make it into the Newsletter. It's obviously too late now, but would you do me the following favours? First, ensure that Mauricio Cortina gets the missing page. I am desperately keen that he responds and would like him to do so on the basis of the full text. Second, no doubt like many other ASCAPers in repect of their own work, I am continually amazed by the inability of my words to convince the world of the merits of my argument. I tend to rationalise this in terms of my manifold limitations as a communicator. Is there any chance that you could deploy your exceptional skills as a rapporteur and summarise my two merged arguments in a later edition? This should serve to disabuse me of any delusion that my difficulties lie in choice of words rather than the essence of my argument.

May I also take this opportunity to clear my pad of some other odds and ends which I jotted down whilst reading recent editions of the Newsletter. First, your exchange with John Price regarding the Houston Oilers (Jan and March ASCAPs) particularly interested me in a predictable way. Although you focused our attention on changes and relationship problems at the top, what passed unremarked was the very different career profiles of players when compared with the coaching staff. My point is that a player's employment prospects are bounded by the effects of the ageing process on his physical prowess; but a good coach can operate way beyond his physical prime. He does not have to go out and beat the opposition. As long as he retains the capacity to select, train and motivate successul players and then weed them out as they start to fail, he has a job for life. I recently heard (on TV) a boxing promoter put this point very succinctly to a junior colleague:

"Your trouble is you get too involved. Fighters come and go. Only the very best last more than ten years

or so. But by knowing how to pick good prospects and when to let them go, a good manager can stay in business until he drops."

Provided you are good at it, being a coach or a promoter is a better long term strategy than being a player. The parallel I drew was between coaches and my notion of comparator genes. I equate players with ordinary genes which express different physical or behavioural attributes. Like individual sportsmen and women, each gene is judged by selective pressures on its own merits. Like a coach, the comparator gene makes no direct contribution on the field of play. It maintains its place in the genetic coalition by, in effect, sitting in its dug-out, noting who performs well and who performs badly and then taking steps to accelerate the generalisation of the successful and the elimination of those who are not. Insofar as to the best of my knowledge there are no successful teams in any professional sport who operate as self-governing collectives, good coaches always earn their corn. I therefore deduce that comparator genes have settled on a strategy of exceptional evolutionary stability!

In April, John Birtchnell offered up a *cri de coeur* concerning humanity's propensity to be "so much more preoccupied with studying physical matter than we are with studying ourselves". Particularly with regard to the things which interest ASCAPers, I have always felt that R. D. Alexander got closest to the truth on this question:[1]

"With a few exceptions... other major scientific theories ...do not threaten to make our behaviour predictable, to expose what we are actually doing in our social interactions, to infringe our concept of free will, or to influence the ways in which we think about right and wrong. Evolution does all of these things because it proposes to explain the explainers themselves. ...In all likelihood, no theory about anything extrinsic in the universe will ever hold as much intrigue, or encounter as much resistance, as a theory about ourselves. It may be the ultimate irony of human existence that the more any such theory explains, the more difficult it will be to gain its widespread acceptance."

Concerning John's other anxiety, the modern "preoccupation with making money", I think the evolutionary explanation is fairly simple. The comparator mechanism demands, but does not specify, a yardstick against which to judge comparative success. In earlier periods the primary criterion may have been physical prowess, adaptive intelligence, or communication skills. Now it is material acquistion. My guess is that if we cannot find something to take its place, either we will fulfil the environmentalists' predictions and consume the planet, or a culture which is less materially obsessed - Islam springs to mind - will supplant ours much as this year's growth supplants last year's leaves.

In closing may I say that I should be more than happy to have my address published. I always look forward to my Newsletter with eager anticipation; the possibility of additional correspondence would be very much welcomed.

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CHANGE OF ADDRESS:

Copies of Stephen Budiansky's book, *The Covenant of the Wild: Why Animals Chose Domestication* (Morrow, 1992), (Abstracts & Extracts, last issue), are available directly from the author at a special discounted price of $ 15.00 plus $ 1.50 shipping. Write: Black Sheep Farm, 14605 Chapel Lane, Leesburg, Virginia 22075.
(Note: This is not the address originally published.)

ABSTRACTS & EXTRACTS...

Henrick DT & Sheets V: Homicidal Fantasies.

Pitts G: An evolutionary approach to pain.

Kostrzewa RM, Brus R, Halbfleisch JH, Perry KW & Fuller RW: Proposed animal model of attention deficit hyperactivity disorder.

Corbett R, Hartman H, Kerman LL, Woods AT, Strupczewski JT, Helsey GC, Conway PC & Dunn RW: Effects of atypical antipsychotic agents on social behavior in rodents.

He F, Wu C: Molecular evolution of cytokines and their receptors.

Wolffe AP: Structural and functional properties of the evolutionarily ancient Y-box family of nucleic acid binding proteins.

Saier MH; Convergence and divergence in the evolution of transport proteins.

Kenrick DT & Sheets V: Homicidal Fantasies. Ethology and Sociobiology. 1993;14:231-246.

Actual homicides may be considered the tip of an iceberg, reflecting evolved coercive impulses and motivations found in normal individuals as well as the criminally violent. Two studies examined reports of homicidal fantasies in normal subjects. In the first study, subjects were asked whether they had ever had a homicidal fantasy, and if so, they were asked several questions about their most recent fantasy. In the second study, subjects were asked about the frequency of homicidal fantasies in several categories. The majority of subjects in both studies reported at least one fantasy. Males tended to recall more homicidal fantasies than did females (in Study 1, 73% vs 66%; in Study 2, 79% vs 58% of males and females, respectively). Males also reported longer and more detailed fantasies, and were more likely to imagine strangers and coworkers as victims. Females' recent fantasies were more likely to involve family members than were males, but that appears to be due to the fact that males had more fantasies about members of other categories, and not due to a tendency for males to have fewer homicidal fantasies about family members than do females. There was some evidence of greater fantasies involving step-parents, especially when one considered the amount of time subjects had spent living with step-, as opposed to genetic, parents. Results are discussed in terms of Daly and Wilson's evolutionary model of actual homicides.

Pitts G: An evolutionary approach to pain. Perpsectives in Biology and Medicine. 1994;37:275-284.

Two general types of pain are recognized: acute or "quick" pain, which usually initiates evasive behavior, and chronic or "slow" pain, which may induce protective inactivity favoring recovery ... In what follows ... pain [is] a conscious unpleasant sensation of variable intensity produced by near, or actual, tissue damage.

... Homer Smith helpfully characterized consciousness in humans as follows: (a) It keeps the brain's sensory screen aglow during the intervals between consecutive stimuli, thereby introducing the time dimension; (b) It enables the individual to integrate present and past experience (stored in memory) and to project an anticipated future; (c) It introduces the possibility of individual choice between alternative actions. Since pain is a conscious experience, the mental processing that Smith associates with consciousness is available for processing pain stimuli. ... There are major evolutionary advantages of the human pain system, for example:

(a) Humans can memorize a virtual encyclopedia of threatening individuals, species, and scenarios which enable them to avoid pain and/or bodily harm before it becomes inevitable;
(b) Humans can transmit from generation to generation by word of mouth (as some other species do by parental example) information about threats to be avoided.

However, pain during a violent encounter could be diversionary, thus interfering with concentration upon self-protection. This may explain the survival value of stress-activated analgesia (the soldier unaware of a wound until a pause in battle)... We must attempt to identify pain capability in other species, by indirect means ... morphology of the central nervous system, comparative brain size, and behavior... "The SRS [spinoreticular system - carrying pain fibers] is conspicuous in vertebrates at the level of fish, amphibians and reptiles ... The reticular formation is present in all vertebrates ... Certain components of the limbic system are readily recognizable in all vertebrates, such as the septum and habenula." ... Comparative brain size may help us identify species with brains so small as to preclude the possibility of consciousness and pain ... "Like mammals fish show habituation, Pavlovian conditioning, instrumental reward and escape learning, avoidance learning, and integration of separate learning experiences ...". In avoidance learning "... if the animal makes the designated response, nothing happens! The nonoccurence of an event can be meaningful only if the animal *expected* the event...". Expectation may imply consciousness, and therefore these species may experience pain. The smallest fish known is the Dwarf Goby, *Schindleria praematurus,* with an adult body weight of approximately 0.002 gram. The size of its CNS is not reported but is surely a small fraction of total body size, and I conclude that at least this species of vertebrate cannot experience consciousness of pain.

Considering the invertebrates as a group, there are at least five reasons for doubting that most of them perceive pain,... [s]ince the evolutionary gap between vertebrates and invertebrates is so vast.

... In summary, pain is perceived only during consciousness and interacts, at least in humans, with the individual's capabilities for memory, integration, and decision-making thereby vastly increasing its survival value. Results obtained by applying criteria based on CNS morphology, behavior, and comparative brain size suggest consciousness and pain perception in all mammals, most birds, and some reptiles and fish. Sufficient data on amphibians are lacking. There are several reasons for concluding that most invertebrates probably cannot perceive pain. But judgments on the presence or absence of pain are quite uncertain when applied to very small vertebrates, the octopus, and fetuses in early development. Because of the scanty data available and the imposing barriers to dealing with perceptions in other species, it is difficult to go beyond these few simple conclusions.

Kostrzewa RM, Brus R, Halbfleisch **JH, Perry KW & Fuller RW: Proposed animal model of attention deficit hyperactivity disorder. Brain Research Bulletin.** 1994;0:001-007.

Dopamine (DA) neurons are implicated in the hyperlocomotion of neonatal 6-hydroxydopamine (6-OHDA)-lesioned rats, an animal model of attention deficit hyperactivity disorder (ADHD). Because serotonin (5-HT) neurons mediate some DA agonist effects, we investigated the possible role of 5-HT neurons on locomotor activity. Rats were treated at 3 days after birth with vehicle or 6-OHDA (134/µg ICV; desipramine pretreatment 20 mg/kg IP, 1 h), and at 10 weeks with vehicle or 5,7 dihydroxytryptamine (5,7-DHT; 75 µg ICV; pretreatment with desipramine and pargyline, 75 mg/kg IP, 30 min) to destroy DA and/or 5-HT fibers. Intense spontaneous hyperlocomotor activity was produced in rats lesioned with both 6-OHDA and 5,7-DHT. Locomotor time in this group was 550 ± 17 s in a 600 s session, vs 127 ± 13 s in the 6-OHDA group and <75 s in 5,7-DHT and intact control groups ($p<0.001$). Oral activity dose-effect curves established that 5,7-DHT attenuated DA D_1 receptor supersensitivity and further sensitized 5-HT_{2c} receptors. Acute treatment with dextramphetamine (0.25 mg/kg SC) reduced locomotor time in 6-OHDA+5,7-DHT-lesioned rats to 76 ± 37 s ($p<0.001$). Striatal DA was reduced by 99% and 5-HT was reduced by 30% (vs. 6-OHDA group). Because combined 6-OHDA (to neonates)

and 5,7-DHT (to adults) lesions produce intense hyperlocomotion that is attenuated by amphetamine, we propose this as a new animal model of ADHD. The findings suggest that hyperactivity in ADHD may be due to injury or impairment of both DA and 5-HT neurons.

Corbett R, Hartman H, Kerman LL, Woods AT, Strupczewski JT, Helsley GC, Conway PC & Dunn RW: Effects of atypical antipsychotic agents on social behavior in rodents. Pharmacology Biochemistry and Behavior. 1993;45:9-17.

There are numerous preclinical screening procedures that are predictive of clinical efficacy for the positive symptoms of schizophrenia but no assays for the negative symptoms such as social withdrawal. In the social interaction test in rats, the atypical antipsychotic drug clozapine (10.0mg/kg) and two putative atypical agents risperidone (0.0625 mg/kg) and HP 873 (0.5 and 1.0 mg/kg) significantly increased social interaction behaviors between pairs of unfamiliar but not familiar rats. The benzodiazepine diazepam (1.25-5.0 mg/kg) increased social behaviors in both paradigms. Haloperidol, chlorpromazine, raclopride, and SCH23390 decreased social behaviors in these assays. In vitro ratios for both D_2/5-hydroxytryptamine$_2$(5-HT_2)/ and D_1/5-HT_{1A} of greater than or equal to 12.0 and 1.0, respectively. The present study suggests that antipsychotic agents that may be effective in social withdrawal can be identified in this modified social interaction paradigm. Further, our data suggests that a compound's effectiveness for the treatment of social withdrawal is at least in part due to its relative affinity for binding dopamine D_1 and serotonin 5-HT_{1A} receptors.

He F, **Wu C: Molecular evolution of cytokines and their receptors. Experimental Hematology. 1993;21:521-524.**

Based on protein homology, it was found that cytokines evolve together with their receptors in a concerted fashion and that the evolution of colony-stimulating factors (CSFs) correlates with the hierarchy of myelopoiesis, i.e., multi-CSF acting on multipotential myeloid progenitors possesses the largest evolutionary distance between mouse and human; GM-CSF acting on oligopotential myeloid progenitors, an intermediate evolutionary distance; and granulocyte-, macrophage- and eosiphilin-CSF (G-, M- and Eo-CSF) acting on monopotential myeloid progenitors, the smallest evolutionary distance.

Wolffe AP: Structural and functional properties of the evolutionarily ancient Y-box family of nucleic acid binding proteins. BioEssays. 1994;16(4):245-251.

The Y-box proteins are the most evolutionarily conserved nucleic acid binding proteins yet defined in bacteria, plants and animals. The central nucleic acid binding domain of the vertebrate proteins is 43% identical to a 70-amino-acid-long protein (CS7.4) from *E. coli.* The structure of this domain consists of an antiparallel five-stranded ß-barrel that recognizes both DNA and RNA. The diverse biological roles of these Y-box proteins range from the control of the *E. coli* cold-shock stress response to the translational masking of messenger RNA in vertebrate gametes. This review discusses the organization of the prokaryotic and eukaryotic Y-box proteins, how they interact with nucleic acids, and their biological roles, both proven and potential.

Saier MH: Convergence and divergence in the evolution of transport proteins. BioEssays. 1994;16(1):23-29.

Different families of transport proteins catalyze transmembrane solute translocation, employing different mechanisms and energy sources. Several of these functionally dissimilar proteins nevertheless exhibit similar structural units, consisting of six tightly packed α-helices which may comprise all or part of a transmembrane channel. It is now recognized that some of these families arose independently of each other by convergence, while others arose from common precursors by divergence. The former families apparently arose at different times in evolutionary history, in different groups of organisms, employing different routes.

ANNOUNCEMENTS

Aaron T Beck, MD by Marjorie E Weishaar.
This is a biography of renowned psychiatrist, founder of cognitive behavioral therapy for depression, and now ASCAPian, Aaron Beck, in the Key Figures in Counselling and Psychotherapy Series.

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New Delhi 110 048.

Affect Regulation and the Origin of the Self: The Neurobiology of Emotional Development by Allan N Schore.

Over the past decade a diverse group of disciplines have simultaneously intensified their attention upon the scientific study of emotion. This proliferation of research on affective phenomena has been paralleled by an acceleration of investigations of early human structural and functional development. Developmental neuroscience is now delving into the ontogeny of brain systems that evolve to support the psychobiological underpinnings of socioemotional functioning. Studies of the infant brain demonstrate that its maturation is influenced by the environment and is experience-dependent. Developmental psychological research emphasizes that the infant's expanding socioaffective functions are critically influenced by the affect-transacting experiences it has with the primary caregiver. Concurrent developmental psychoanalytic research suggests that the mother's affect regulatory functions permanently shape the emerging selfs capacity for self-organization. Studies of incipient relational processes and their effects on developing structure are thus an excellent paradigm for the deeper apprehension of the organization and dynamics of affective phenomena.

A primary purpose of this book is to bring together and present in one resource the latest findings of socioemotional studies that are emerging from the developmental branches of various disciplines. This volume supplies psychological researchers and clinicians with relevant, up-to-date developmental neurobiological findings and insights, and exposes neuroscientists to recent developmental psychological and psychoanalytic studies of infants. The methodology of this theoretical research involves the integration of information that is being generated by the different fields that are studying the problem of socioaffective development - neurobiology, behavioral neurology, behavioral biology, sociobiology, social psychology, developmental psychology, developmental psychoanalysis, and infant psychiatry. A special emphasis is placed upon the application and incorporation of current developmental data from neurochemistry, neuroanatomy, neuropsychology, and neuroendocrinology into the main body of developmental theory.

More than just a review of several literatures, the studies cited in this work are used as a multidisciplinary source pool of experimental data, theoretical concepts, and clinical observations that form the base and scaffolding of an overarching heuristic model of socioemotional development that is grounded in contemporary neuroscience. This psychoneurobiological model is then used to generate a number of heuristic hypotheses regarding the proximal causes of a wide array of affect-related phenomena - from the motive force that drives human attachment to the proximal causes of psychiatric disturbances and psychosomatic disorders, and indeed to the origin of the self.

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