

ASCAP NEWSLETTER

Across-Species Comparisons And Psychiatry Newsletter

Volume 3, No. 2, 15 February 1990

"The potentially revolutionizing effect of the extraordinary new genetic techniques has yet to be widely felt, and little attention has been given to reordering the questions asked relative to them." Carson

(c/o Russell Gardner, 1.200 Graves Building (D29), University of Texas Medical Branch, Galveston, TX 77550)²

For the philosophy guiding this newsletter, predicated upon combinations of top-down and bottom-up analyses, see footnote on p11³.

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

Features: Featured Essay #1, The Sociobiological Dilemma, provides SW Itzkoff's response to Glantz's seminal report on the 1989 Human Behavior and Evolution Society (HBES) meeting. The specific titles of SWI's 4 books in the series The Evolution of Human Intelligence (1983-1989) are: 1) The Form of Man: 2) Triumph of the Intelligent: 3) Why Humans Vary in Intelligence: & 4) The Making of the Civilized Man. Peter Lang Publ, Inc, 62 W 45th St, 4th Floor, NY, NY 10036.

2. Featured essay #2 from John Price, Defeat is a Subset of Yielding, is a top-down analysis that stems from a question RG asked him on the relationship of these two concepts.

RG follows with a suggestion for hopefully related bottom-up approaches for investigation. Can genomic deletions fostering distinctive communicative signals (as in some retarded children) tell us about important genes and how they work? Specifically, might chromosome 15 be an area of future promise?

Announcements: 1) The Across-National Comparisons and Psychiatry (ANCAP) Group will meet as previously mentioned 8:30 am to noon, Mar 25, 1990, at McLean Hospital, 115 Mill Street, Belmont, Mass, (part of the Harvard Medical School Dept of Psychiatry) in an initial planning meeting concerning a project on depression and yielding. Agenda includes a) phrasing of the hypothesis, b) cultural/national groups to be focused on, c) core strategies to be utilized, d) candidate instruments to be deployed, and e) funding. For those with ideas, please contribute working papers, whether or not you can come. But please begin to let us know if you are planning to come so we can make appropriate plans.

2) Abstracts for next HBES meeting 8/16-19/90 at UCLA, are due 4/1/90 c/o MT McGuire, UCLA Neuropsychiat Inst, 760 Westwood Pl, Box 33, LA, CA 90024-1759. Program co-chairs are R Boyd (213) 206-8008 & J Silk (213) 825-2655.

Letters October 4, 1989

Jill Bemporat gave me the June volume of the ASCAP-Newsletter. I would like to participate in distributing the Newsletters. Within Western Germany, there are a lot of people working and thinking in a similar area. Enclosed you will find 3 papers I have published in English that show that even stuttering can be understood quite well taking an ethological perspective.

Rainer Krause, U Saarlandes, FRG

Thank you for your cordial note!

You are sent intervening ASCAP issues (since June) and ASCAP invites you/others to send essays summarizing your work or in response to what may be provocative statements in ASCAP.

Feel free to circulate ASCAP copies (\$18/year to UTMB per subscription covers only minimum costs, many of which are copying expense). So copy away, but please do tell us how things evolve.

Your references are:

- 1) Krause R: A social psychological approach to the study of stuttering. In C Fraser and KR Scherer (Eds) Advances in the Social Psychology of Language. Cambridge: Cambridge U Press, 1982, pp 78-122.
- 2) Krause R, Steimeer E, Sanger-Alt C, Wagner G: Facial expression of schizophrenic patients and their interaction partners. Psychiatry 1988;52:1-12.
- 3) Anstadt T, Krause R: The expression of primary affects in portraits drawn by schizophrenics. Psychiatry 1988;52:13-24.

December 11, 1989

..Please find enclosed .. a short abstract of .. [the] central thesis of my new book [Oedipus in Evolution: A New Theory of Sex noted in ASCAP Vol 3 #1] which I thought you might consider for publication in ASCAP. With regard to Oedipus...the abstract I have sent you contains an important correction to a mistake I have found in the published text and so I would be grateful to you for publishing it for that reason alone. Nevertheless, and corrections apart, I think its central idea might interest your readers and perhaps persuade some to consult the book. Most of the remainder of the book could be covered in two similar short abstracts and if you are interested in having these, I could certainly provide them for issues later in

1990. ..

Finally, with regard to the subscription: this turns out to cost about twice as much to your non-US subscribers because of the cost of buying cheques, money-orders etc in foreign currency. Paying by credit card is a lot cheaper and some other publications do this. Could you?

All best wishes...

Christopher Badcock, U London

The new abstract will grace the Apr 90 issue. We would be glad for more.

Thanks for the suggestion about credit card payment. I explored this with the UTMB hierarchy, but they turned it down (too costly for them!)

However, I can be empathic with the frustration as I've worked to find a satisfactory mode of payment for my application to the Language Origins Society located in Europe.

9.11.89

...I enclose a reply to your question about defeat for ASCAP - not so much of an answer as thoughts triggered by your question.

Also I have become interested in yielding metaphors, and I enclose a letter .. [for] the British Journal of Psychiatry. which you could give a whirl in ASCAP ..as some ASCAP readers may not read the BJP.

I also enclose a letter to the British Medical J on a similar theme.

5.1.90

I thought the chapter ..[below] was ..relevant to our joint concerns....

20.1.90

Have just read the first issue of ASCAP vol 3 and thought it read very well. Irene Zhdanova's results are fascinating - on a par with Michael McGuire's 5HT findings. I hope she is able to use vervet monkeys with blue/white signalling genital skin (when she moves from rats to monkeys).

Here are some thoughts [a working paper on three types of depressive yielding] which I hope will be helpful when you meet in Boston to discuss plans for research.

J S Price, Milton Keynes, England

Thanks for the working paper which will go in a later ASCAP.

The letter to the BMJ will be quoted in ASCAP in the March issue and the one to BJP at a later point.

The chapter reference is: McCleery RH: Chapter 5. Interactions between activities. In TR Halliday and PJB Slater (Eds): Animal Behaviour. Vol 1: Causes and Effects. Oxford: Blackwell Scientific Publ, 1983, ppl34-167

An excerpt from p 137 reads:

There are two extreme kinds of observation that can be made in order to find out about motivational mechanisms. On the one hand the animal can be treated like a 'black box' and an attempt can be made to deduce the nature of the internal processes from the input-output relationships. Unfortunately, any given set of responses to various inputs could be generated by a variety of internal mechanisms. At the other extreme, attention can be confined to direct investigation of the nervous system, but when we start trying to understand the overall functioning of an animal's nervous system by inserting electrodes or drugs or removing parts of its brain we are in a similar position to someone trying to understand a computer using only an oscilloscope and .. wire-cutters... The best approach is obviously intermediate between these extremes, and usually starts with behavioural observations; in favourable cases it may be possible to proceed to the direct observation of internal mechanisms.

McCleery goes on to describe a marine gastropod with relatively few activities arranged hierarchically, eg, escape always suppresses all other activities; egg laying suppresses feeding, but can occur simultaneously with positional righting behaviours and mating.

The black box vs oscilloscope/wire-clippers metaphor is paralleled by top-down vs bottom-up imagery. A 1989 textbook of biochemistry (six

year later) adds still more direction to our anticipation of the future as it goes a level of analysis below that of the neuron - - to the genes that determine nervous tissue organization: Present-day biological molecules .. are a rich source of information about the course of evolution, revealing fundamental similarities between the most disparate of living organisms and allowing us to map out the differences between them on an objective universal scale... If metabolic pathways evolved by the sequential addition of new enzymatic reactions to existing ones, the most ancient reactions should, like the oldest rings in a tree trunk, be closest to the center of the "metabolic tree" ____

The enzymes that catalyze the fundamental metabolic reactions, while continuing to serve the same essential functions, have undergone progressive modifications as organisms have evolved into divergent forms. For this reason, the amino acid sequence of the same type of enzyme in different living species provides a valuable indication of the evolutionary relationship between these species. The evidence obtained closely resembles that from...the fossil record. An even richer source of information is locked in the living cell in sequences of nucleotides in DNA, and modern methods of analysis allow these DNA sequences to be determined in large numbers and compared between species. Comparisons of highly conserved sequences, which have a central function and therefore change only slowly during evolution, can reveal relationships between organisms that diverged long ago while very rapidly evolving sequences can be used to determine how more closely related species evolved. It is expected that continued application of these methods will enable the course of evolution to be followed with unprecedented accuracy.⁴

So for future research, what genes in the marine gastropod cause what neuron wiring changes so that alarm and escape determine behavior first? And where (think of the tree ring image) will genes/neurons of a parallel nature be located to cause prioritization of similar hierarchically determined feelings and behaviors in vertebrates, mammals, primates and humans? Keep this in mind as you read Itzkoff's and Price's provocative essays.

** Featured Essay #1 **

The Sociobiological Dilemma

by Seymour W. Itzkoff

Fitness.

This is the rock on which the "Behavioral Ecologists" (BEs) will founder. As Kalman Glantz perceptively noted in his report on the Aug meeting of HBES Conference at Northwestern U, Evanston, Ill, USA, this is where the rift appeared. As one who attended as many sessions of this meeting as humanly possible, I, too, saw the blurred distinctions between the ethology of humans and other primates, as discussed in the various papers. Dr Glantz described the "Evolutionary Psychologists" (EPs) as dissidents (mostly, to my observations, renegades from the various Freudian reductionist schools) who dissent from the dominant BE position by modestly arguing that human behavior was adaptive as far along in the evolution of Homo as the hunter-gatherer stage. Subsequently, the evolutionary mechanisms leading toward fitness "may or may not produce adaptive behavior in other environments." My impression was that this position, that of the EPs, suffered mightily from this theoretical ambivalence.

In humans, the question must also be: in what sense do we mean "fit" or "adaptive"? The basic scientific premise here derives from the assumption of the continuity of nature. The evolution of Homo must accord with the basic theoretical principles that unite all biological creatures, from the closely related apes and monkeys to the various invertebrate phyla. The study of human ethology derives from a deep intellectual commitment that we are animals, and thus subject to the same universal laws that describe the rest of this biological domain.

Certainly, the measure of biological adaptiveness is procreative suc-

cess and those related behaviors that ensure for the individuals of the species in question the intergenerational passing of their unique packet of genes and chromosomes into the future. Thus, we rack our brains for examples of seemingly adaptive behaviors in this interminably buzzing, blooming cultural confusion that we see in history. Sociobiologists search for an example here, or an example there, that will allow us to say, "see, there is a case of tribal or social class behavior that shows that we really do act to help our kids get more of the pie so that they may reproduce prolifically into the next generation."

In our scientific heart of hearts we know that the confirmatory model amounts to thin gruel. As Kalman Glantz noted, it seems to work sometimes to provide predictive efficacy, but certainly not with any theoretical consistency. This is why the cultural anthropologists have had such a ball critiquing human sociobiology.

We ask the ultimate scientific question. Can we truly consider a particular domain of study scientific if the power of its theoretical model enables us to make empirically and unequivocally confirmable predictions in fifty-one percent of the cases? Hardly. Yet we cannot deny the truth of the claim that we are biological creatures, and thus our behavior must be understood to be, in some sense, biologically rooted and adaptive. Let us hear no more nonsense about the domain of human culture being "super-organic."

The sociobiological dilemma inheres in such human behavioral words as "choice," "value," "context," "voluntary." To be sure we can discern that underlying mammalian stratum of behavior in all our various levels of personal and social intercourse. It exposes itself in especially poignant and passionate

expression in those individuals who have been stressed out of the norm. I believe that this is one of the reasons that psychiatrists are once more flocking to a new biological model that, it is to be hoped, will supplant the more metaphorical "biologisms" of Freud.

Until the realities of cultural decisionmaking are confronted by the "science" of human ethology, it, too, will remain little more than a quaintly provocative gloss on the larger study of biological phenomena. More concretely, the realities of human involvement in such peculiar fascinations as the various arts, mythic and religious behavior, philosophical and ideological preoccupations will have to be persuasively explained, then subjected to the hypothetical and predictive canons of science in terms of the adaptive model. Currently socio-biological theory isn't vaguely in this ball park.

Merely consider some of the examples that Kalman Glantz cites from the August, 1989, Evanston, meeting: a) the younger a Krummerhorn (Germany, eighteenth century) bride was, the more likely she was to have a high status, a reproductively-active land-holding husband. (How young the bride?) b) The reproductive success of the Mukogodo of Kenya is positively correlated with wealth and status.

Contrast the above with these examples: a) the wealth and power of a people compared to their relatively impoverished competitors is directly correlated with the extent of their destruction and humiliation in war by these competitor peoples: Japan and Germany versus Great Britain and the Soviet Union. b) The intellectual achievements of a people (ancient Greece) are inversely correlated with the people's reproductive success as compared to their relatively uncouth neighbors (Rome).

Evolutionary Facts.

Our dilemma begins with the final surge forward in brain size and reconstruction of Home erectus into modern forms of Homo sapiens sapiens. We can date this series of enigmatic events back to about .5 millions years ago. One could argue that human behavior up to that evolutionary moment was roughly adaptive in function given the 1000cm³ to 1200cm³ endocranial capacity of these creatures. Even then, along with the fossil evidence, we see the record of tool production, the so-called Acheulean, that reveals increasing differentiation in fabrication and esthetic realization. This tells us that there is already a non-practical element in human mentation as it begins its explosive expansion and reorganization into sapiency.

EO Wilson has framed the process well when he described it as gene-culture co-evolution. For the relationship has to be causal as well as correlational. As the human brain expanded and was reorganized so, too, did the tools reveal new cognitive inputs in their stylistic and fabricational development. Unless we are diehard sociologists we must opt for the conclusions that the brain determined the destiny of the tool rather than the other way around.

The question, then, concerns the causal relationships involved in this revolutionary thrust toward sapiency. The rub is that this final stretch cannot possibly be assigned to traditional selective or adaptive, thus practical, interactions in the natural run of things. If there were utilitarian elements in this process we should be able to note them either in the structure of human beings or in their ethology. Our unique morphological and behavioral adaptation is language and that, as with our social behavior, reveals very equivocal information about fitness or adaptive behavior.

Scholars from GG Simpson to Stephen Gould have concluded that special evolutionary processes must have been invoked to make possible such explosive changes, changes that simply do not fit the traditional selectionist model favored by most sociobiologists. One concept, neoteny, purports to describe the retention of infantile features into the sexually mature state of the adult form. We can in this way explain the rapid reconstruction of the human anatomy from the rough-hewn qualities of earlier hominids to the gracilized modern sapiens. So-called rate gene mutations could have been the vehicle for this plausible biological transformation.

Another important concept is orthoselection. Here we describe a process of "mutations in a straight line." In other words, when any complex of behaviors or structures has been subject to positive selection over a long period of generations, e.g., brain size or social coordination, it is likely that this series of mutational dynamics will continue on its own inertial impetus once the environmental pressures stimulating the positive selection of these features is lifted (unless there are negative selective consequences). The argument is that once an endocranial Rubicon of about 1000cm was reached humans were beyond threat by all but other humans. It can naturally be argued that in general a still larger brain gave one ethnic group of humans an advantage over others in this highly variable genus.

The adaptive results of this evolution of brain power are clear. In terms of the traditional mammalian, not to say vertebrate, ecological niche we humans are a violently dominating superspecies. In terms of the restructuring of the brain from the more traditional mammalian and primate template we can establish the following elements: a) the reptilean

neural chassis and the mammalian limbic system have been radically realigned in this relationship with the expanded cortex; b) the isocortex or new cortex has explosively expanded as part of the process of foetalization and the recession of the impeding bony structures of the brow ridges; c) the underlying allocortical areas connecting higher and lower phylogenetic elements have been surprisingly expanded.

In sum, a whole series of genetic linkages has been mobilized as a product of the orthoselective explosion of the cortex. We not only have expanded raw conceptual powers but a vastly increased sensitized mammalian emotional tone coloring, which may explain the puzzling array of non-practical cultural interests in which our mind seems to revel.

Lessons.

The study of human ethology must now address itself to the products of our last half million years of evolutionary travail. What has been called the sign/symbol system of cultural behavior must become our primary focus of biological study. Otherwise we will continue the futile chasing of our own tails in the search within culture for those ephemeral adaptive behaviors. For every example that you will give me, I will give a similar instance as a counter example.

This is not to say that voluntary behavior in humans is without its mammalian constraints and colorations. This is what makes the biological study of human behavior both complex and fascinating. There are here a number of evolutionary behavioral systems that have, in a rush of evolutionary reconstruction, been piled helter-skelter upon each other. Hans Selye and Paul MacLean of the McGill University school have noted, both in terms of stress behavior as well as the morphological components of the brain that we may here have a

probably unassimilable evolutionary inheritance.

It is interesting to see the psychiatric profession so deeply involved in the human ethology movement. They have got it right. The key is first to establish some of the biological rules for cortical behavior, the difficult stuff. My own intuition is that there is real domain of knowledge in the analysis of human variable intelligence as it relates to the variable abstractive symbolic capacities of individuals and their ethnic groups. This is a controversial area of study. However, few areas important to the rational scientific study of human affairs are without such fiery political potential.

Beyond the analysis of voluntary symbolic behavior lies that inchoate domain of maladaptive behavior, maladaptive in the psychiatric sense. The biological route to follow here is probably through an analysis of the integration of these various phylogenetic systems. There too, because of the extraordinary mental and physical variability individuals of our species have inherited, is this puzzling diversity of susceptibilities in individuals. In all, we have a long agenda of study.

** Featured Essay #2 **

Defeat is a Subset of Yielding
JS Price

You ask me what is the difference between yielding and defeat, suggesting that we might use the term yielding for cases in which the loser stays with the winner in a submissive role, and defeat for cases in which the loser goes away and tries again somewhere else - essentially the difference between hierarchical and territorial social organisation. I am not sure about that. I prefer to

think in terms of yielding strategies, of which there are two types. There are strategies about whether or not to lose; and there are strategies about what to do once you have decided to lose.

Strategies for losing. All genetically determined strategies which now exist are by definition successful, and it may at first sight be difficult to accept that a strategy for losing in social competition can be a successful strategy in genetic competition. Fortunately Maynard Smith⁶ has dealt with this problem. He showed that a winning strategy alone was not "evolutionarily stable", in that it could be infiltrated by a mixed strategy which allowed for both winning and losing in different circumstances. One strategy which did well in computer simulations of the evolutionary process is what Maynard Smith calls the assessor, or "best of a bad job" strategy, which is to play to win unless the competitor is clearly stronger in which case lose. We should note that, according to this model, losing is an active process, unlike just being hit over the head with a club. The potential winner and loser take part in the competitive process, but the initiative for losing, and the execution of losing, are properties of the loser.

Maynard Smith also pointed out that in some cases where two opponents are evenly matched, the decision of whether to yield or escalate the fight might be made by a randomisation machine in the brain. The inherited instruction would read, "If no clear difference in RHP, yield with probability p." There might be a gene whose different alleles carry different values of p (or p might be polygenically determined), and selection would ensure that the range of values that evolved would fit in with other relevant matters such as likelihood of killing each other when escalating, vulnerability to pred-

ators during fighting and so forth. This might be important in our approach to bipolar affective disorder, if we accept, as I think some of us do, that depression is based on the yielding strategy and mania on the escalating strategy. Then the most heritable thing about bipolar disorder might be the ratio of manias to depressions.

Strategies for what to do having lost. Having lost, there are a number of possible strategies open to the loser. (Since our language makes one specify the sex of the individual one is talking about, even if one wants to talk about both sexes, I will make the loser feminine, to redress the tendency to always think of fighting in terms of males. I think this is preferable to the Lawrence Erlbaum policy of making one refer to both him and her as "they").

I will list some options: 1. She can "hang around" in reserve, gambling that the winner will be taken by a predator. This is what the Scottish red grouse do when they fail to win a territory. Some of them "mope and die" according to Wynne Edwards, but others survive even with the poorer resources available to non-territory owners, and then they can take the place of a territory-owner who is shot or otherwise succumbs. We might call this a "twelfth man strategy" from the extra player who sits out the match in the cricket pavilion; I gather your equivalent would be "pinch-hitter strategy".

2. She can go and help the winner raise her offspring. Since the winner's offspring are likely to be related to her, she has little to lose by helping them rather than just doing nothing. There is always the possibility of reversing roles with the winner and so reproducing; and there is also the possibility of cheating on the winner and doing some breeding of her own, if the winner fails to exercise the measures which

the winner adopts to prevent the loser breeding. However, if these possibilities become too great, the winner ceases to get advantage from exercising mercy and refraining from killing the loser, so that the ritual system would break down; and therefore the losing strategy must contain a significant component of refraining from breeding and refraining from contesting the issue, in other words, of sexual and agonistic inhibition. Ethologists seem to be finding increasing numbers of these "helper" situations, such as the golden-headed jacker in which the mature young sometimes stay with the parents for an extra year and help raise the next litter.

3. She can stay permanently with the winner, or winners, in a subordinate hierarchical position. This is your in-group omega psalic, seen classically in the macaque.

4. She can commit suicide. This, to my knowledge, occurs in only one vertebrate other than man. The cleaner fish, *Labroides dimidiatus*, a wrasse, has horizontal stripes which signal to predator fish that it is a cleaner and should not be eaten.⁸ The cleaner fish has a mimic *Aspidontus taeniatus*, which does not clean but is protected from predation by the horizontal stripes (and other markings). The mimic is a blenny, a class of fish which has the capacity for colour changes; it is also a territorial species. When a mimic loses a fight for a territory, it changes colour and loses its mimic markings, and thus becomes a prey for the fish which come to the reef to be cleaned.

Mimics are under considerable pressure to remain in as low a ratio to the model as possible, otherwise the prey species learns to differentiate mimic from model. For example, mimic butterflies have special mechanisms for dealing with surplus individuals. Therefore it is interesting to note that the cleaner fish mimic is one of

the very few vertebrate species to practice mimicry, and also one of the very few to adopt a losing strategy which is usually suicidal.

5. She can hibernate, hoping that the winner will be killed off by an unusually severe winter.

6. She can go somewhere else, either permanently as in colonisation or temporarily as in migration.

We can note in passing that it is not necessary for the winning and losing roles to have connotations of success and failure. In the case of those species, such as some sparrows, which manifest partial migration, for instance, there are two equally valid strategies of staying put and migrating. The ritual agonistic encounter then becomes not a process of deciding who wins, but rather a process of deciding who stays and who goes. It may well be that staying is not a very good strategy, and to "win" a territory might be less successful than to lose and go somewhere else. In mandatory migrators, it is possible that the losing strategy has entirely replaced the winning strategy in the population.

Let me try a thought experiment about how this might have happened. Take the case of the partially migrating sparrow. After the annual competition for territories in the autumn, the winners who are now territory-owners stay put. The losers who have no territories migrate. The ritual agonistic behaviour has functioned to divide the population into stayers and migrators. Whether the winning, staying strategy is more successful than the losing, migrating strategy will depend on the ecological conditions. Maybe there is a severe winter and all the winners who stay are wiped out. When the migrators return all the territories are vacant. If that happens for a sufficient number of generations, the winning, staying strategy might be bred out of the populations. Then

when the usual time for agonistic behaviour comes in the autumn, all the birds would adopt losing strategies, even in the absence of competitors to adopt the winning roles; and all the birds would migrate. Possibly this has happened in present day species in which the whole population migrates.

The same argument applies to hibernation. In some species such as the arctic ground squirrel, some individuals hibernate and others do not. It may well be that the hibernators are the ones who have failed to win territories, and have adopted the yielding strategy of hibernation. In those species in which the whole population hibernates, the winning strategy of staying awake on the territory may have died out due to a long succession of severe winters.

This approach makes hibernation and migration homologous with the depressive state seen as a prolonged yielding reaction - they are all adaptations of a basic vertebrate ritualised reaction to defeat in agonistic behaviour. This may not be as unlikely as it appears at first sight. Although quite typical depressive states have been reported in a number of animals such as dog and monkeys, they have not, to my knowledge, been described in lineages which contain a large proportion of hibernators, such as rodents. Losing behaviour in rodents seems to be quite different from that in other mammals, being dependent on the actual presence of pheromones from the winner. This is what we would expect if they had already "used" the yielding reaction by converting it into hibernation: some other form of rodent losing behaviour would have needed to evolve. There are two implications here for research. One is that we might find the basic mechanisms of depression and hibernation to be the same. The other is that non-hibernating rodents such as the laboratory rat and mouse

are not likely to be good animal models for depression research.

It is interesting that in the migrators and hibernators, it is the losing strategy which is complex and specialised. So too in hierarchical groups, it is the losing strategy which is more sophisticated. It requires more skill to be a good loser than a good winner.

You can see whose side I am on! There must be a sociobiology of attitude to winners and losers. Possibly it is just that winners get our attention but losers get our sympathy.

RG reaction focused upon dissecting the black box with wire cutters and DNA probes. Using other words, the genetic basis of a yielding component of ritual agonistic behavior is a highly conserved structure that represents a "basic plan." This basic plan seems to be implemented by gene-neural structures, a tree ring -- to use the biochemists' metaphor deployed above -- relatively closer to the tree core than, say, the biogrammar⁹ for language, or for laughter, scowls, snarls, or for other specific means of communication. I recall your discovery that Schelderuppe-Ebbe's lowest ranking chicken displayed behavior very like depression, which supposes that the basic plan for losing may have been expressed by the common ancestor of chickens and humans. Now you note that losing has multiple different variations, including, as you have developed the argument, migration and hibernation!

As the human genome gets explored further (in conjunction of course with the genomes of other living forms), we will wait with interest to see if and how such basic plans (for migration and hibernation) are coded on the molecular level, -- how basic are they? Your hypothesis puts their

tree rings peripheral to the tree ring for losing which they modify.

Now for Chromosome 15: I am interested in the happy puppet or Angelman's syndrome, a rare but distinctive form of mental retardation (see Oct 89 issue of ASCAP), in which laughter, more evidently a component of alpha behavior than of yielding behavior, is somehow affected by a deletion of human chromosome 15q11-12 in some cases. In these children laughter is expressed uninhibitedly and without reference to things the rest of us consider funny. On the other hand, these children never speak, do not seem "interested in speaking" -- perhaps they are without the biogrammar for language.

New information on this form of mental retardation using RFLP wire cutters and DNA probes has determined which parent contributes which DNA strands to the child's chromosomes. Such work with Angelman's syndrome genes reveals unexpected new information: in such persons, the maternal contribution to the chromosome is deleted, but the father's contribution remains.¹⁰ This is the opposite to what happens in the Prader-Willi syndrome where deletions in the same genomic region may occur but the maternal contribution is there without the father's. Prader-Willi persons are also retarded; they additionally have small stature, hands, feet, and genitals, but seem unable to stop eating and become obese. One reported case displays hyperlexia (unusual decoding ability; he never had to be taught to read) which may fit with reported cases of heterochromy -- or variations of the usual banding patterns -- of chromosome 15 in families with inherited dyslexia.

In summary, a "bottom-up" approach to the biology of communications may include a focus on human chromosome 15 and/or its non-human counterparts.

1. Carson HL: Evolution: the pattern or the process. Book review of Speciation and Its Consequences (Eds) D Otte, JA Endler. Sunderland, MA: Sinauer, 1989. Science 1989;245:872-3
2. For ASCAP Vol 3 (Jan through Dec, 1990) please send \$18 (US dollars) for the 12 issues. Make checks or money orders out to "Department of Psychiatry and Behavioral Sciences, UTMB"
3. ASCAP philosophy and goal. High' scientific importance rests on comparing animal behaviors across-species to understand better human behavior, knowing as we do so that evolutionary factors must be considered for understanding properly such behaviors. To accomplish these comparisons, very different new ways of viewing psychological and behavioral phenomena are required. This in turn explains why we need new words to define and illustrate new dimensions of comparisons across species. We expect that work in natural history biology combined with cellular-molecular biologic research will emerge as a comprehensive biologic basic science of psychiatry. Both top-down and bottom-up analyses are needed. Indeed, this must happen if we are to explain psychiatric illnesses as deviations from normal processes, something not possible now. Compare to pathogenesis in diseases of internal medicine.

Some neologisms that hopefully will help implement these goals are those of:

 - a. MRA Chance: "hedonic" and "agonic" refer to the tone of groupings of conspecifics (members of a same species) i.e., relaxed and fun-loving versus tense and competitive.
 - b. JS Price: "anathetic" and "catathetic" describe conspecific messages. Catathetic messages "put-down" and anathetic "build-up" the resource holding potential (R) of target individuals.
 - c. R Gardner: "psalic" is a 2 way acronym: Propensity States Antedating Language In Communication and Programmed Spacings And Linkages In Conspecifics. This describes communicational states conjecturally seen with psychiatric disorder and normality (human and non-human), ie, alpha psalic seen in manics, high profile leaders and dominant non-human animals. Eight psalics are named alpha (A), alpha-reciprocal (AR), in-group omega (IGO), out-group omega (OGO), spacing (Sp), sexual (S), nurturant (N), and nurturant-recipient (NR).

These new or renewed terms are initiated or elaborated in Chance, MRA (Ed) Social Fabrics of the Mind. Hove and NJ: Lawrence Erlbaum Associates, 1988.
 - d. P Gilbert: Social Attention Holding Power/Potential (SAHP) focuses upon the non-aggressive facets of leadership when this is deployed in the hedonic mode. See ASCAP v.2, #1 and his book: Human Nature and Suffering. Hove and NJ: Lawrence Erlbaum, 1989.
4. Alberts B, Bray D, Lewis J, Raff M, Roberts K, Watson JD (1989):Molecular Biology of the Cell: Second Edition New York: Garland Publishing, Inc. p4,12-13.
5. "Social Intelligence: Symbol, Abstraction," a paper on which the above statement was based, was presented at the International Soc/ for Human Ethology Conf, Edinburgh, 1989. The argument is further developed in "The Evolution of Human Intelligence," the series of four books cited on p.1
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