

ASCAP

Volume 12, No. 2 (Cumulative #135)

February, 1999

"The difference between men and women in a paragraph on an across-species comparison - A man is driving up a steep mountain road. A woman is driving down the same road. As they pass each other, the woman leans out her window and yells "PIG!" The man immediately leans out his and replies "BITCH!" They each continue on their way, and as the man rounds the next corner he crashes into a pig in the middle of the road and dies." James Brody, attributed to his son, January, 1999.

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

Across-Species Comparisons and Psychopathology (ASCAP) Society Executive Council:

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ASCAP Society Mission Statement:

The ASCAP Society represents a group of people who view forms of psychopathology in the context of evolutionary biology and who wish to mobilize members and resources of various disciplines 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 Aims:

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

The ASCAP Newsletter is a function of the ASCAP Society.

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Previous volumes are available. For details, contact Russell Gardner, Jr., Editor-in-Chief of *The ASCAP Newsletter*, at the address above. **World Psychiatric Association**

<http://www.wpanet.org>
for the August, 1999 meeting contact:
www.wpa-hamburg.de
Some of us will be staying at
Hotel Holiday Inn, Kieler Strasse 333
22325 Hamburg, tele 040 54740-0
fax 040 54740-100

The World Psychiatric Association is an organization of psychiatric societies aimed at advancing psychiatric and mental health education, research, clinical care and public policy.

The basic members of the WPA are 110 national psychiatric societies, representing



The ASCAP Newsletter is the official newsletter of the *Psychotherapy Section* of the **World Psychiatric Association.**

ADDRESSED TO & FROM ...

Aaron T. Beck ASCAP Award Announcement

The ASCAP Society and The Board of Directors of the Foundation for Cognitive Therapy and Research announce the commencement of the application period for the fifth annual Aaron T. Beck ASCAP Award.

This \$1000 award will go to the author of the best paper on a topic of relevance to ASCAP (see below), submitted by a student or new investigator (within two years of award of degree, or end of residency training if an M.D.).

The award is intended in part to support the winner's trip to one of the 1999 ASCAP-sponsored meetings: the Festschrift for Paul MacLean in Boston, Massachusetts, USA, (July 16-17), or Hamburg, Germany (August 6). The winner will receive a plaque at that time and will present the winning paper in oral form. (Applicants should please indicate which meeting venue would be his/her choice in a cover letter). All or part of the paper will be published in *The ASCAP Newsletter*. Applicants should send three copies of their paper to: Linda Mealey, Chairperson, ASCAP Beck Award Committee, Psychology Department, College of St.

Benedict, St. Joseph, MN 56374. To ensure full consideration, applications should be postmarked by May 30, 1999.

For further information, read the remainder of the announcement below. Additional questions can be addressed to Linda Mealey at the above address, e-mailed to lmealey@csbsju.edu, or sent by FAX to L Mealey at 1 (320) 363-5582.

Previous winners of the ASCAP award were: 1998: Bruce Ellis from Vanderbilt University, Nashville, USA with "Psychosocial antecedents of variation in girls' pubertal timing: Maternal depression, stepfather presence, and marital and family stress." 1997: Edward Hagen, University of California, Santa Barbara, USA with "Delusional and somatoform disorders as possible examples of intraspecific exploitative mimicry in humans." 1996: Souhir Ben Hamida, Northwestern University, Chicago, USA with "Human mate preferences: Implications for the gender difference in unipolar depression." 1995: Nicholas Allen, University of Melbourne, Melbourne, Australia with "Towards a computational theory of depression".

Call for papers Second ASCAP Meeting of 1999

Theme: Ethology and Practice in the Clinical Human Sciences Hamburg, Germany

August 6, 1999 Our meeting will occur just before the World Psychiatric Association Meeting. Mark Erickson, as current president, has named the theme and will preside. He will present the first paper of the day as is now our tradition. But we need to know definitively who else plans to be present. We have tentatively planned that those who are expecting to present at the WPA meeting in the three panels sponsored by members of the Psychotherapy section might wish to plan also for presentations at ASCAP. In addition, European members of The ASCAP Society (Frank Salter, Karl Grammer, and Tyge Schelde come to mind quickly) might wish to travel for the day to this meeting. **We need your abstracts by June 15, 1999.** Please include name, title, affiliations, address including email/fax, and an abstract of 350 words. Send snail mail/email/fax to Russell Gardner, using the address of 921 Blume Drive, Galveston, TX 77554 if you send before June 1 or 214 DuRose Terrace, Madison, WI 53705 after June 1. The email address that can

be used at this time is rgardner@ wt.net or russeiigardneijr@hotmail.com if the first doesn't work. We decided to take advantage of the latter, a Microsoft email service, for redundancy when the first initially didn't work.

We learned that the address and numbers for WPA given out in a recent ASCAP issue did not function when registration for the meeting was attempted. Here are is the website that has worked for us: **www.wpa-hamburg.de**

The hotel at which we are staying and which we hope has a meeting room for us to use is **Hotel Holiday Inn Kieler Strasse 333 22325 Hamburg tele 040 54740-0 fax 040 54740-100**

We are working on such arrangements but do not yet have them completed.

**Clinical Sociobiology:
Darwinian Feelings &
Values**

Course in Annual AECOM
Cape Cod Institute
July 19-23, 1999

This is one of 26 courses in the 20th Cape Cod Institute put on by Department of Psychiatry of Albert Einstein College of Medicine. The Faculty include: James Brody (organizer & leader), John Price, John Fentress, Russell Gardner (with a guest vetermarian expert

in animal behavior from the UK, Robin Walker).

Description: There is value in knowing about evolution beyond its nastiness. Cooperation and competition are a crystal structure but we often focus more on harm while taking nurturance for granted. Bad news is on the front page, the good stuff in the back sections and sale papers. Every client or patient makes judgments about bad and good, judgments that are attached to his/her emotional tools. Feelings, thoughts, and values are tightly linked; it helps to understand their biological roots.

Evolutionary findings describe events in our lives, marriages, and families and in principles that can be used responsibly with clients. They outline a map for constructive living and for intervening in anxiety and depression, abuse, violence and infidelity. These principles also suggest the circumstances under which we are most likely to betray others or to abuse children or mates. Confidence for our clients also grows with the anecdotes that we offer as seasoned teachers and therapists.

This symposium elucidates the clinical implications of evolutionary psychology. It is designed for those new to the subject as well as old hands. Participants will receive a 300-page course manual, pre-

publication copies of Dylan Evans¹ introduction to evolution (if available) and a Charles and William T-shirt. Following the morning sessions on Monday through Thursday there will be optional follow-up small group discussions and three optional evening sessions will be offered on diagnostics, complexity theory and genetics. The daily sessions (subject to change) follow:

Monday - Natural selection and human psychological adaptations: domain specificity, cheater detectors, emotional and moral tools, retargeting the idea of "mismatch"

Tuesday - Social behavior as expression of adaptations: evolutionary foundations for a basic science of psychology and psychiatry, story-telling and functions of values, gossip, and group monitoring.

Wednesday - Hierarchy regulation: the origins, expressions and interventions anxiety, mood and personality disorders.

Thursday - Marriage and child-rearing: male/female conflicts of interest and power balances, children (who's really in charge), abuse, reconciling what is good with what seems natural.

Friday - Genes as conversationalists with our settings: tuning genes, finding places to be ourselves.

New Book on Adolescence

Glenn Weisfeld has authored *Evolutionary Principles of Human Adolescence* which will be published around February, 1999, by Westview Press in paper and hardback. This book presents a comprehensive treatment of adolescent behavior, anatomy and physiology from a functional, evolutionary point of view. This research-based description places adolescent development in cross-species and cross-cultural perspective. Pubertal changes, behavioral sex differences, and puberty rites are analyzed in particular detail.

Glenn Weisfeld
weisfeld@sun.science.wayne.edu

How many evolutionary-clinicians are there?

Do you know of others like me who have formal training (graduate work) in clinical mental health and in evolutionary biology/psychology? I haven't run across anyone informally, but I don't go around demanding someone's "pedigree" either! I'm just curious if you know of anyone else....

What kind of word limit do you have for ASCAP articles?

Marilee Monnot, Ph.D.
marilee-monnot@ouhsc.edu

Reply

Why don't I publish your question below in To and From? Perhaps we

should we do a survey. Certainly many of the ASCAP Society members are interested and/or trained in the areas of clinical work and evolutionary biology/psychology-

We're pretty relaxed on word limits. If you have too much to say for a single issue/article, we can always continue it in a subsequent issue.

RG

Questionnaire for social dominance?

I have been reading papers on the social yielding theory of depression and was wondering if you have a social dominance scale. Currently I am working on a research project testing various depression theories and I would like to include this one. If you do not have a dominance scale specifically for social dominance as it pertains to your theory, do you have suggestions of a scale which might be appropriate?

Kimberly Cline
Graduate Student
University of New Mexico
kcline@unm.edu

Reply

Appreciate your interest in the social dominance theories and with the idea that a scale might be developed to measure facets of the theory of depression. As you see, I'm copying this to Dr. Price. You might check with Paul Gilbert at paul@mhru.demon.co.uk because he has operational ized facets of the concept more than I have.

I will put your question in the To and From section of *The ASCAP Newsletter*. Readers might have some good ideas.

Readers, please help Kimberly out!

RG

Appreciation

I just was reading through the latest *Ascap Newsletter*— I enjoyed it a lot! Great review of the book *Guns etc.* and the article on the inner and outer brain was also very good.

Great issue!

Lisa Munro
lisa.munro@mail.adm.wisc.edu

Cant afford ASCAP but sorry

I find I can I can no longer afford my reading list as I am on a fixed income. Without retirement benefits, the subscription to *ASCAP* (and other publications) is too much. It's a pity because I enjoy the volumes and share the general philosophy.

William Abruzzi
99 Margaret Drive
Leicester, N.C.
828683-9399

Reply

Well, we certainly regret losing such a reader/subscriber, but as a retiree soon myself, can sympathize with issues of expense. Perhaps as computers become less expensive, you might be able to make an investment in one that would let you on the Internet and

access to many publications. Also libraries allow usage of their computers by the public.

This leads into my wish to have a more definitive ASCAP web presence with a well tended web site by the year 2000. I've some books on composing web sites including HTML language and FrontPage 98. While, I'm far from mastering these novel media, and the website that we have had is down now, I do foresee a way of continuing ASCAP publication in this less expensive manner (after initial investment) perhaps in addition to - or perhaps instead of - the paper form.

Please let us know whether the Internet would make your continuing reading (and of course other means of participation) more feasible. I'm aware that Jim Brody has formed a very active web site that would be hopefully hot-linked (is that the right jargon?) with ours.

Russell Gardner, Jr.
rgardner@wt.nei

Brief Book Review of Jim McKnight's *Straight Science? Homosexuality, Evolution and Adaptation*

I just finished the above book (Routledge, 1997). It appears to be a good, readable survey of the current literature on the sociobiology of homosexuality.

McKnight discusses five types of male homosexuality:

1. experimenters (heterosexuals who find homosexuality superior in cost-benefit),

2. swingers (individuals with a high sex drive who do not discriminate targets),
3. unwanted (heterosexuals in jails, etc., with only same-sex targets available),
4. predisposed (hormonally feminized males),
5. driven (males who feel strongly attracted to same-sex targets despite internalized homophobia and ambivalence about their behavior).

This last category is the most interesting from a sociobiological perspective and the one he is concerned with. Homosexuals in this category appear to make up about 1 -3% of the male population in modern society. McKnight discusses strong evidence that the last category has genetic causation, with incomplete penetrance, so perhaps only a minority of the males carrying the 'genes for homosexuality' are actually homosexual, with most of the remainder fully heterosexual. Whether or not the underlying genes are X-linked, it is clear that heterosexual carriers (male or female) of the genes have to have significantly increased fitness over that of the wild type for the genes to remain in the population. The magnitude of that fitness advantage is high enough that the genes would have to evolve to fixation fairly quickly if anyone came up with a 'cure for homosexuality'.

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White Paper

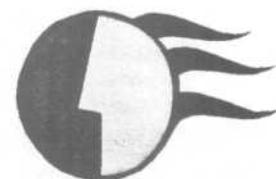
Representatives from a number of evolution-oriented societies are finishing a "White Paper" defining the challenges and opportunities facing the study of evolution. Titled "Evolution, Science and Society: Evolutionary Biology and the National Research Agenda," this is of interest to many and should be useful for a variety of educational purposes. Available at: <http://www.rci.rutgers.edu/~ecolevol/fulldoc.html> For more information on the project, see: <http://www.rci.rutgers.edu/~ecotevol/>

Randy Nesse

Conference on Competing Views of Evolution

We're looking for subjects/nominations/participants/appropriate co-funders for a symposium centering on present competing views of human evolution and their scientific and philosophical credentials and investments. This will last several days in San Francisco (perhaps at the California Academy of Sciences in Golden Gate Park) late 1999 or early 2000. We solicit more suggestions. The time to air these issues has arrived.

Michael Gregory
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Friday Night in Atlanta

Three of us attended the Origins Symposium at Emory U. this past January weekend, yes, the weekend that East Coast airports canceled every other flight out. Either by waiting standby or "flirting" with the ticket agent, we all made it there in time for E. O. Wilson's talk Friday night. It was a wonderful learning and living experience for me, and I suspect for my two companions as well. One thing I learned was when dining with two male psychologists, watch your every word and gesture.:~)

E.O. Wilson has been called one of the most brilliant scientists of the 20th century. But if you had not heard him speak, or read what he has written, then you might be fooled by the appearance of the slightly stoop-shouldered primate who commands your attention in a voice laced with just a trace of his Florida panhandle/Alabama childhood. You might be fooled by the tolerance and grace afforded young graduate students who prove the exception to the rule that there are no stupid questions. You might be fooled by the unassuming presence among his people, signing books and T-shirts with the grace and charm of a thousand years of selection. You might be, but when you listen to what he has to say about us, our past, our present, our future, you just sort of tilt your head like the RCA dog listening to his master's voice, and with a stupid look on your face say, "yeah."

We listened as the famous entomologist told us that culture is a product of our biology, and epigenetic rules bias us to behave in a particular way, whether it is incest avoidance or choosing a mate. This co-evolution of genes and culture reflects in the symbols and patterns, which appear in and move across all cultures. He pointed out that human nature is drawn to the natural environment through evolution and our emotional attachment to what he terms biophilia. Through enticing slides we viewed the three things that all humans desire as being in their ideal environment,

a view from a high place, open grasslands interspersed with trees and bushes, and water; in other words, the "Eden" from which we all came and desire to return to. Interestingly this week I happened to see "The Truman Show," and was struck by the premise that having found and lived in "Eden," it is anything but desirable for the human species. We are never satisfied and this is our glory and our burden.

In reference to his newest book, *Consilience*, Wilson reiterated the need for a reaching out from all disciplines a hand of consilience, a metaphorical image I saw mirrored in one of Frans de Waal's slides of two chimps in separate trees stretching out their hand to each other to amend their recent differences. Wilson urged the reintegration or at least conscious awareness and sharing of all areas of knowledge, from the physical sciences to the arts, for one does not exist without the others. The light of one area might have the capacity to shine its illuminating beacon on all if we can only be humble enough to entertain that possibility. The message was that if we want to continue to exist, it's time we realized that we are tenants in common of the collected knowledge and resources of our species and our planet, a message fraught with urgency, but for which Wilson believes, as he told a young man in the audience, there is still time.



Janus-Faced in San Francisco: Changes in ASCAP production

I write this mid-January, during the month named for the two-faced god looking both forwards and back, symbolic of my story as this year begins. This is your Editor-in-Chief and newly Managing Editor again. For about four years this latter task has been delegated first to Erica Ainsbury and then to Frank Carrel. Now it returns to me to resume what had been the case for most of the life of the newsletter as I will retire from University employment March 5, 1999.

So, equipped with PageMaker 6.5 and additional time (in the near future hopefully), I'm personally again taking the reins of the horses. We prepare to leave Texas for Wisconsin in mid-1999, from whence I moved more than 40 years ago and where numerous family live still. We go from the warmth of the gulf coast to the warmth of family, fulfilling plans started nearly two years ago.

I and all of us, I believe, are deeply grateful to Frank Carrel for his service as Managing Editor-Madelaine Robbins suggests he deserves a meta-phoric hug. Yet part of me also likes the idea of being more hands-on, more directly responsible for managing the software, entering the copy and digesting it better as I do so; past issues are treasure troves of information and I find that the more directly responsible I am for their entry, the more I know and cognitively use the information. I learn not only through direct reading but via key-boarding with my fingers and other sensory modalities.

In the meantime, we will keep things much as they have been in the template set up originally by Erica Ainsbury -though I hope the readership will forgive some glitches and lack of polish as I work on mastering this complex software. Referencing Erica, however, transitions to the fact that we're grateful to her. Last night we (Suzie and I) visited her lovely

home in San Francisco (I write this on the road with a new computer that doesn't belong to UTMB). During the visit, we shared her delight - and that of her husband Bob - in their new children, Julie and Egil, 6 and 3 y.o., respectively, adopted children who arrived a half year ago from Latvia (from where some of Erica's ancestors stemmed). We found them to be splendid kids full of rambunctious energy with equally energized - and well organized - parents. Metaphorically, we hope their energy comes our way for the next stage of the life of *The ASCAP Newsletter*- a new world and millenium filled with promise and expectations.

Bob has been successful in business (he regaled us with tales of life in his fast lane computer endeavors). He also carpenters and their house shows impressive modifications. At the same time they expressed pride in the improvements, however, both Bob and Erica remarked on their house's "good bones," its good core features.

Let's hold with this metaphor too as I discuss carpentering ASCAP. For instance, we struggle with the location of the references each issue. We may integrate them more with actual articles rather than to an end section. Please give feedback about this or any other feature if you find yourself having opinions.

But regardless of this or other changes, I hope that any will steadfastly respect the "good bones" shown in the newsletter to date. These include creativity shown by various ASCAP authors. Informative give-and-takes demonstrate warm respectful connections that recognize the manifold ways of knowing. The broad overview perspective of sociophysiology and clinical sociophysiology easily includes as subsets evolutionary psychology (Buss), evolutionary medicine (Nesse), paleopsychology (Kent Bailey) and clinical sociobiology (Jim Brody). Sociophysiology in my view incorporates on the one hand top- or -up level behaviors and interactions from crowd interactions to greetings

between acquaintances to enduring relationships of a myriad sort including innumerable cultural and societal roles. And on the other hand, it also involves analyses from the bottom- or -down systems levels, involving organs (notably the brain), cells and molecular levels, (especially for those interested in evolution, the genome) because on this level the adaptive changes fostered by the Darwin machine are recorded and then transmitted down the generations. In my opinion we need more than the top level considerations alone or bottom either. We need, as Patricia Churchland said, shuttles between, back and forth.

Science as a special form of critical thinking has the last word, of course. Science features storylines called hypotheses that are tested against reality using standardized procedures. But its theories and hypotheses require creative thinking. Sociophysiology has a curious position between biology and what has been separate from biology, as in domains of thought and activity in the arts, literature, sports, politics, and business.

Here we hope that artists, theorists and multidisciplinary data-collectors work in concert for several reasons. We do not know yet how to best organize and categorize sociophysiological information. First-person observations, case reports and other narratives may initiate or supplement theory and research. In *The ASCAP Newsletter*, "first draft" works may later expand to refereed journals or book-length publications, sometimes after some discerning commentary expressed either directly to the author or shared with other readers. But another facet is translation of data and new ways of viewing the world to the person who might not be specifically trained but who can utilize the fresh view nevertheless.

Also, at times we focus on neglected but deserving older works or contributors whose efforts have not received the attention they deserve in a continuing way in the fashion oriented world in which we live. On the other hand awards for best essays by younger authors are a wonderful way of bringing in fresh blood, hormones and correlated creativity, thanks in good part to Aaron T. Beck. We all remain especially grateful for his efforts in supporting the annual Beck ASCAP

award for the best essay reflecting our organization's purposes. The fifth competition begin now under Linda Mealey's energetic leadership. Dr. Beck has been a staunch supporter for a number of years and how fitting to have Linda devoted to his cause this year..

Now let me tell you about my Janusian look back to 1998. I am glad personally to have the year behind me, not the least being that I didn't find myself summarizing the proceedings of various attended meetings as I had in years before. I didnt even capture the annual ASCAP meeting in print. The meeting was fine, the participants as alive and full of ideas as ever, but I later realized that I just hadn't done it and the moment was lost.

Two other general meetings were not only wonderfully attendable but notable as well. These were the Human Behavior and Evolution (HBES) and the International Society for Human Ethology (ISHE) meetings. And I didn't ask anyone else to summarize them either as I might have—had I thought about it, if I weren't—to some degree at least — asleep at the wheel.

Fortunately we had superb contributors and Frank Carrel working the word processor so I believe the newsletter looked and read well, but looking back, it could have been more integrated, more current with the affairs of our society members. I wish and expect that this will improve. In this issue note comment on the Frans de Waal sponsored meeting in Atlanta (officially summarized by James Brody, with a item also by poet Lorraine Rice).

But what had happened to me? After all, an important step for one steeped in medical tradition involves analysis of the problem. How to explain my lessened productivity? Part of it stemmed from work obligations. Need for money dictates changed job assignments in the health care "industry" as its money-making potential is now emphasized. University medical centers such as UTMB are stressed especially because they must educate as well as make enough money to survive.

UTMB itself has additional pressure from being the state's oldest medical school complex including

ownership of a hospital that has traditionally accepted charity cases from all over Texas, a very large state. In the meantime the worker-bees (including your editor) needed to work ever more in the classic Red Queen style: running faster and faster to stay even remotely in place.

For me personally, another source of time-drain came from other meetings and obligations for promised articles and chapters (such efforts are always time-consuming however much I enjoy the process and product). I also attended Jim Brody's Cape Cod Conference and chaired two meetings of the GAP research committee. Part of the problem, perhaps, was over commitment.

But I believe now that the most important factor -affecting me more than I knew at the time - stemmed from family concerns and losses. First, Suzie's father died in February after a several month illness. James Allan Munro was a substantial gentle person intellectually adventurous and personally stable and committed to those around him, ever courteous, ever questioning, ever current. He read and commented on *The ASCAP Newsletter*. He had just set aside the Seymour Hirsch book on John F. Kennedy before he went to sleep for the final time. We miss him grievously and tears flow as I write this.

Then my father grew dangerously ill with septicemia and a failed heart valve resulting in open-heart surgery utilizing a replacement valve. The surgery happened on April 1 with a partial restoration of health despite transient evidence of brain syndrome from the heart-lung pump. Despite physical recovery and great enjoyment of automobile rides in his familiar countryside, he had ever-fading macular vision though he loved to read. Then strokes took him away in late October.

Dad had become preoccupied with his motorized lawn mower, starting it several times per day to assure its functionality, sometimes startling Mother with a sudden roar, preoccupied with whether the batteries were charged. We conjectured that he asked symbolically, 'Am I myself still functioning?' He applied

functionality - an important value for him -just two days before he died, using the blower to sweep fall leaves into piles to protect tree roots from the Wisconsin winter. He had planted the trees nearly two decades ago like he planted good will and great affection in all those surrounding him. I owe him the model and the courage for my own independent thought, action and energy.

Which energy seemed to disappear, as during the last stages of the year I ran with feet in molasses. I gratefully saw Andrew Solomon's renewed subscription for 1999. Recall that he was *The New Yorker* author who came to the annual ASCAP meeting in Davis, California, and presented verbally what he had rendered in superb prose. I didn't react to my father's death with the devastation Andrew experienced, but my paralysis was sufficient that understanding his pain came within hailing distance. His contribution via his book, *A Stone Boat* (NY: Penquin, 1994) showed that the depression described in the magazine issued from the loss of his vividly experienced mother.

Now with the New Year, though, I felt grateful for restored energy. Going to San Francisco helped. I am part of a team examining candidates for American psychiatry board certification. I have done this many times (hard to believe this is my 49th time to examine but Board records said that). I saw many old friends, several of whom made nice comments about ASCAP and its contents.

Robert Leon, for instance, retired chairman after decades at the University of Texas at San Antonio, told me that he initially subscribed to make an old friend (me) happy, but then he started reading it and found it really quite interesting, and moreover, relevant. He said that his own data on epidemiology of mood disorders supports the social rank theories of depression well articulated in these pages by John Price. I encouraged him to tell us all something of how this works, suggesting that he update us in a future issue.

Then back in Galveston, things had seemed very good with a wonderful weekend overlooking Laguna de Oro reflecting south Texas sun and hosting a number of water birds, I experienced increasing mastery of

PageMaker and felt life to be good. Then on Monday, January 25, I realized that it was my father's 87th birthday. While he lived, this was an important family holiday. Generally I wrote a poem commemorating the event, which he enjoyed. When he reached 80, I and many others convened for a celebration.

So I drove to work as usual and like the months before I believe I performed adequately (though can't be sure) but I privately walked with leaden feet while feeling despondent, akin, at least, to depression. And last night (this is January 26 in the morning) I slept poorly, restless, unable to concentrate as I usually can when unable to sleep (usually such stolen times are good for doing a number of things). I worried: how will the newsletter get finished with all the details that I need to consult Frank about before he leaves for his long awaited trip to the Philippines? I need to write letters and do correspondence on what seem a myriad other projects. My restlessness aroused Suzie who, wonderful partner that she is, gave me a massage (the grooming of our chimpanzee relatives; I know mere verbiage to be much less effective for calming purposes, at least for me, despite the increased brain capacity that it demands). This put me to sleep.

A REM cycle later I awakened refreshed and much happier. I asked myself, what was the dream? It took place in a conference setting after another board's examination process now completed. We were taking added vacation except that I found myself in another conference, similar to one from which I had gained much as a young Chairman of Psychiatry-Behavioral Sciences during my decade at the University of North Dakota.

Back to the dream, I at first seemed to be a senior figure helping younger educators, but gradually realized that I was as much in need of the organizing principles being provided as anybody. I talked to many friends. Then I heard a loudspeaker announcement that said that Russell Gardner was there but had not registered for the conference so I guiltily went searching for the registration desk to pay, grateful for the conference and many friendships.

I thought of how this illustrated sociophysiology:

multiple social interactions blending with the brain physiology that REM sleep represents so I've known something of that line of research. My medical school career began with an interest in research and how the brain worked. I worked in the sleep research laboratory at the University of Chicago where the sleep research pioneer, Nathaniel Kleitman, had discovered rapid eye movement (REM) sleep along with Eugene Aserinsky. My preceptor, Allan Rechtschaffen, borrowed the lab until he was able to develop his own. I felt the core question of what are the purposes of sleep and dreaming? I read Freud's 1900 *Interpretation of Dreams* and recorded my own dreams then. I've done research on these topics for 15 years as well as attending to clinical interests in dreams through psychoanalytic training and clinical work.

So what is my sociophysiological self-analysis of the restorative dream (certainly afterwards I felt restored)? I was back in an organizing experience that had previously helped me. I was highly regarded (my self esteem needs boosting right now) and I was in a job that required high organization and vigorous planning (as does this retirement thing). The dream illustrated the helpfulness of allies in thinking things through and the core actions of the story-using capacities of the story-using animal, the human. True many other animals have REM sleep too and the little twitches of the extremities of one's cat and dog show that if it's story-using, that humans are hardly unique in this attribute. But in their waking life, I feel, humans do more of it than other animals.

So I feel we must be grateful for dreams and Freud's work at the beginning of the twentieth century (his *Interpretation of Dreams* was published in 1900). Now we must bring ideas together for the twenty-first. I expect our intellectual descendants will be enormously grateful to the DeWaals and E.O. Wilsons amongst us, and less know now, but the energetic James Brodys, John Prices, John Pearces, Linda Mealeys, Thomas Joiners, Ivor Joneses, Paul Gilberts, Madelaine Robbinses, Dan Wilsons, Hagop Akiskols, Dori LeCroys, David Evanses and Marilee Monnets, amongst the many ASCAPIans helping us greet the new millenium with ideas that the public seems ever more ready to embrace.

ARTICLE:

Territoriality in Karate

I very much enjoyed Russell Gardner's article on Mati the cat as well as John Price's response in the recent *ASCAP*, as well as the piece by Dori Le Cray that also made a lot of sense.

I appreciate the notion of the triune brain—and the tables. It does seem a reasonable follow-up to notions about social rank and depression. What occurs to me about Table 2, that among "varieties of R," as you call them, the territorial part is extremely important when it comes to asserting oneself against rivals. I studied Shotokan Karate for two years, was an advanced student, and learned a lot about posture, self-assertion, aggression, and so on, in the context of defending oneself. The interesting thing overall, I would say, is that a karate student gets his power essentially through a territorial instinct. The great Funakoshi, who brought karate from Japan to the Western world, said that there are no first strikes in karate, that karate is based on defense. (In fact, all the katas or forms begin with a defensive move, never an offensive one.)

I'm thinking too that, for instance, there is nothing in nature as fierce as someone defending a place, a territory, a home base. In karate, you take a "stand" with your stance. Your feet, as it were, are rooted to the floor, your space being inviolable. From there, your power is created. And the term "centerpoint" refers to the middle of the body, two inches below the navel—from there, you kick, punch, strike, etc. We were told to imagine the centerpoint as a fire plug to which a fire hose is connected. When we strike and kick, it comes from our center—you "shoot it out" at your opponent. This, in a biological way, I believe, owes its strength to a territorial imperative based on fighting over a resource in the original environment.

And of course your "fighting ability/athletic" criterion is part of it all. Karate builds confidence, above all. Our sensei always said: "spirit over technique.. .but, all

things equal, technique wins, always." And so, you kick and punch thousands of times, building all this into your body as if it were something you were born with, which it is, really (more so with some people). And you can always tell an advanced karateka because he walks with good, upright posture (which is emphasized all the time in the dojo—a defeated person drops his guard and his head, and has tension in his shoulders.. .a strong person looks you right in the eye, because it's the window of the soul, as the true cliché goes. And when it comes to a confrontation, you must "release your mind." In other words, you must just act without thinking. You need to become very conscious and then, when it comes time to act, you must be unconscious. "No mind" is the way the zennists say it. And Zen, of course, underlies most of the martial arts.

What I'm saying is that when a depressed person knows what his/her territory is—in terms of struggling against others—that person, it seems to me, can only grow stronger. I remember what Lyndon Johnson said when Krushchev threatened to "bury" us Americans. He said: "We do not intend to bury anybody, but we do not intend to be buried." The last half of that sentence—coming as it does at the end, for rhetorical/biological emphasis—is what I mean by maintaining a strong disposition, maintaining one's place, or niche. "Let your soul stand cool and composed," said Whitman, "before a million universes." He knew about self-confidence too, and being able to relax around conspecifics!

And so I believe that the territorial instinct bulks large. And of course it closely relates to other resources. For instance, the home is a refuge, especially, I believe, for a woman—a place of safety where one has little chance of being attacked from outsiders.

And then too, I believe that John is right about depres-

sion often being the result of clinging to unreasonable goals or needs. When I feel down, it's always best, I've found, to give up my notion of an Evans-centered universe. That giving way (a phrase of Leon Sloman's that you like, Russ) instead of giving in, almost always works in positive ways.

But there's a paradox here, as John says: clinging stubbornly to something unreasonable or unachievable is in fact a kind of escalation. It takes a spirited person to do that! And so there must be some confusion here among the three brains—I guess that's what you two mean, anyway.

Not just as I read it, but as I have lived it and will go on living it.

Funakoshi said something else very interesting: *What you learn from the words of someone else can be quickly forgotten. What you learn with your body can never be forgotten.*

That's where the poetry and the art and the story come in too, no doubt. Images, and so on.

I'm shaping up a book of personal essays, and one of the essays I've been going over is part of a karate journal I kept for about six months about ten years ago, during my second year in karate. I wrote daily about the practice sessions (actually, 3 times per week) in the dojo. And when I look back on it, I realize that I had a lot more sociophysiology in that journal than I thought. I'm rather happy with how it came out—and terribly glad I kept those entries so consistently. Karate taught me a great deal about a lot of things, humility being very high on the list, if not the highest of all.

Anyway, I wanted to tell you both how much I appreciated your words in ASCAP.



An Afterword from the Editor (RG)

I don't yet have Frank Carrel's facility for surfing the net for relevant websites, but I have space to fill so I tell you briefly the story of patient (TP) who felt territoriality issues. Space limitations allows little discussion, but perhaps may stimulate response from readers.

Patient TP was first seen Saturday (yesterday - I'm on call this weekend). Divorced, 29 y.o., she had been close to her parents, but her mother died recently from cancer (after a year in which TP extended herself unselfishly). As the end approached, her father consorted with an exotic dancer whom he married shortly after his wife's death. Then he evicted the patient and her son - previously the apple of her father's eye - because the new wife didn't want competition (her sexual display, youth and availability competed successfully for his resources).

Crisis resulted when the patient told her father that his newwife had cheated on him. The patient emphasized that her assertion was "True!" because the information clearly has territorial meanings of its own. He apparently recognized the counterpunch and it resulted in his becoming enraged at her, then beating her. She went to her boyfriend with whom she had been living, but he did not behave as an ally (she was extremely angry) but her grandmother did. Not her aunt though, who lived with grandmother. The aunt is only 17 months older than the patient and has always been, using TP's words, "very territorial."

Feeling alone and angry, the patient overdosed and cut her wrists, demanding aid but also struggling against it. In the ER she fought staff prior to being committed against her will to an overnight stay in the hospital. This morning, calmed, responding to sympathetic care, she said that her aunt would come to get her as grandmother would let TP stay with them (son was already there). But her plan changed when the aunt refused. But the patient then reconciled with her father who agreed to come and get her (no word on the errant wife who had, perhaps, lost R in his eyes). TP wished to leave the hospital to study for a test at school the next day, a good sign, we thought, that indicated long term pursuit of increased territorial gain in the form of a good job.

The Evolutionary Origins of Self-Destruction*

The ability of neo-darwinism to deal with hitherto problematic behaviours has been greatly increased over the past three decades by the incorporation of Hamilton's work on inclusive fitness¹ and that of Trivers on reciprocal altruism.² There are, however, exceptions; and, of these, evolved behaviours and processes having to do with the effects of chronic psychosocial stress seem to be amongst the most intractable. With humans, this is the type of stress which can arise from circumstances such as social isolation, divorce, bereavement, job insecurity or unemployment, and perceived exposure to extreme danger. Long recognised to have disabling mental effects such as chronic depression and suicidal ideation, in recent years it has been repeatedly shown to depress the immune function,^{3,4} with predictable effects on resistance to infectious diseases,⁵ to inflict major damage on the heart^{6,7} to act as a significant risk factor in cancer,⁸ to undermine health more generally,^{9,10} and, in consequence, to reduce life expectancy.¹¹ Comparable psychosomatic linkages have also been repeatedly demonstrated with laboratory animals.¹² Whatever their proximate causes and possible initial adaptive advantages, in the natural world such mechanisms would inevitably act strongly against the evolutionary interests of those subjected to them. As the consequential beneficiaries are likely to be unrelated conspecifics, they can be viewed as imposing an extreme form of evolutionary altruism on those whom they affect.

in his wide-ranging exploration of this topic,¹³ Martin has recently categorised the question: "Why has natural selection equipped us with biological and psychological mechanisms which are capable of increasing our susceptibility to diseases and making us more likely to die prematurely?" as amongst the thorniest of the remaining evolutionary puzzles. Two kinds of explanation are usually advanced. First, that they are the downsides of processes which are

usually adaptive. Second, that they are the unfortunate result of an organism which evolved in an environment where threats, though intense, were transient, now having to deal with the prolonged stresses of modern life. Martin partially rejects the first possibility on the grounds that, certainly in relation to immune function, the mechanisms "appear to have evolved specifically for this purpose" (p.306); and with the second, he argues that social stress amongst our hunter-gatherer ancestors is highly likely to have produced similar effects (p.308). The latter suggestion is strongly supported by Sapolsky's wild, Kenyan olive baboon studies¹⁴ which also show a remarkable congruence with comparable work with human groups¹⁵ in that it is those lowest down the hierarchy who suffer disproportionately from these often lethal processes.

Quite apart from their implications for human health, happiness and longevity, such mechanisms are unquestionably significant in terms of the on-going evolutionary debate. Although they might seem suggestive of a group enhancement process which acts in support of natural selection by causing those most buffeted by life, in effect, to deselect themselves, until very recently there have been no satisfactory explanations as to how the genes responsible for encoding such behaviours avoid their own elimination. However, Hamilton¹⁶ has recently proposed that: "...a foetus or baby that had detected in itself some fatal physiological flaw is expected to decide for itself to die at the earliest opportunity, and, in executing this decision, it should die relatively calmly and happily, aware perhaps in a subconscious way that it is doing the "right thing". This is because for itself it has nothing to lose. By bringing the event forwards, it is helping its sibs and parents who are likely carriers of the same thanatic gene it has found occasion to express" (p.90).

Given that this relates specifically to fatally flawed fetuses and neonates, whereas the mechanisms

discussed above have force at every stage in the life cycle, what are now needed are additional evolutionary explanations, dealing with other classes of dependent young as well as independent adults.

I write to suggest two, new, theoretical bases on which these wider fields of self-destructive behaviour might be brought within the neo-darwinist ambit. The first applies to those cases in which, because of specific resource limitations, the likely throughput of parental genes into the next and subsequent generations will be increased if one or more of the existing dependant young were eliminated. Whether this is achieved by infanticide, neglect or siblicide, it is self-evident that, as with Hamilton's example, the evolutionary advantage lies with it being done speedily and at minimum cost and risk both to parents and the surviving siblings. This suggests that, here too, there would be substantial evolutionary scope for genes encoding situation-dependent, self-destruct mechanisms, activated by, say, withdrawal of parental support. Were such genes to evolve, they should rapidly become fixed because rival kin groups without such a mechanism would be disadvantaged by disputatious individuals unwilling to accept evolution's short straw. The actual mode of destruction would not be critical. Any lethal mechanism of suitable rapidity which became attached to a sense of rejection, would suffice; particularly so, were it preceded by the stultifying effects of depression.

With independently operating adults, a comparable kin selection advantage can be identified if we co-opt an axiom of sexual selection theory and then make one assumption. The axiom is that amongst species exercising mate choice, gathering as much fitness-related information on prospective mates as possible is likely to pay significant evolutionary dividends. The assumption is that as kin recognition is an evolutionary commonplace,¹⁷ the evolution of a capacity by third parties to identify who is related to whom should have presented few difficulties. The link between the two is the fact that genes expressed in any given phenotype, but not in the phenotypes of close kin, may well be carried by those kin as recessives. The upshot is what I have termed "stigma theory", the notion that the adaptive qualities of any given individual

may well have sexual selection implications for its close kin. Where the individual is "the worst of a good bunch" its mate value is likely to be enhanced; but the obverse would be a marked decrease in the perceived fitness of kin group members as a result of association with, say, one seriously maladapted individual. For example, three apparently well-adapted siblings might each suffer a significant reduction in eligibility in consequence of being associated with a single maladapted brother, the very maladaptations of whom meant that he had little or no prospect of making a compensatory reproductive contribution to the kin group's overall evolutionary success. Under such circumstances, where the reproductive costs are those that would arise from the death of the maladapted individual, the impelling logic of $c < rb$ seems to predicate that, if no other options are available, that individual should self-eliminate in order no longer to give involuntary warning of possible latent, genetic defects in its kin. Again, the means would not be crucial. All that is required is that it engages reliably once consistently negative responses have been picked up from kin and/or others.

These are ideas which seem to have considerable explanatory potential with regard to psychological medicine, physical medicine and evolutionary theory. The immediate need is to evaluate them by generating testable hypotheses. Work is already in hand in this area, but any suggestions, or more general criticism, would be welcomed.

*This is an updated version of a paper rejected by *Nature* in 1998. I also posted the original version on HBE-L. The up-dating is to take account of a passage from Hamilton's recently published *Narrow Roads of Gene Land*.

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Biological Motion, Jung, E.O. Wilson, and Imagery

Although this is in James Brady's voice, interspersed comments are blended in from John Fentress (JF), Robin Walker (RW) in what might be called a listserv broth off the email, from HBES and from Paleopsych and served in Robert Silvers' style. (Brody and Fentress are Ph.Ds and Walker BVM, MRCVS-veterinarian) (brodycompuserve.com; fentress@is.dal.ca and robin@coape.wi n-uk.net)

Biological motion was described in the early 70s and again by Neri, Morrone, & Burr on p. 894 of the current *Nature*. I scanned the article once and have been prodded into picking it up again 3 more times. It's a growing, mildly annoying obsession, most recently watered by John Fentress.

JF: Always glad to help!

Biological motion refers to our "seeing" intact moving people from a pattern of dots that correlate strongly with major joint locations. The more spots (from 6-11 joints), the more quickly we detect motion, direction of movement, and even the sex of the moving figure. When motionless, the dots are just dots. Neri's article asserts that infants can make these discriminations.

I'm reminded of several things.

First, the notion of psychological adaptations and sensory coding. Frogs seem to have bug detectors; it's likely that we share them. It also appears that we translate moving points of light in human terms and as human movement and we do so accurately. Even for gender. Ho hum. But wait, infants do it, too. A much smaller Ho hum.

JF: Well, as it turns out I just came back from a discussion with a neuroethology friend/colleague where the primary topic was the importance of coding temporal patterns. Most early ethological studies of "sign stimuli" dealt with essentially static models, or at least models in which motion cues were not manipulated in a systematic manner. This investigator (Josh Wallmann, NY) is doing studies with pigeons on imbedded patterns, in which the 'target' varies by subtle temporal parameters. The pigeons do much better on such tasks than when static images are used. I gather there are very few studies of this "temporal signal/noise" format in the animal literature. (I suspect that will change.)

Fentress tosses in the concept of Jungian archetypes in an unrelated discussion and Irwin Silverman (isilv@yorku.ca) mentions his past interest in archetypes. Maloney, Sickler, & Cortez (maloney@ITSA.UCSF.EDU) reported at the last HBES on archetype themes and our preferences for them. Dave Evans (evans@brookings.net) writes poems with such imagery.

JF: I like raising unrelated issues (it's genetic).

Then, Howard Bloom and John discuss photographic and artistic images as perhaps eliciting these bits of memories, these pieces of experience coded by natural selection. E.O. Wilson in *Consilience* mentioned the possibility of integrating some of the arts as expressions of biological science. Biological motion, bug detectors, fragmented Jungian findings—all suggest the possibility of miniscule, innate releaser stimuli for humans, stimuli that elicit disproportionate waves of fear, immobilization, anxiety, disgust, or anger in one direction; elation, silliness, curiosity, pride, and arrogance lie in another. Paul MacLean becomes a mainstream thinker again. Fentress, Silverman, and Bloom supply the missing tools for Wilson's speculations.

JF: Some interesting thoughts. Jim. Glad you have joined the conversation, as we (the field) *need* all the help we can get. Not easy issues, and issues too long neglected by "*mainstream*" science.

It's possible that auditory equivalents exist for the visual ones and that we generally swim through such impressions without remarking on them because they are so familiar. Some of us exclaim "gross" or "I'm gonna throw up" at the thought of handling a fishing worm or a news item about water leaking from coffins that had been removed from an old cemetery. We momentarily laugh, but none of us will likely pass our hands through that dribble of liquid.

JF: YES! cross modal categorization..... needs MUCH more work, both in concept and at the bench.)

Hollywood already leads us through the acceptance of designers far more quickly than by evolutionary psychologists. We all should incorporate and sell to a different audience.

JF: Good luck!

NOTES:

1) The above was also posted on <http://www.behavior.net/mhn/bolforum/message/27> and on <http://forums.behavior.net/forums/evolutionary>.

John Skoyles (skoyles@globalnet.co.uk) has a number of fascinating references on biological motion. You probably would also enjoy his homepage, <http://www.users.globalnet.co.uk/~skoyles/index.htm>.

2) Robert Silvers who creates "photomosaics" which are compositions made from hundreds of smaller ones. I have a Siberian Tiger image made from a grid of 1200 photos, each about 1 inch square. Each small photo is itself a picture of a tiger or some other cat. You see a vague pattern at 6 feet, at 20 feet you see a large tiger composed of dots. At 30 feet, the dots are gone and the tiger is smooth. Essays (and music) can also be composed of tiles and retain continuity through time. On the other hand, the

problems may be more difficult for words than for images. We traditionally handle the weaving of parallel themes by way of footnotes and sidebars. I've inserted John's comments into the main flow of text but in a Tekton font to alert you to hold my thought in place while John puts forth his perspective. The essay becomes a stream of more than one consciousness.

3) The listserves and chat rooms have their equivalents of biological motion. I know one adolescent who dated 50 different girls over a summer, using minimal electronic verbal cues they exchanged impressions that they "had so much in common."

A poem from Robin Walker is relevant here.

"Hello Big-Boy" she hissed.

*I guess I was dozing.
She had slid silently into the fMRI seat next to me.
Her screen glowed to life as I stared at mine trying to
suppress the flicker in my PVN.*

"Hmm! I guess you notice me?" she purred.

*Damn! I was getting a lateral Amygdalan glow.
She would see my rising panic. And why not?
I could see the cold fire in her medial frontal lobes
and
the cool absence
of emotion anywhere
in the limbic gyrus.*

*This woman was a predator!
I had to get out.
Never mind blowing my monthly fMRI allotment.
My screen was alight with danger!
I wasn't going to mingle with this babe!*

*Before she could reach the trigger of my inline P.E.T.
pulsimeter I was
headed for the night
and an ancient Bar where you could look into
someone's
eyes and lie the
night away.....*

Report on "Living Links" Symposium on "Origins: Evolutionary Perspectives on the Behavior of Humans and other Primates"

Organized by Frans De Waal, Ph.D., Yerkes Center & Department of Psychology, Emory University, Atlanta
1/15-16/99 Web page: www.emory.edu/LIVING_LINKS/r/index.html

It was a Hoot!

The following are rough notes. I cannot pretend objectivity. Fortunately, these speakers all write well about vital (in both senses of "living" and "important") events. Buy their books and digest them through your own adaptations. This party *will* continue; everyone of us *is* included because of our common stake on this earth for our children. *My apologies to you who already know all of this stuff! My personal comments from this point are in italics.*

The symposium was a party, a celebration of the "Living Links" project at Emory, the title a foil to our usual preoccupation with missing, dead links. (*De Waal shares a talent for championing "out-lier" ideas — see below.*)

1. Beyond announcing Living Links, the symposium included a push for consilience, made through an array of speakers able to put physiological or evolutionary foundations under traditional social sciences domains such as violence, reconciliation, language, and culture. Applying understandings about our "nature" to modify our "nurture" was a second theme, so that we don't consume this planet, that we accrue wisdom to protect us from us as well as other species from us.

2. There was a common structure for the talks. Present substantive thinkers and scientists, each to introduce their passion as described in a recent book. The interested could then buy it and later survey the printed, larger array of thought and evidence on each topic.

Day 1. E. O. Wilson, Keynote Address. 8 P.M.
Audience of approximately 1500. Consilience:
The Unity of Knowledge.

1. (*Spoke in a church in the deep South, where*

people often the most hostile about evolution. Only 1 question asked from the audience about morals & divinity!)

2. Traditional bimodal sources for acquired human knowledge—natural sciences and "everything else." Consilience possible between humanities, social sciences, natural sciences — links generated by epigenetic rules, principles that connect genetics, neurophysiology, social sciences, ethology, and art.

3. Epigenetic rules— 1 billion (or more) years old, some as young as 100K. Describe functional relations between genetic programs and environmental influences. **Epigenetic rules a critical idea for understanding the range of outcomes that result from changing either genes or settings.** Examples from vision, incest avoidance, art preferences — all cross cultural. Even language scripts show— like our paintings and icons - a 20% redundancy property. Can be demonstrated anytime, including during his talk to an audience of 1500 in a Southern church.

4. Essential to apply our understanding of epigenetic rules in order to save the planet from ourselves.

5. He ended with an somber vision of our "wrecking the planet," the possibility of a final Mathusian Wall. He seemed optimistic about our ability to pull together in large numbers when facing a crisis.

6. Wilson spoke for an hour and took questions and then stayed late, signing autographs and sharing stories with us, his students. (*Ed Wilson seems to be the messenger, the Paul Revere riding through the town. However, we haven't assigned him to this*

task. He must both convince us that a crisis is possible and that it is actually occurring NOW. Buy, read, splice "Consilience" into your genes! It is a call, indeterminately timely or late but still a call, to action.)

7. I earlier obsessed for weeks about the wisdom of designing a T-shirt to advertise "Clinical Sociobiology: Taking Charge of Our Genes" at this conference. The shirt itself was simple; Darwin, a black portrait in the upper left and big red letters front and back. Even after Dr. Wilson's talk, it was a 51% decision — a Prufrock dilemma — but I marched obliquely to the altar rail and waited in line. Gosh! Wilson beamed when he read the shirt and grew an immense smile. There's now a diagonal "Edward O. Wilson" across the shirt's chest. An ink trail from his hand and wrist validated 2.5 years of my nervous obsessing about the possibility of such a field of study and application.)

Day 2: Audience about 750, number of empty seats. Disappointing in light of all these wonderful minds for free. When and where else can you find Ed Wilson, Wrangham, de Waal, Pinker, and Cheney on the same platform explaining their work and taking questions about it in vivo instead of walking on imported, rebroadcast air?

"Origins of War" Richard Wrangham, Professor of Anthropology, Harvard University. *Demonic Males: Apes and the Origins of Human Violence.*

1. Opened with slides of chimp violence towards each other. Also slides of chimp ribs, hands, and feet stacked in trucks to be served to restaurant patrons at quadruple the price of beef. Also, chimp eats humans —one case of rampaging chimpanzee capturing human children and eating them (*There is more justice — see below in reference to AIDS.*)

2. Distinguished between "war parties (raids)" and "battles."

- War parties consist of roughly 5 individuals, move cautiously into enemy territory, and make a sneak attack on an isolated victim or infants. Victims do not "volunteer" to join the fight. No immediate provocation; attacks premeditated. Tactic probably an outcome of transient male coalitions both to manage hierarchies, variable territory size, and accomplishing

tasks cooperatively. Also perhaps due to high probability gain (food and less reproductive competition) and low risk (surprise attack by a small gang). Similar tactics common in human primitive tribes— also, account for the mass of human fatalities inflicted by conspecifics.

- Wolves, hyenas (females lead!), ants also kill smaller groups and individual conspecifics but do not engage in battles of equal forces. Some rhesus will line up in two large groups (Morgan Island data?) facing each other and shout and threaten each other. Usually mediated by alpha females sitting in the middle and grooming members of the opposite side.

- On the other hand, human "battles" are ritualized, announced well in advance, strongly hierarchic on each side, and correlated with massive self-deception on both sides. Despite our technology, we are often not very good at battles. We often underestimate assets of the enemy and magnify our own resources.

3. Killing can be hierarchic within a group. One victim discovered face up. Had been eagle spread by 4 chimps while a 5th ripped out his trachea and testicles, tossing them aside. There were no wounds on the back. (*Why the trachea and testicles? Connection between dominance and vocal and reproductive capabilities? Despite the symbolism, when on nature's clock did the killers acquire that specific targeting ability? Is there a common ontogeny for our own stereotyped remarks about "being speechless" and "cutting off someone's balls"?*)

4. Bonobos don't conduct raids, no border patrols, larger groups in continuous contact, more dominant females. Weaker correlation of testosterone levels and dominance than is true for chimps.

5. *AIDS. Onset of AIDS outbreak in late'40s has been correlated with the restaurant sale of chimp meat. Roads into African interior, air travel, and commercialized sex aggravated the problem. (Variability in sexual partners, not average number of partners, appears to be the more significant factor. You can have lots of partners but don't swap them around!) Geographic isolation broken, more freedom for viruses and lots of other plants and animals to move to new habitats. Comparable to recent invasions of many plants and animals onto new continents as a result of human commerce. Same chances exist for Ebola to*

spread should it mutate into a more opportunistic infection (not killing the host until long after it is shared with many people). Are we at similar risks from deep cave explorations or collecting life forms from ocean bottoms?

"Origins of Peace." Frans De Waal. Yerkes Regional Primate Center, Emory University. "Good Natured: *Origins of Right and Wrong in Humans and Other Animals.*"

1. FdW started with study of violence when he was a student but became more interested in reconciliations that occurred between aggressive events.
2. An extended hand the first initiation of peace between male chimps, followed sometimes by a kiss and then mutual grooming.
3. Chimp males will stare at each other for long intervals and fidget—sometimes an alpha female grooms first one, then the other male and withdraws as the males then continue to groom each other.
4. Aggression ritualizes; aggression cyclic — alternates with sleep and grooming.
5. All 3 behaviors occur more often with denser population. Aggression may not be increased as a function of population density. FdW cited Amsterdam and Japan as examples of high population density and low crime, implies that we can have high human populations without violence. *(However, Japanese culture highly homogeneous, strongly hierarchic and imposed by wide array of police discretionary actions. I'm not sure why the crowded Dutch get along—perhaps from having a common task in defending their country from the sea and their human neighbors. Perhaps also, like the Bonobo, from having a relatively static population in a small area that allows lots of mutual inspection. Could be that female roles are different in the Benelux countries.)*
6. Shared tasks can lead to food sharing. Two Capuchin monkeys had to tug on rope in order for one of them to get food. Food sharing and grooming more

likely under these conditions. *(Old memory: Sisters of Mercy at Seton Hill, a training school for nuns near Pittsburgh — rumored to settle feuds between students by putting the combatants in a small cell with each other, a 25 watt bulb, and a 3000 piece puzzle. No one allowed out until the puzzle was done!)*

7. Young rhesus (nasty young guys ordinarily) were reared with older bonobos—outcome was more conciliatory behaviors in those same rhesus when older.
8. Peace sometimes a matter of self-defense in shifting hierarchies. Two males will form an alliance to beat a tougher, 3rd one. The winning pair next starts to bicker about sharing women. The Number 3 snorts, paces, and flexes. Numbers 1 and 2 quickly become buddies again.
9. Commentator about FdW's talk was a law professor who discussed "Alternative Dispute Resolution" wherein opposing parties must go through mediation before a dispute is put on the court schedule. Also taught in K-12 and law schools. Shares FdW ideas on building a positive relationship through interdependence for common tasks.
10. *(de Waal notable for turning global concepts — reconciliation, mediation, etc. — into operational definitions and manipulating tasks and obtaining shifts in behavior frequencies. Represents a substantial breakthrough in our approaches to questions of cooperation and morality).*

Dorothy Cheney, Professor of Biology, University of Pennsylvania. "Origins of Communication" Author of *How Monkeys See the World: Inside the Mind of Another Species.*

1. General issues
 - Very limited information about natural communication patterns of other species.
 - Monkeys (and apes?) don't invent new calls
 - There is no apparent use of syntax — con founded into a common utterance
 - Stereotyped, no inventions with niche or learning

- May have "concepts" but no labels
- 2. Vervet alarms for eagle, snake, leopard— elicit distinctive responses even when played by tape
- 3. Male and female vervets make different calls for each of these 3 events but the same, distinctive responses occur by targets
- 4. Infant vervets call "eagle" about any object in the air and gain precision with age
- 5. Cross-fostered rearing by another species does not change the nature of the calls for predators but does seem to affect those involved with kin.
- 6. Theory of Mind — human children have it but not other species? Our kids surmise what each other is thinking and may recycle their rehearsal to include several levels. "If I do this, she will think that." (*Chimps lie to avoid aggression or to hide food from other chimps. Basis for Theory of Mind?*)

"Origins of Human Language" Steven Pinker, Director, Center for Cognitive Neuroscience, MIT. "How the Mind Works," "The Language Instinct."

1. Language evolved, meets G. Williams standards for "adaptation."
 - Mental dictionary—reflects "complex design"—60K-120K words in HS graduate.
 - Grammar - infinite set of finite set of tools. Discrete combinatorial system. Symbols not blended. Produces 100 million trillion sentences
2. Grammar components
 - Syntax with order, membership grouping (constituency), predicate/argument structure, transformation rules
 - Inflected forms of words
 - Phonology rules for making new combination of sounds
3. Interface
 - Structure of larynx very special
 - Comprehend 10-40 phonemes per sec
 - Inference from other CNS mechanisms. "I'm leaving you" elicits "Who is he?"
4. Natural history of language
 - Universal complexity; universal design — grammar, syntax, morphology
 - Most children acquire it rapidly.
 - Language created rapidly in a single generation — rules and grammar transform signs and pidgin

into Creole.

- Genetic specificity — outcome of a set of genes. Components missing in particular language syndromes. High IQ but poor expressive language. Some language disorders seen in family patterns. Some mentally retarded adults have good expressive language but impaired adaptive behaviors. Therefore, language partially independent of other behavior systems.
- 5. Language unique asset—can duplicate with resource loss. One good idea multiplied indefinitely.
- 6. Technical ability, social cooperation, and language perhaps coevolved.
- 7. Duane Rumbaugh commented next (surprise appearance)—apes show language precursors, learn to understand human speech "Go to the microwave and get out the tomato that is in there." Bonobo has high verbal repertory, must have evolved. Purposes obscure.
- 8. (*Pinker remarked that language is unique because it can be duplicated with no loss of information—e.g., popular records, computer software. Robert Frank also referred to our unique opportunity to make lots of money by selling information. There's a useful interface between these ideas and traditional notions of K- and r-selection. Our culture approaches K conditions for material resources. However, personal savings combined with communications technology has reinstated r-selection conditions but with people as a resource and commodity, not as a consuming organism. Telephone, auto, information and entertainment sales—all work by "use up the customer and move on, there will always be more of them." Personal resources flow to fewer and fewer people and lead to more spectacular differences in personal earnings. The economic model is similar to that of Atlanta seen at night from the air. There is an extended circle of 1 or 2 story dwellings and a very tiny center of skyscrapers. The center may be stable so long as the hub sends assets inward. Currently displays flow of individuals and families through the center as the economic hierarchy churns; however, could eventually shift to oppressive dynasties that protect vested interests with marginal income—taxes, fees—on large audiences or lead to generalized collapse with depleted resources.*)

"Origins of Economics" Robert Frank, Cornell University.

1. Elks grow large horns that are good for the individual elk but bad for the species? Premise a rephrasing of Adam Smith's "invisible hand" analogy that produces good outcomes (culture, charity) from selfish motives. Likewise, capitalism might work through competition but may still have "good" outcomes for the group. RF suggests that individual behavior, originally developed under simpler conditions, can be bad for both the individual and for our species. Has particular relevance to patterns of excessive use of resources in order to advertise dominance.

2. Unlike former times, people now add information to a product, massive numbers of copies yield massive income for little personal effort or cost. (*Is stock market gain largely an unacknowledged element of inflation?*)

3. Equated social rank with both dominance and with conspicuous consumption — Porsches and Ferraris, watches for \$2.7 million, gas grills for \$13K.

4. However, economy not growing—top 1% of people in US accounted for 80% of earnings growth. Most people working 2nd job, more hours, less work space, dirty water, lousy beef regulation, poor air quality, bad environmental maintenance, more pay for school teachers (parents want their children trained, teachers the obvious vehicle).

5. RF noted that happiness a stable, possibly genetic trait — tends to be consistent through the year? Average contentment relatively constant in USA & Japan despite income increases.

6. Happiness correlated with income level (*Another confounded variable*). Happy people fight less, are more social, need fewer psychiatrists (!), and commit suicide less often.

7. Because people "want" dominance and mating reasons, make them pay for it. Concluded that taxing consumption — take earnings, subtract savings, and tax the remainder—would be a useful correction to our spending for social dominance.

8. (*Offered a series of anecdotes about US spending habits. Self-selected data exclusively; his evidential chain would not have passed scrutiny by a 2nd term psychology undergraduate. Certainly did NOT discuss the announced topic, "Origins of Eco-*

nomics. Presentation coincided with release of his latest book. I would have been less annoyed if he acknowledged the correlational nature of his data and if he were not making national policy recommendations on the basis of that data. 9. *Consequences are well known influence on most behaviors. However, problems exist for applying these results to groups of people:*

- *Rigging consequences for clever people who acquire resources means those same clever people will evade the consequences by hiding them or by moving on. Our lab data are most coherent for single organisms; individuals in the American culture will exhibit different performance shifts in response to their personal consequences.*

- *Ignores the possibility that our nation is "fissioning," dividing into multiple competing groups with no common heritage, current interests, or future goals.*

- *Discussed sexual selection — that is, the dominance of other males — as a driving force for us to buy outlandish toys. Ignored the role of female preferences in male displays. Female preferences appear to drive an array of expensive, sometimes painful male displays. Peacock feathers? Tongue rings?*

- *Ignored findings from Valerius Geist(?) that elk display a range of physical and behavior traits in response to climate variations. The same species may be mislabeled as several different species.*

- *While consequences matter, a mix of positive and aversive outcomes for the same behavior usually result in adaptation to punishment and continued appetitive behavior from rats and from rhesus.*

- *I missed, and so did everyone else, the similarity of RF's plan to a "battle" strategy. Wrangham told us the reasons that raids are effective, battles are not.*

- *There are already tremendous incentives for Americans to reduce their rate of consumption; unfortunately the immediate costs of self control are immediate, personal, and relevant whereas the gains are delayed and less certain and less personal, and relevant whereas the gains are delayed and less certain and less personal. We should perhaps need to pull the future into the present so that people sample options that they now elect without such awareness.*

10. *Given the high representation of psychological adaptations for both "psychology" and for "teaching" in the general population of human, both teaching and clinical psychology should be deregulated, particularly since both are done by a very wide array of people who do not come under existing rules that serve to punish the cooperative and reward the evaders. Neither profession would be improved by higher pay.*

11. *Economists and economic theories are integral to evolutionary understanding. Matt Ridley, Steven Frank, Geoff Miller, Jeff Goldberg are all potentially fine speakers; perhaps they can attend next time.*

Origins of Culture" William McGrew, Professor of Zoology, Miami University of Ohio. "Chimpanzee Material Culture: Implications for Human Evolution."

1. Reviewed past definitions of culture.

2. Orcas show quite variable behavior depending on the group that you study.

3. Chimps build nests (*High in trees, isolated, perhaps to avoid being killed by other chimps!*) and use tools.

4. Chimp behavior varies as a function of the availability of colobus monkeys as food.

5. Animal "culture" a problem. Labeled culture, proto-culture, sub-culture, pre-culture, quasi-culture.

6. Culture reflects actions, knowledge, language, and meanings (taboos)

7. Consensus view of culture

- Learned not inherited
- Social not individual
- Repetitive across people
- Collective

8 Chimp cultures vary in use of probes for ants.

• A leaf can be a sponge, napkin, grooming tool, termite fishing tool, or courtship signal.

• Any one task can be accomplished with bark, stems, leafs, twigs, or vines - depending on the particular group of chimps.

9. Understanding culture will require resource from psychology, anthropology, and biology.

10. Carol Worthman, Dept. Biology, Emory University, commented

- Culture and genes are dually inherited
- Traits unfold in ontogeny

- Biology designed for a range of settings
- Old thinking that variable traits strictly a function of settings, constant traits reflect genes (*Environment is an extended or "emergent" egg!*)
- Both culture and biology foster variation
- *Great application of epigenetic understanding!*

11. *Culture has the same roles as our individual neuropsychological "executive functions" and our genes. All three retain memories of past conditions and solutions for those conditions. Whether genes, individual intellect, or culture, each of the three represents a "sense of the past" that combines with information about our present to generate options for our "sense of the future." Same functions described by Jacob Bronowski and elaborated 20 years later by Russell Barkley - Past President of the Division on Neuropsychology, American Psychological Association - into a description of our orbital capacities for building memories, regulating affective displays, sharing plans, mentally rearranging events, and deriving novel solutions. Culture, genes, our orbital functions, memory - all products of our past, brought into our present to contemplate and manage our future. The combination increases adaptive variability - just as is accomplished by alliances and tools - for changes in our niche. There is no gain from being comfortable at 72 degrees if we "forget" our options for handling a rare week at -30 degrees. Probably another one of those "epigenetic things."*

12. *Culture might be described as information transmitted (without using sexual reproduction) by one conspecific to another as a necessary condition for a particular behavior to appear. Observational information (direct imitation, oral or written direction) essential. May linked to our capacity to form new neurons in the hippocampus that mediate retention of novel behavior sequences - twigging for termites or learning "Windows" - so they can be repeated indefinitely. Supplements and contrasts with Gazzaniga's model of learning as a "saving" of preexisting systems such as phonetic sounds.*

13. *one question from the audience about self-organizing systems. Not received kindly! McGrew noted the undefined nature of such and wished that useful predictions be generated for field workers in anthropology.*

ABSTRACTS & EXTRACTS...

McFarland C, Buehler R: **Collective self-esteem as a moderator of the frog-pond effect in reactions to performance feedback.** *J Personality & Social Psychol* 1995;68:10055-1070

Abstract: Individuals who perform well within an unsuccessful group have more favorable reactions than equally capable individuals who perform poorly within a successful group. This *frog-pond effect* appears to occur because people focus on their relative performance standing within their group rather than on their group's overall performance level. It was hypothesized that this effect would be attenuated among people who value their social groups highly because they should be more likely than their counterparts to take into account their group's performance level when evaluating themselves. Four studies supported this reasoning. The frog-pond effect was strongest among individuals with lower collective self-esteem, an individualistic cultural heritage, or a weaker bond toward a particular social group.

Usher M, Cohen JD, Servan-Schreiber D, Rajkowski J, Aston-Jones G: **The role of locus coeruleus in the regulation of cognitive performance.** *Science* 1999;283:549-554

Abstract: Noradrenergic locus coeruleus (LC) neurons were recorded in monkeys performing a visual discrimination task, and a computational model was developed addressing the role of the LC brain system in cognitive performance. Changes in spontaneous and stimulus-induced patterns of LC activity correlated closely with fluctuations in behavioral performance. The model explains these fluctuations in terms of changes in electronic coupling among LC neurons and predicts improved performance during epochs of high coupling and synchronized LC firing. Cross correlations of simultaneously recorded LC neurons confirmed this prediction, indicating that electrotonic coupling in LC may play an important role in attentional modulation and the regulation of goal-directed versus exploratory behaviors.

Huntsman MM, Porcello DM, Homanics GE, DeLorey TM, Huguenard JR: **Reciprocal inhibitory connections and network synchrony in the mammalian thalamus.** *Science* 1999; 283:541-543

Abstract: Neuronal rhythmic activities within thalamo-cortical circuits range from partially synchronous oscillations during normal sleep to hypersynchrony associated with absence epilepsy. It has been proposed that recurrent inhibition within the thalamic reticular nucleus serves to reduce synchrony and thus prevents seizures. Inhibition and synchrony in slices from mice devoid of the γ -butyric acid type-A (GABA_A) receptor ρ_3 subunit were examined, because in rodent thalamus, P_3 knockout mice, GABA_A-mediated inhibition was nearly abolished in reticular nucleus, but was unaffected in relay cells. In addition, oscillatory synchrony was dramatically intensified. Thus, recurrent inhibitory connections within reticular nucleus act as "desynchronizers."

Extract: Despite a lack of widespread gene expression in the adult rodent brain, ρ_3 knockout mice... exhibit many neurological impairments and are considered a model of Angelman's syndrome in humans.

Commentary by RG

I have recently produced a number of slide shows on neuroanatomy including one on the thalamus. One of the interesting things about "teaching" is that one learns considerably. Also in conversations with Terry Early, fellow UTMB attending psychiatrist, I discovered the latest theories on how electroconvulsive treatment (ECT) works involves the reticular nucleus referred to in the above abstract. Like electroconvulsing the heart if it has aberrant rhythms by stopping its action momentarily, so ECT may do with the reticular nucleus and its interactions with the cortex (and other brain components). Indeed, he is conducting control trials of trying to accomplish the same task by using anesthetic agents that affect the reticular nuclei and fortunately have fewer of the memory side effects of ECT.

Marcus GF, Vijayan S, Bandi Rao S, Vishton PM:
Rule learning by seven-month-old infants. *Science* 1999;283:77-80

Abstract: A fundamental task of language acquisition is to extract algebraic rules. Three experiments show that 7-month-old infants attend to sentences with unfamiliar structures than to sentences with familiar structures. The design of the artificial language task used in these experiments ensured that this discrimination could not be performed by counting, by a system that is sensitive only to transitional probabilities, or by a popular class of simple neural network models. Instead, these results suggest that infants can represent, extract, and generalize abstract algebraic rules.

Press release from *Los Angeles Times* by Marlene Cemons (in *Houston Chronicle*, Jan. 6, 1999, p.7A)

The Food and Drug Administration said Tuesday that it has approved the first "antidepressant" drug designed exclusively for Fido. The drug helps treat separation anxiety, a serious problem for some dogs whose owners spend many hours away from home. The drug is Clomicalm, made by Novartis Animal Health of Greensboro, N.C. Its chemical name is clomipramine hydrochloride - the basic ingredient of several human antidepressants.

Laugh if you will, but to dog owners who return home to chaos and debris - not to mention neighbors furious about prolonged barking - separation anxiety is a serious matter.

"There are 55 million dogs in the United States, and many of them have this problem," said Dr. Nicholas Dodman, professor of clinical studies at Tufts University School of Veterinary Medicine. "It is serious in about 40 percent of these, and they are the ones who could really benefit from this drug."

Don't blame the dogs, experts say. They are only following their instincts. Dogs are "pack" animals by nature and quite social. Their very survival often depends on bonding with the rest of the pack, even if

the pack, in modern times - is a human family, according to animal behavioral experts. "Being socially ostracized from the pack is like a death sentence," said Dr. Stephen Sundlof, head of the FDA's center for veterinary medicine, which regulates animal drugs.

As a result, some dogs become naughty when separated from their humans - barking uncontrollably, chewing, clawing, urinating or otherwise destroying clothes, rugs or furniture. The problem accounts for up to 40 percent of visits to the vet, where behavior modification techniques are often recommended. When those don't work, owners sometimes become so desperate that they are forced to euthanize their pets.

It doesn't matter what kind of dog, or size. The problem seems to stem from a bad early experience, such as coming from a "poorly run puppy mill" or pet store, or from having had multiple previous owners, Dodman said. "You can take a dog with a little anxiety and treat it well early on and it won't get this problem, and take a dog with a good temperament and treat it badly and it will," he said.

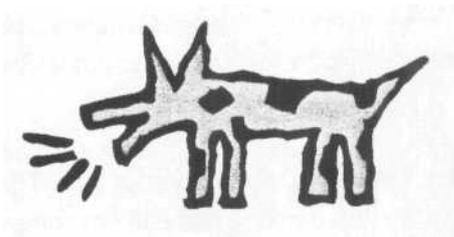
Just as with human beings, the drug is supposed to be used in conjunction with behavioral modification therapy. Used alone, it won't work, the FDA said. Dogs do not suffer human-like depression. It only looks that way.

They do "act neurotic, show high levels of anxiety and destroy things, but we don't have any indication that dogs suffer depression as we know it," said the FDA's Sundlof. "So this is more of an anti-anxiety drug."

Nevertheless, vets in recent years have used the same anti-depressants humans use to treat dogs, including the human version of Clomicalm as well as the ever-popular Prozac. Dodman, in fact, says that he like Prozac better than Clomicalm - the two drugs are chemically different - but Prozac's maker, Indianapolis-based Eli Lilly and Co., has never gone through the formal FDA procedure for doggie approval.

Calmalm's maker did not return repeated calls, so it is unclear when the drug will become available or how much it will cost. Dodman says it costs about \$1 a pill; dogs require one or two pills daily, depending on their weight.

The drug does not have to be taken forever; once the behavior improves, the dog can give it up. It doesn't work for all dogs. "Some dogs respond in a few weeks, others in months, and some not at all," Sundlof said.



Ehret G: Left hemisphere advantage in the mouse brain for recognizing ultrasonic communication calls. *Nature* 1987;325:249-251.

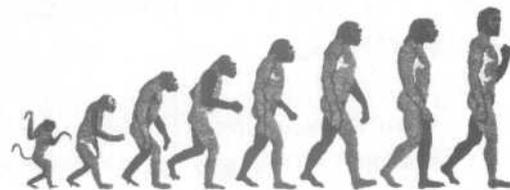
Abstract: In humans, sound perceived as speech is processed preferentially by the right ear and the left hemisphere of the brain. Among animals, such an advantage of (lateralization) in processing communication sound from other members of the species has so far been demonstrated only in macaque monkeys. I report here that in the house mouse, which has a much less elaborate forebrain than man or macaque monkey, the ultrasonic calls that are emitted by young mice to evoke maternal caring behaviour are preferentially recognized by the left hemisphere. In females with no experience of pups, which have been trained to respond to the same ultrasonic calls by conditioning, no advantage for one hemisphere is detected. The results suggest that lateralization of this function evolved early in mammals and emphasize that an innate predisposition for perceiving communication sounds is connected with a left-hemisphere advantage in processing them. This experimental system is a readily available animal model for studying lateralized auditory brain functions.

Bower GH, Morrow DG: Mental models in narrative comprehension. *Science* 1990;247:44-48.

Abstract: Readers of stories construct mental models of the situation and characters described. They infer causal connections relating characters' actions to their goals. They also focus attention on characters' movements, thereby activating nearby parts of the mental model. This activation is revealed in readers' faster answering questions about such parts, with less facilitation the greater the distance from the focus. Recently visited as well as imagined locations are also activated for several seconds. These patterns of temporary activation facilitate comprehension.

Abate E, Albianelli A, Azzaroli A, Benvenuti M, Tesfamariam B, Bruni P, Cipriani N, Clarke RJ, Giccarelli G, Macchiarelli R, Napoleone G, Papine M, Rook L, Sagri M, Tecle TM, Tore D, Villa I: A one-million-year-old *Homo* cranium from the Danakil (Afar) Depression of Eritrea. *Nature* 1998;393:458-460.

Abstract: One of the most contentious topics in the study of human evolution is that of the time, place and mode of origin of *Homo sapiens*. The discovery in the Northern Danakil (Afar) Depression, of a well-preserved *Homo* cranium with a mixture of characters typical of *H. erectus* and *H. sapiens* contributes significantly to this debate. The cranium was found in a succession of fluvio-deltaic and lacustrine deposits and is associated with a rich mammalian fauna of early to early-middle Pleistocene age. A magnetostratigraphic survey indicates two reversed and two normal magneto-zones. The layer in which the cranium was found is near the top of the lower normal magnetozone, which is identified as the Jaramillo subchron. Consequently, the human remains can be dated at ~1 million years before present.



Heinsohn R, Packer C: Complex cooperative strategies in group-territorial African lions. *Science* 1995;269:1260-1262

Abstract: Female lions (*Pantera leo*) showed persistent individual differences in the extent to which they participated in group-territorial conflict. When intergroup encounters were simulated by playback of aggressive vocalizations, some individuals consistently led the approach to the recorded intruder, whereas others lagged behind and avoided the risks of fighting. The lead females recognized that certain companions were laggards but failed to punish them, which suggests when they were most needed, whereas others lagged event farther behind. The complexity of these responses emphasizes the great diversity of individual behavior in this species and the inadequacy of current theory to explain cooperation in large groups.

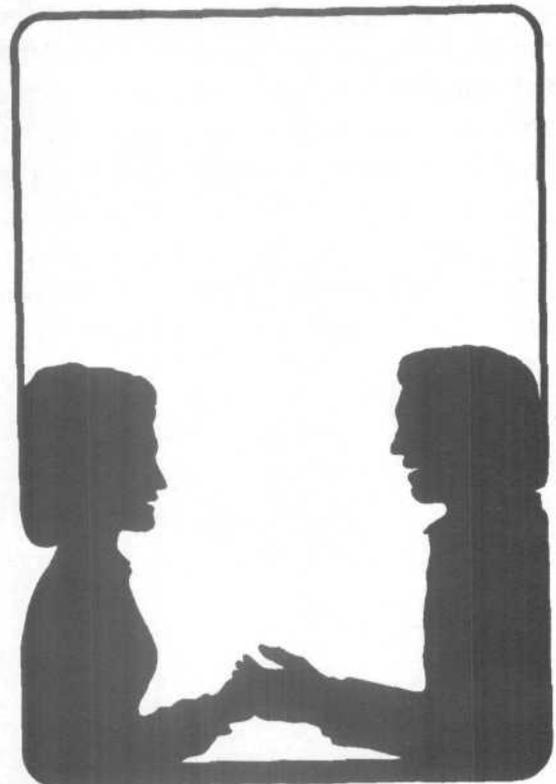
Wolpert DM, Goodbody SJ, Husain M: Maintaining internal representations: the role of the human superior parietal lobe. *Nature Neuro-science* 1998; 1:529-533

Abstract: In sensorimotor integration, sensory input and motor output signals are combined to provide an internal estimate of the state of both the world and one's own body. Although a single perceptual and motor snapshot can provide information about the current state, computational models show that the state can be optimally estimated by a recursive process in which an internal estimate is maintained and updated by the current sensory and motor signals. These models predict that an internal state estimate is maintained or stored in the brain. Here we report a patient with a lesion of the superior parietal lobe who shows both sensory and motor deficits consistent with an inability to maintain such an internal representation between updates. Our findings

Moxon ER, Wills C: DNA microsatellites: agents of evolution. *Scientific American* 1999;280:9499

Extract of side bar inclusion: Pascal Gagneux and David S. Woodruff of the University of California at San Diego - together with Christophe Boesch of the Zoological Institute of the University of Basel - have used DNA microsatellites as tracers to probe the mating habits of a group of wild chimpanzees in the Tai Forest of Ivory Coast. They collected hairs from the temporary treetop nests each animal built to sleep in and extracted DNA from cells of the adult males and females with those of 13 offspring. Gagneux, Woodruff and Boesch found that seven of the babies could not have been fathered by males in the group. Although the researchers had never seen them doing it, at least some of the female chimpanzees must have sneaked into the surrounding forest during the night for trysts with males in other groups nearby.

Such nocturnal adventures might explain how even small groups of chimpanzees maintain a great deal of genetic diversity. Diversity is valuable for providing resistance to disease and is strongly suspected to aid survival in many other ways.

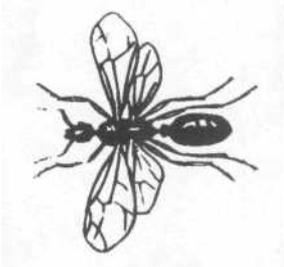


Miller GH, Magee JW, Johnson BJ, Fogel ML, Spooner NA, McCulloch MT, Ayliffe LK: Pleistocene extinction of *Genyornis newtoni*: Human impact on Australian megafauna. *Science* 1999;283:205-208.

Abstract: More than 85 percent of Australian terrestrial genera with a body mass exceeding 44 kilograms became extinct in the late Pleistocene. Although most were marsupials, the list includes the large, flightless *Genyornis newtoni*. More than 700 dates on *Genyornis* eggshells from three different climate regions document the continuous presence of *Genyornis* from more than 100,000 years ago until their sudden disappearance 50,000 years ago, about the same time that humans arrived in Australia. Simultaneous extinction of *Genyornis* at all sites during an interval of modest climate change implies that human impact, not climate, was responsible.

Clark AG, Begun DJ, Prout T: Female x male interactions in *Drosophila* sperm competition. *Science* 1999;283:217-220.

Abstract: In several organisms, the success of a male's sperm in multiply inseminated females depends on the male's genotype. In *Drosophila*, the female also plays a role in determining which sperm are successful. Pairwise tests among six isogenic lines of *Drosophila melanogaster* were performed to determine whether there is a genotype-specific interaction in the success of the sperm, the success of a particular male's sperm was found to depend on the genotype of the female with which he mates, providing evidence for an interaction with profound evolutionary consequences.



Koob GF, Roberts AJ: Brain reward circuits in alcoholism. *CNS Spectrums* 1999;4:23-37

Abstract: Animal models of the complete syndrome of alcoholism are difficult if not impossible to achieve, but validated animal models exist for many of the different components of the syndrome.

Recent work has begun to define the neurocircuits responsible for the major sources of positive and negative reinforcement that are key to animal models of excessive alcohol-sensitive elements within neuronal membranes that convey the specificity of neurochemical actions. Positive reinforcement appears to be mediated by an activation of gamma-aminobutyric acid A receptors, release of opioid peptides and dopamine, inhibition of glutamate receptors, and interaction with serotonin systems. These neurocircuits may be altered by chronic alcohol administration. This is reflected by their exhibiting opposite effects during acute alcohol withdrawal, and by the recruitment of other neurotransmitter systems, such as the stress neuropeptide corticotropin-releasing factor. These neuropharmacologic actions are believed to produce allostatic changes in set-point, which set up the vulnerability to relapse that is so characteristic of alcoholism. Future challenges include a focus on understanding exactly how these neuroadaptive changes convey vulnerability to relapse in animals with a history of alcohol dependence.



Bargmann CL: Neurobiology of the *Caenorhabditis elegans* genome. *Science* 1998; 282:2028-2033

Review: Neurotransmitter receptors, neurotransmitter synthesis and release pathways, and heterotrimeric GTP-binding protein (G protein)-coupled second messenger pathways are highly conserved between *Caenorhabditis elegans* and mammals, but gap junctions and chemosensory receptors have independent origins in vertebrates and nematodes. Most ion channels are similar to vertebrate channels but there are no predicted voltage-activated sodium channels. The *C. elegans* genome encodes at least 80 potassium channels, 90 neurotransmitter-gated ion channels, 50 peptide receptors, and up to 1000 orphan receptors that may be chemoreceptors. For many gene families, *C. elegans* has both conventional members and divergent outliers with weak homology to known genes; these outliers may provide insights into previously unknown functions of conserved protein families.

Ruvkun G, Hobert O: The taxonomy of developmental control in *Caenorhabditis elegans*. *Science* 1998; 282:2033-2041

Review: The *Caenorhabditis elegans* genome sequence was surveyed for transcription factor and signaling gene families that have been shown to regulate development in a variety of species. About 10 to 25 percent of the genes in most of the gene families already have been genetically analyzed in *C. elegans*, about half of the genes detect probable orthologs in other species, and about 10 to 25 percent of the genes are, at least, unique to *C. elegans*. *Caenorhabditis elegans* is also missing genes that are found in vertebrates and other invertebrates. Thus the genome sequence reveals universals in developmental control that are the legacy of metazoan complexity before the Cambrian explosion, as well as genes that have been more recently invented or lost in particular phylogenetic lineages.

Huang M, Gu G, Ferguson EL, Chalfie M: A stomatin-like protein necessary for mechanosensation in *C. elegans*. *Nature* 1995;378:292-295

The *mec-2* gene is required for the function of a set of six touch receptor neurons in the nematode *Caenorhabditis elegans*; *mec-2* mutants, which are touch-insensitive, have touch cells that appear morphologically normal. Gene interactions studies suggest that *mec-2* positively regulates the activity of the putative mechanosensory transduction channel, comprised in part of proteins encoded by the two degenerin genes *mec-4* and *mec-10*. The central region of the *mec-2* protein (MEC-2) is very similar to stomatin, an integral membrane protein (band 7.2b) in human red blood cells that is thought to regulate cation conductance. MEC-2-LacZ fusions are distributed along the touch receptor axons. This axonal distribution, which is mediated by the *mec-2*-specific amino terminus, is disrupted by mutations in *mec-12*, an α -tubulin gene needed for touch cell function. Our results indicate that MEC-2 links the mechanosensory channel and the microtubule cytoskeleton of the touch receptor neurons. Such linkage provides the basis for a mechanism of mechanosensation whereby microtubule displacement leads to channel opening.

Commentary by RG

I have an abiding interest in basic plans on both molecular and behavioral levels. These articles about *C. elegans*, the nematode whose genome has now been completely decoded, bear on such concerns. Development, neurobiology and sensation are all central concerns of sociophysiology. While they are hardly immediately applicable to diagnosis and care of our patients, they do help us begin to understand the language and issues raised by the grand frontiers of new information that genomic research is affording us now. Who would ever predict that a constituent of the human red blood cell would have something in common with the touch sensation of a nematode!

AS CITED BY.....

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Is this a picture of the theriomorphized self-destruct gene?



ASCAP

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