

Human Ethology Bulletin

VOLUME 11, ISSUE 1

ISSN 0739-2036

MARCH 1996

© 1996 *The International Society for Human Ethology*

SOCIETY NEWS

Vienna Congress Update

The 13th biennial conference of the International Society for Human Ethology is scheduled for 5-10 August 1996 at the Biological Sciences site of the University of Vienna, Austria.

The conference will be dedicated to direct observation of human behavior. Themes will be gender advertisement, mate selection, environment-behavior interactions, nonverbal communication, evolution and cognition, behavior genetics, development, psychiatry, and hormonal control of behavior. In addition, workshops on epistemological issues in ethology and sociobiology and on digital image analysis will be held.

Opening address: Irenäus Eibl-Eibesfeldt (Max-Planck-Gesellschaft): "Vienna: Cradle of ethology."

Keynote address: Robin R. Baker (University of Manchester): "Copulation, masturbation, and infidelity: State of the art."

Plenaries:

Peter K. Smith (University of London Goldsmiths' College): "Observational and reported data: Children's rough-and-tumble play."

Robin Dunbar (University College London): "The language evolution story."

Karl Sigmund (Universität Wien): "Games evolution plays: Mathematical basics of cooperation."

Thomas Bouchard (University of Minnesota): "Twin studies and human behavior."

Sue Carter: (University of Maryland) "Influence of hormones on human behavior."

Siegfried Frey (Universität Duisburg): "Non-semantic approach to nonverbal behavior: Cartographic methods."

Glenn Weisfeld (Wayne State University): "Research on emotions and future developments in human ethology."

Delegates who wish to present research must submit an abstract along with their registration. Participants are limited to a single oral or poster paper; authors are requested to indicate their preference, but decisions rest with the Organizing Committee. Talks are limited to 15 minutes plus 5 minutes for discussion. Posters must not exceed 120 cm. x 90 cm. They will be on display throughout the conference. Poster talks, Wednesday afternoon, are limited to 2 minutes, with no more than one slide or overhead.

Abstract Instructions

Send your abstract on paper and diskette or e-mail. Abstract, including title and name, must not exceed 200 words. Use Times Roman 11 font for text. Title (in **bold face**) should be no more than 60 spaces, in Times 12 font. Authors' full names should be in capitals, with the presenter's name underlined. Title and authors should be centered. Text should be left- and right-justified, with no paragraph indentations. A maximum of six (capitalized) keywords should follow. Lastly, the authors' addresses (including fax and e-mail) should appear. On abstract, indicate "p" for poster or "o" for oral presentation. **If you wish compete for the Young Investigator Award** (see following article), mark your abstract title

with "YIA".

Important Dates

Abstracts are due on 1 May 1996; send to Dr. Alain Schmitt, LBI for Urban Ethology, c/o Inst. f. Humanbiologie, Universität Wien, Althanstr. 14, 1090 Vienna, Austria; e-mail alain.schmitt@univie.ac.at. Notification of acceptance will be 1 July. **Deadline for reduced registration fees is 1 April**; for regular registration fees, 1 May. The opening address will be at 18:00 on 5 August; program will end at 13:15 on 10 August. **Deadline for housing reservations is 28 June, but payment of deposit should accompany your registration form.**

Hotels

Rates given on the registration form include breakfast and taxes. On the registration form, check the left-hand box for a single room or double (give name above if you have a roommate). Then indicate preferred hotel category, from posh (****) to spartan (**). Prices for each hotel category are given on the same line for a single and a double, along with the required deposit. A **** single costs 1,300 ATS per night, and a double 1,810, with a 1,500 deposit for either. A *** single costs 975, a double 1,280, deposit of 1,200. a ** single costs 470, a double 760, deposit of 700. These are maximum rates. You will receive a hotel voucher about three weeks before the congress, indicating where your hotel is, and will settle your balance with the hotel upon arrival. The travel agency Mondial Congress offers package deals for air fare, hotel, and transportation to and from airports: Faulmannngasse 4, A-1040 Vienna, tel. 43-1-588-04-0, fax 43-1-586-91-85.

Registration

All payments must be in Austrian schillings (about ten to the US dollar). Payment may be by Eurochèque (max. 2500 ATS per chèque) or banker's check payable to "13th ISHE Conference Vienna"; bank transfer to the Raiffeisenbank Wien (bank code 32900), without charges for the recipient; Eurocard/Mastercard, Visa, Diners or American Express (150 ATS charge per payment). Please bring receipts to the conference to help correct any errors.

Payment must accompany the conference registration form. There is a second registration form, for travel, hotel, and social programs. **Both forms** may be obtained from and must be returned to the Conference Bureau:

WKV-Wiener Kongress Management
c/o Wiener Medizinische Akademie
Alser Str. 4, A-1090 Vienna, Austria
Tel. 43-1-42-71-65; fax 43-1-42-13-83-23.

Again, the abstract must be sent to Alain Schmitt.

Bulletin Submissions and Duplication

Anything that might be of interest to ISHE members is welcome: Society matters; articles; replies to articles; suggestions; announcements of meetings, journals or professional societies; etc. These sorts of submission should be sent to the editor. Book review inquiries should go to the appropriate book review editor (Linda Mealey, the chief book review editor, covers books in English). Submission should be in English, on paper and, if possible, also on diskette (**MS Word 5.0 preferred**). Shorter reviews are desirable (**less than 1000 words**). **Please include complete references for all publications cited.** For book reviews, please include **publisher's mailing address and the price of hardback and paperback editions.** There usually is not time to consult with reviewers about editorial changes, but most of these are minor.

Submissions are usually reviewed only by the editorial staff. However, some submissions are rejected. Political censorship is avoided, so as to foster free and creative exchange of (even outrageous) ideas among scholars. The fact that material appears in the *Bulletin* never implies the truth of those ideas, ISHE's endorsement of them, or support for any policy implications that may be inferred from them.

Bulletin content may be reproduced without limit for scholarly (but not commercial) purposes. That is, no one may be charged for receiving the content, without first obtaining permission from the Editor or ISHE President. Sample copies of the *Bulletin* are available from the Editor. Send number of copies desired and the date required.

Registration includes a welcome cocktail, a buffet dinner one evening and a *Heuriger* (traditional Austrian tavern meal with wine) on another, and a one-week ticket for unlimited local transportation. Lunch is available at 120 ATS per day; reserve your meal tickets on the registration form. Restaurants are within walking distance for those who prefer to lunch there, and for other dinners. Registrants and accompanying persons may also sign up for an extensive cultural program.

Registration fees:

ISHE members: 2650 before 1 April; 3150 after
 Nonmembers: 3150 before; 3650 after
 Students under 30 years of age: 1650 before; 1950 after
 On site: add 100 ATS.
 Accompanying persons: 1000 before; 1200 after; this includes all of the above amenities.

For more information, consult the ISHE bulletin board on the World Wide Web at <http://evolution.humb.univie.ac.at>.

Information submitted by Bill Charlesworth and the Organizing Committee: Klaus Atzwanger, Karl Grammer, Katrin Schäfer, and Alain Schmitt.

Announcement of the First Biennial Competition for Young Ethological Scholars

By Gail Zivin, Chair, Ad Hoc Committee on Young Scholars Competition

Eligibility: Any graduate student whose degree is not yet awarded by the end of the spring of the year that the paper is submitted.

Length: Five pages double spaced (maximum).

Form of Presentation: Initial submission will be in writing (3 copies) to be read by 3 judges at least 8 weeks before the next Congress of the International Society for Human Ethology. The student will orally present the paper at that next Congress.

Criteria: Papers will be judged on substance and

on clarity of presentation (written and oral). For additional details, contact Gail Zivin, Dept. of Psychiatry and Human Behavior, Jefferson Medical College, Thomas Jefferson University, Philadelphia, PA 19107 USA; tel. 1-215-247-1895, fax 1-609-488-0925; e-mail zivin1@tju.edu.

Award: The winner will receive a free Society membership, free registration at the Biennial Congress following the one at which the Award was won, a coveted book, and a certificate of award.

Membership Directory Corrections

A copy of the 1996 Membership Director, prepared by Membership Chair Nancy Segal, should have been received by every member in good standing as of last December. Please inform the Editor if you did not receive yours and were paid up at that time. Those who join the Society subsequently will receive a Directory also.

Inevitably, some errors and omissions occurred, for which we apologize. Please inform Nancy Segal of any errors in your entry (her address is in the Officers' Box in this issue). The corrections received thus far are reported below. You may wish to make these changes in your copy.

BIOTEC S.A.
 tel. 32-16-46-04-03
 no fax number

Braza, Francisco (incorrectly listed under Lloret)
 Estación Biológica de Doñana
 Adpo. 1056
 41080 Sevilla, Spain
 tel. 34-5-4232340
 fax 34-5-4621125
 e-mail Braza@ebd03.ebd.csic.es
 area of expertise: development of human behavior, preschool peer interactions, sex differences-socialization, parental investment

Membership Renewals for 1996

It is time to renew your membership for 1996 if you have not already done so. Membership is by calendar year, so dues are to be paid by the first of the year. **If the date on your mailing label is earlier than 1996, it is time to renew your membership.** For financial reasons, renewal notices are not usually sent. Those who do not renew their memberships will be removed from the membership list. **Please report errors, changes of address, etc. to the treasurer. Be sure to inform her if you move; the U.S. Post Office no longer returns undelivered *Bulletins* with the recipient's new address.** Current dues and directions for payment are given on the last page. Please allow four weeks for recording changes of address or payment of dues.

Pontius, Annelise
tel. 1-212-371-3506
fax 1-617-724-3727
area of expertise: neuro-ethology in forensic psychiatry and in hunter-gatherers (limbic aggression, evolving spatial skills and literacy)

Smith, Peter K. (new address):
Department of Psychology
Goldsmiths' College
University of London
New Cross
London SE14 6NW, England

Zivin, Gail
office tel. 1-215-233-9127.

Braza, Paloma
Dept. Psicología Evolutiva y Educación
Campus del Río San Pedro
Universidad de Cádiz
11510 Puerto Real (Cádiz), Spain
tel. 34-56-834152
fax 34-56-835163
area of expertise: developmental psychology, educational psychology, preschool peer interactions, socialization, sex differences

Eggert, Frank
Department of Psychology
University of Kiel
Olshausenstrasse 62
D-24098 Kiel, Germany
tel. 49-431-880-3470 or -2981
fax 49-431-880-3470 or -1559
e-mail eggert@psychologie.uni-kiel.de
area of expertise: behavioral ecology, evolutionary psychology

Herrmann-Pillath, Prof. Dr. Carsten
East Asian Economic Studies
Gerhard Mercator Universität
Bldg. SV, Mülheimer str. 212
D-47048 Duisburg, Germany
te. 49-203-3789-189
fax 49-203-3789-157

Call for Nominations

It is time to elect two officers: Vice-President/President-Elect and Treasurer. Under our current by-laws, Charles Crawford becomes the new President 1 January 1997. His current position of Vice-President/President-Elect therefore comes vacant at that time. Nominations are to be submitted to the Secretary, Karl Grammer (see Officers' Box for address), by 1 June. Karl will ensure that the nominee is indeed willing to stand for office. Self-nominations are welcome. There is no limit to the number of terms one may serve, except that the President may not serve consecutive terms. Barbara Fuller is the current Treasurer, and is eligible to run again. Each term of office is three years, except for the Vice-President for Information/*Bulletin* Editor, who is appointed by the other officers every two years. Glenn Weisfeld's current term ends 1 January 1997. In the past there has been a tradition to maintain some geographic and disciplinary diversity among the officers, but there is no set rule about this. There is also no requirement that there be any particular number of nominees for each position. The terms of the Secretary and the Treasurer expire 1 January 1998, so they will be elected in 1997.

Missing Members

The following members in good standing have moved and cannot be located. If you can provide any information about their current whereabouts, please contact Barbara Fuller or Glenn Weisfeld.

Elena Alvarez
Catherine E. Hill
Karen Olson
J. C. Rouchouse
Martina Saurignani

Please remember to inform us if you move. The US Postal Service no longer returns misaddressed mail to the sender with the new address indicated.

SCIENCE NEWS

Science News is a weekly digest of articles on the natural sciences, with behavior heavily represented. Subscription rates are \$49.50/yr., \$88/2 yrs. Write to *Science News*, 231 W. Center St., P. O. Box 1925, Marion, OH 43306-2025 USA. The year-end summary of major 1995 articles included these:

Anthropology

Investigators reported that complex cultural behaviors arose in Africa 90,000 or more years ago, long before similar advances in Europe (147 : 260; 148 : 378).

Explorers in France found an underground cavern containing a huge array of the world's oldest known wall paintings, rendered about 30,000 years ago (147 : 52).

A Spanish cavern yielded evidence of human ancestors who lived at least 780,000 years ago, much earlier than most estimates of Europe's first colonization (148 : 100).

Behavior

Long-term investigations indicated that impulsive, low-IQ children experience a strong pull toward a lifetime of hard-core delinquency (147 : 232).

A national survey found that a large minority of men and women who survive severe traumas report periods of partial or complete memory loss concerning those events (148 : 135).

Alcoholics exhibit either strikingly low or slightly elevated concentrations of dopamine in their brains, according to a study that rekindled debate over possible genetic contributions to alcoholism (148 : 20).

Evidence suggested that a virus which causes neurological disease in some animals may play a role in human mood disorders (147 : 132).

Biology

A second study linked male homosexuality to the X chromosome (148 : 295).

The human mouth produces infection-fighting peptides (147 : 166).

Nature uses symmetry to signal the well-being of an individual (147 : 46, 60).

Postpartum depression may stem from a temporary hormone deficiency (148 : 15).

Dominant female baboons don't have the reproductive advantages once thought (147 : 28), and seals don't deserve their reputation as polygynists (148 : 7).

Viruses revealed the brain circuits behind the flight-or-fight response (148 : 276).

A gene controls whether an immature brain cell will become a neuron or a support cell (148 : 284).

Biomedicine

Doctors advised that infants be laid on their backs or sides to prevent sudden infant death syndrome (147 : 151).

Birth control pills boost young women's breast cancer risk (147 : 356); taking progestin fails to reduce breast cancer risk associated with estrogen replacement therapy (147 : 375; 148 : 94).

Bacteria that cause ulcers and stomach cancer may be spread through drinking water (147 : 367).

Human Ethology--Still a Good Idea for the Behavioral Sciences and Society

By William R. Charlesworth

Institute of Child Development
University of Minnesota
Minneapolis, MN 55455 USA

The following is an abbreviated, somewhat altered version of the Presidential Inaugural Address given at the 12th Congress of the International Society for Human Ethology in Toronto 6 August 1994. The gist of this address was that there appears to be a current research trend away from the use of behavior observation toward greater reliance upon verbal (interview, questionnaire) and archival methods. This trend is illustrated below by a content analysis of articles in *Ethology and Sociobiology*. I view this trend as disturbing in that it may ultimately undermine one of ethology's distinctive contributions to the behavioral sciences, namely, to provide observational data on everyday behaviors and their stimulus contexts related to individual adaptation. In my opinion such data provide the most convincing tests of evolutionary hypotheses about human behavior. Current Zeitgeist conditions related to this trend are discussed below and a suggestion is made on how to strengthen human ethology as a theoretically important and socially practical scientific discipline.

Current Conditions

It's no news that some behavioral sciences today are in great disarray--theoretically, motivationally, and methodologically. Anthropology, for example, currently faces a serious challenge as an empirical science (O'Meara, 1989). Ethology and sociobiology, having expanded over the last several decades into domains examined by anthropologists, are becoming enmeshed in this disarray. A major reason

behind this present condition, in my estimation, has to do with the current Zeitgeist of the behavioral sciences.

First let me describe an historical antecedent of this Zeitgeist because it has been in many respects quite different from what we are experiencing today. The antecedent was that of the triumph of scientific thinking. We are all familiar with it. It rested upon at least three well-established scientific beliefs--(1) that there is an objective world which can be known; (2) that it is possible to have reliable knowledge of this world; and (3) that the scientific method, broadly defined, is the principal means of acquiring this knowledge. Operating on these beliefs, scientists have at least three goals--(a) to produce the best approximations to empirical truths possible; (b) to construct logically consistent laws to account for these truths; and (c) to make and test novel predictions from these laws. There are several prerequisites for achieving these goals--first, methodological rigor that ensures objectivity by establishing valid and reliable detection and measurement techniques to study the phenomena of interest; second, clarity and precision of theoretical concepts; and, third, logical coherence of explanation and prediction.

By the end of the 19th Century the scientific belief system had come to create the human social sciences. Psychologists, especially anxious to dissociate themselves from a long tradition of speculation, embraced the scientific method with great zeal. Subsequently, 20th Century philosophers of science (e.g., positivists and their program of verification; Popperians and their insistence on falsification) helped psychologists to clarify and articulate their effort--not to everyone's satisfaction but sufficiently to give their scientific endeavors epistemological support. In general such support consisted of strong emphasis on objective, value-free methods of obtaining data, on quantifying variables whenever possible, on using appropriate sampling methods and control groups in experiments, etc.--in short, an emphasis on freeing empirical research from sources of subjective bias and methodological error.

Closer to home, early ethologists, as we well know, already subscribed in principle to the same belief system. Although most of them engaged heavily in qualitative research (descriptive and experimental), they did so presumably with the understanding that quantification would eventually ensue after a sufficient foundation of description had been laid.

Today's Zeitgeist, however, is in many crucial respects very different from that of the first half of this century--if not for the physical sciences, certainly for most of the social sciences and especially for anthropology, sociology, and social psychology, disciplines very close to the human ethologist's interest. A feature of much of today's Zeitgeist is the belief that current behavioral science cannot develop an adequate picture of human behavior because much of human behavior is saturated with subjective and cultural factors. Because such factors often escape direct observation, they require interpretation rather than itemization, categorization and enumeration, methods usually applied to the study of animals.

In the context of anthropology, for example, Shweder (1984) argues that current behavioral sciences cannot deal objectively with human behavior and culture, and therefore have to turn to the humanities and adopt a more subjectively interpretative ("romantic") stance toward studying humans. Because most interesting human behaviors often have non-evident and multiple meanings, those studying behavior from the outside frequently cannot detect these meanings. If behaviorists by chance do detect these meanings, they are liable to misconstrue them (so the argument goes) because their conceptualizations of behavior are usually too theory-laden. Methods employed from a biological perspective are especially inadequate to study human behavior and its underlying significance. A subjective approach entailing complete immersion in the meanings of the culture being studied is necessary. The interpretive approach also requires relinquishing a theory of biological determinism because for the vast majority of anthropologists nothing determines behavior

more powerfully than culture.

How this feature of the current Zeitgeist came into being is a long, complicated story which I can only touch on here. Sometime after World War II a wave of challenges began breaking over Western science. Some of these challenges had their origins in popular beliefs, one of the most publicized of them expressing the revolutionary fervor of the 1960's and early 70's. Proponents of this fervor for various reasons viewed much of science as dangerous or useless. More recently, science has been viewed as an expression of paternalism and a masculine Eurocentric strategy serving Caucasians and men. Evolutionary science is felt by many critics to be especially dangerous because it not only contains arguments for biological determinism but also has a history of supporting eugenics and racial superiority (Degler, 1991).

In addition to mounting ideological objections to behavioral science, an epistemological attack was launched in the middle of this century which was just as vigorous as the others and in one sense more dangerous. Part of the rationale underlying this attack has its roots in early theories of language and culture. Contrasting with traditional structural approaches to language which view language and culture as separate entities, a whole discipline of linguistics developed out of the Sapir-Whorf theory of linguistic relativity. A minor axiom of their theory was that the way we perceive and construe (and consequently behave toward) the world is shaped by the structure of the language we speak. Cultures with different languages, therefore, require different perceptions and conceptions to understand them. Ergo, cultures can have as many different sciences as there are interpretations of them, and one science is as good as another. The implications of this theory for a science of *Homo sapiens* are significant to say the least: Being guided by language, human behavior is governed predominantly by cultural norms rather than genetic predispositions inherited by all members of *Homo sapiens*. Therefore, those studying cultures can give up any hopes of finding species-wide, biological universals.

The confrontation between Zeitgeist

relativism and ethological/sociobiological research, however, does not stop here. Subjective approaches to culture and behavior belong to a larger family of ideas dominating segments of 20th Century thinking. Ideas from phenomenology, hermeneutics and constructivism have been offered as legitimate alternatives to the behavioral sciences. In the same vein poststructuralists or deconstructionists such as Derrida and Foucault have argued that knowledge, especially scientific knowledge, cannot depict or represent reality because its so-called "truths" are actually mental, emotionally-inspired, idiosyncratic constructs that cannot depict universal realities. Given this, science needs to be viewed as a conscious or unconscious attempt to construct reality along lines favorable to scientists themselves.

To make matters more complicated, the claim that culture, ideology, social agendas, and individual subjective factors condition all scientific efforts is not the only threat to the integrity of science. Sciences that rely heavily upon verbal reports and perforce cognitive processes are especially vulnerable to distortion. This notion is familiar to us. As evolutionary ideas about communication (e.g., Dawkins & Krebs, 1978) point out, communication frequently serves to protect the sender, not the receiver. Thus, research subjects may view misinforming others about past events, current conditions, personal attitudes and values, and future plans as necessary to protect their own interests.

To make matters even more complicated, communication that relies almost solely upon memory is especially risky. As Bernard et al. (1984) point out, informant accuracy (especially that involving introspection) is a very serious problem for those sciences that rely on interviews and questionnaires. Their survey of a substantial corpus of literature reveals that in many studies what people say about things in the distant and even immediate past very frequently bears no resemblance to the truth of the matter as obtained by more objective measures.

To sum up, then, human ethology faces two major challenges--ideological and methodological. Most of us have long taken the methodological challenge seriously. But the ideological challenge is often responded to

negatively or simply ignored. Many of those behind the ideological challenge are clearly not friends of the behavioral/biological sciences. But many of them are persuasive writers, and their thoughts are being taken seriously by laypersons and students. For example, I have met students who believe that an objective science of human behavior (such as ethology) is impossible. For them, subjective bias, cultural relativism, and unobservable meanings make a behavioral approach to humans obsolete. Others believe that a science of ethology is possible, but feel ethologists have to relinquish sole dependence on observation and become more "psychological" (focus more on subjective states of cognition and meaning). A few see value in observation but feel it is not economical in time and effort compared to interviews and questionnaires.

Before going further, let me make one historical point about human ethologists. All of us were aware three decades ago of the obvious danger of misunderstanding culturally-specific meaning and of deception on the part of informants. As a consequence, Eibl-Eibesfeldt and Ekman (as well as others at the time) conducted much of their empirical effort by concentrating almost solely upon nonverbal behavior. However, as Blurton Jones (1981) pointed out, it wasn't long before human ethologists appeared to be conducting their research "as if people could not talk." But questions surrounding this problem still persist: How should human language be construed by ethologists? Structurally, what units should we use; functionally, how should we evaluate a verbally reported contribution (if any) to adaptation; and methodologically, how can we determine the validity of the units we use?

Even if partial answers to these questions are possible with the help of more subtle interview and questionnaire techniques, trained interpreters and informants, etc., in my opinion we would still have to obtain objective and representative measures of behaviors and the stimulus contexts in which they occur. This is not an idle, theoretically-irrelevant requirement. Behavior in the appropriate stimulus context makes the major difference in the individual organism's survival and reproduction. Hence it is imperative that students of adaptation obtain

observational evidence of this context. By themselves, retrospective, verbal reports are not enough.

But we also cannot ignore what people feel and think about past behaviors and their contexts. Unobservable meanings do condition behavior and structure stimulus contexts, so we need know them as well. So the conclusion I've come to (and it is hardly new) is that we need a mixture of observational data and verbal reports. (Most anthropologists have this mixture but lack an evolutionary framework to provide a theoretical structure for it.) If we look back again to the early history of human ethology, we discover that many human ethologists relied upon a mixture of both approaches (Blurton Jones, 1972; Archer, 1992). But the recognition of the necessity of such a mixture appears to be diminishing. Also, the mixture we do have appears to have many fewer observational data than verbal reports. Let me give some empirical evidence for this.

Evidence

To get evidence I looked at sixteen years of research as documented in the journal *Ethology and Sociobiology*. I conducted a survey using categories specifically constructed to test my idea. As a mostly one-person job, I realize, such an effort is suspect, but skeptics can easily repeat the methods used if they take the time. I did, however, make a quick check of inter-coder agreement. A colleague and I independently agreed on 16 out of 18 codings of articles using the categories I supplied him by mail. I also realize that it is dangerous to extrapolate from one journal to the whole field. However, it is difficult to imagine that entries in *Ethology and Sociobiology* are not diagnostic of something significant going on in the field.

The survey consisted of categorizing every empirical research article appearing in *Ethology and Sociobiology* since the appearance of its first issue in 1979 through the July issue of 1994. Editorial comments, letters to the editor, book reviews, abstracts and announcements were excluded, leaving 275 original substantive studies for analysis. These studies were then categorized in terms of the predominant research approach they employed. Of the 275 selected, 259 could be

classified more or less reliably by the method used below. The research approaches represented were divided into "Empirical," "Theoretical" and "Methodological." Approaches clearly employing two or more of these categories were labeled as "Mixed." Justification for this division was partly inspired by Bunge's (1977, 1983) distinction between two fundamental categories of knowledge--"perceptual" and "ideational."

The empirical ("perceptual") studies were coded as such if their predominant emphasis was upon data. Empirical methods themselves were divided into three subcategories: (1) those that were predominantly "Behavior Observational" (field or staged naturalistic, direct or from film or video); (2) those that were predominantly "Verbal" (interviews and questionnaires, hence mostly introspective, but some also current psychometric, i.e., using immediate language as an assessment probe), a few studies using blood sampling, physiognomic traits, androstenol sensitivity, etc. were included here, under a subcategory of physical assessment; and (3) those that used predominantly "Archival" methods, analyses of empirical information from existing studies, often collected by others (demographic data, records from various agencies, and genealogical data). The total number of empirical studies was 175, or 68% of the 259 selected for categorization.

The remaining 84, or 32%, theoretical studies were divided into those that were predominantly "Conceptual" ("ideational"), i.e., analyses and discussion of theory or theoretical concepts; and those predominantly Modeling (model building, usually as more precise tests of theory). Many of the theoretical studies, it should be emphasized, referred to data obtained by the researcher from archival sources or other empirical studies.

The "Methodological" studies were broken down into methods for ethogram construction (or an approximation thereof), observation procedures, development of categories for behavior/stimulus contexts, and "Other." The first three are self-evident; the "Other" is a minor miscellaneous category. Only 2 (less than 1%) of the total number of

studies were exclusively or predominantly methodological, hence they were not included in the analysis. Parenthetically, that this percentage is so small says much about our discipline which I cannot go into here, other than to say that a young discipline that does not concentrate on improving its old methods and developing new ones may well exhaust itself prematurely. Of course, methods articles may very well be published elsewhere, so I may be unnecessarily concerned about this issue.

The "Mixed" studies constituted ca. 6% of the 275 articles and consisted of empirical (new data) and theoretical approaches. Attempts to weigh and contrast their empirical and theoretical emphases were difficult. As a result, I dropped from analysis 16 studies from the 275 that I had first selected. The main features of the great majority of studies in the analysis, however, were unambiguous, and reliable enough to reveal any trends.

As the results indicated, empirical articles constituted the great majority of studies published (as already noted, 68%). What is interesting to note is that 71% of all articles published between 1979 and 1986 (the first half of the period covered) were empirical; this percentage declined to 64% between 1987 and 1994. Conversely, during this same period theoretical articles increased from 29% to 35%. This may reflect a gradual shift from less empirical to more theoretical, but it is obviously much too early to tell at this point.

Of more pertinent interest are the results having to do with methods employed in the empirical studies. While behavior observational studies constituted 39% of the studies in the first half of the 16-year period, they declined during the second half to 18%. In contrast, verbal studies constituted a relatively small percentage of the total during the first half (14%), after which they showed a solid increase during the second half (37%). Archival studies show a similar, but not as dramatic, shift (34% to 41%). If we combine verbal and archival studies, we have a shift from 49% to 77%.

I followed up this survey by examining the first five issues of *Ethology* and

Sociobiology published in 1995. Of the 19 original substantive studies identified, 14 could be classified as empirical; 4 were primarily conceptual (contained no new empirical data); one was a mixture of both. Of the 14 empirical studies, one contained original observational data; the remaining 13 contained verbal or archival data. These findings are in line with the previous analysis.

I find this trend disturbing in that it suggests an increasing reliance by human ethologists upon verbally based data and data collected by others. If ethology is moving more toward unobservables (toward the "ideational" and verbal), we should ask what this means for the future of our discipline. Will we be distinguishable from the other social sciences?

If you think my nervousness is unwarranted, keep in mind who in the science of ethology (and primatology) have made the strongest contributions to our current understanding of animal behavior. In the early days of ethology we had field behavior observation giants--Tinbergen, Lorenz, von Frisch, Leyhausen, and Marler. In primatology the work of Altmann, Kummer, Crook, Goodall, Hinde, and Fossey created major breakthroughs in our understanding of primate behavior. In the field of invertebrates and non-primate vertebrates we have Wheeler, E.O. Wilson, Lack, Schaller, etc. When we turn to humans, we have Eibl, McGrew, Blurton Jones, Freedman, Omark, and Strayer. And most recently, we have the stunning achievements of Peter and Rosemary Grant on Galapagos finches. Their efforts are clearly a prime example of first-rate field observation that has allowed an impressive test of Darwin's notion of natural selection.

Suggestions for a Solution

I noted earlier that I would propose a step toward a solution to the present problem. A more detailed description of this step can be found in paper I wrote on cognition (Charlesworth, 1995). It is a simple step requiring developing a habit of perception. The gist of it is that we should develop a serious habit of looking at the phenomenon of our research interest more synoptically, that is with a broader view, than we normally do.

This habit can be developed with what I call a "synoptiscope," a simple process that produces a diagrammatic overview of all major and minor factors or variables (and their relationships) associated with the phenomenon we are interested in. The overview is represented in a resultant "synoptigram." Such an effort means crossing theories and disciplines. For example, if we are interested in sex, we would include everything ranging from its evolution (r and K strategies, etc.) to its hormonal basis, development over ontogeny, variations in its individual and cultural expression, and its phenomonology. Such a view will invariably ensure that we include observational studies, as well as everything else related to sex--a tall order to be sure, but we are working with a very complicated species.

The historical precedent for the synoptic approach lies, most impressively, with Darwin. A cursory look at his efforts will reveal that he had an enormous variety and number of empirical targets for investigation. His panoramic view of life forced him to rely on a wide range of methodologies to produce new data and check hypotheses. Besides observation and experimentation, which he began on the Beagle voyage and finished with his work on earthworms at the end of his life, he relied on material including travelogues and diaries, scientific papers on animal and plant breeding data, guided conversations with others, and anecdotes. He realized early on that studying the most minute phenomenon in terms of the bigger picture would sooner or later release an explosion of questions and searches for more phenomena, related and unrelated to the original one.

Darwin's strategy represents a great contrast to the great majority of what is being done today in the behavior sciences as well as in human ethology. There are exceptions, though, to this in circumscribed research areas which I cannot go into here. For the most part, however, many researchers in the behavior sciences select a narrow-band topic and piecemeal it to death with one published study after another. Obviously, in-depth specialization is necessary. Darwin knew that the truth was in the details but it was also in relationships the details had with other phenomena (within and outside of the limits

of the species studied), as well as with other generations of the same and different species. Investigating relationships of things outside of the particular phenomenon under study requires different ways of perceiving, different instruments, and different methods--all backed by the drive to get the whole picture. Observation helps immensely in getting this picture.

The main point of all this is that ethologists, as evolutionary theorists, are, in my estimation, obligated to seek the broadest, most complete picture of the phenomenon in which they are interested. They seek its nature in other species, at different ontogenetic stages, under different ecological conditions, and as it is expressed as different forms of adaptation. To achieve this picture, the ethologist must be open to a wide range of research strategies and methods and, when it is too impractical to engage in the full range, to be open to the work of others studying the same phenomenon. However, no matter how broad their view, if ethologists omit naturalistic observation data, their conclusions will never be completely adequate for an evolutionary argument.

Conclusion

The claim that human ethology is a good idea for the behavioral sciences and society holds now more than ever. The human behavioral sciences, in general, need many more data on actual behavior and the environmental circumstances in which it occurs. Such data are indispensable for those interested in testing evolutionary hypotheses about adaptation and fitness. Verbal reports or test measures are not enough.

However, we need objective observation for more than theoretical reasons. Society needs to know what is happening in the everyday life of humans for very practical reasons. For example, concern for the welfare of non-mainstream populations which are necessary targets for testing hypotheses about variations in human adaption demands that scientists tell it as it is, not solely as what informants say it is. Practitioners also need detailed data on the environmental conditions facing humans today. Only trained observers can get these data.

The genius of our discipline is that we potentially have the broadest view of all of the behavioral sciences--we look at today's human behavioral adaptations historically (evolutionarily), developmentally, and comparatively as well as currently and proximately. As far as I can determine, no other behavior science does this because none other has the conceptual, methodological and theoretical equipment to do so. Ethology has all three. Now the question is whether we have the will to carry out that part of our methodology that is the most inconvenient and most expensive--namely, to make the observations and do the documentations and descriptions necessary to build an empirical foundation of everyday human adaptation comparable to what we now have for many other species.

References

Archer, J. (1992). *Ethology and human development*. Herfordshire: Harvester Wheatsheaf (also Savage, MD: Barnes and Noble).

Bernard, H.R., Killworth, P., Kronenfeld, D., & Sailer, L. (1984). The problem of informant accuracy: The validity of retrospective data. *Annual Review of Anthropology*, 13, 495-517.

Blurton Jones, N. (Ed). (1972). *Ethological studies of child behaviour*. London: Cambridge University Press.

--- (1981). Human ethology: The study of people as if they could not talk? *Ethology and Sociobiology*, 2, 51-53.

Bunge, M. (1977, 1987). *Treatise in basic philosophy* (Vols. 3, 5, 6). Dordrecht: Netherlands.

Charlesworth, W. R. (1995). An evolutionary approach to cognition and learning. In C. A. Nelson (Ed.), *Basic and applied perspectives on learning, cognition, and development: The Minnesota Symposia on Child Psychology* (pp. 175-217). Hillsdale, NJ: Lawrence Erlbaum Associates.

Dawkins, R., & Krebs, J.R. (1978). Animal signals: information or manipulation. In J. R. Krebs & N. B. Davies (Eds.), *Behavioral ecology: An evolutionary approach* (pp. 282-309). Oxford: Blackwell.

Degler, C. N. (1991). *In search of human nature: The decline and revival of Darwinism in American social thought*. Oxford: Oxford University Press.

O'Meara, J. T. (1989). Anthropology as empirical science. *American Psychologist*, 91, 354-369.

Shweder, R.A. (1984). Anthropology's romantic rebellion against the enlightenment or there's more to thinking than reason and evidence. In R. A. Shweder & R. Levine (Eds.), *Culture theory: Essays on mind, self, and emotion* (pp. 27-66). Cambridge: Cambridge University Press.

BOOK REVIEWS

Homo Aestheticus

By Ellen Dissanayake. Free Press, 866 Third Ave., New York, NY 10022 USA, 1992, \$24.95 (hdbk.).

Reviewed by Gordon M. Burghardt, Department of Psychology, University of Tennessee, Knoxville, TN 37996 USA.

The subtitle of this fascinating book is *Where Art Comes From and Why*. Thus it concerns questions of both origins and function. This critical distinction is lacking in many recent writings where answering questions about adaptation is viewed as virtually equivalent to revealing origins. In addition, evolutionary accounts often are limited to Western cultures or a single nonwestern group. These are not problems here because the author has long had professional and personal contact with ethological and evolutionary science, has been a teacher of art history, and has lived in several nonwestern countries (Sri Lanka, Nigeria, Papua New Guinea) where she obviously observed the inhabitants and explored the diverse modes of artistic expression in depth.

Dissanayake has set out to develop a comprehensive model of artistic expression, and while I found some points to quibble about, her approach is one that makes sense of the great

diversity of art around the world. This diversity is too often seen as culturally induced, arbitrary, and nonfunctional. She makes mincemeat of the pretensions of the humanists and art snobs who separate the high or fine arts from mere craft or decoration. All people have a biological need to engage in artistic endeavors, as she defines them. Our modern and Western compartmentalization of life is what is artificial and even hurtful to human happiness, although she does not summarize her views quite this starkly. Dissanayake's argument begins with "three critical keys to understanding where art comes from and why" (p. xii). These are the differences among cultures in what is practiced and revered, the tension between the given or natural and the cultural, and the great human interest in the unusual and extra-ordinary. This plays out in her book as an extended argument that artistic differences across cultures are, like languages, strongly shaped by "a natural, general proclivity" that results in culturally learned specifics.

The problem with art studies is that art is viewed by biologists as useless and thus even less important than play behavior, but ignored for similar reasons. In the humanities, art was first hijacked by high art types who thought they should only study the work of geniuses. Postmodernists question this elitism, a position Dissanayake agrees with, but postmodernists then constructed a confusing, irrational theory that (she is kind here) is "more arcane and impenetrable" than anything written by high art theorists. Dissanayake knows she is trying to wend her way between two influential groups of art theorists with views often considered heretical by both camps. She fears her views will be opposed as trivial, boring, or reductionistic by humanists of all stripes, while biologists will be wary about the "insubstantiality" of art talk. Much of the book is directed at the art world and packed with quotations from art theorists of various persuasions that indirectly support her analysis. Thus the book has to be seen as oriented towards the art world rather than human ethologists or evolutionary psychologists. Yet there is much here for readers of the *Bulletin*.

The book is composed of seven chapters. Darwinism, evolution, and ethology figure prominently. The first two chapters argue for a

species-centric view of art as a biological phenomenon and provide a review of evolutionary approaches to human behavior in ethology, anthropology, psychology, and philosophy. They effectively show that the history that led to a neglect of evolutionary factors in art may finally be overcome. Throughout the book are many wonderful quotable passages on the need for an evolutionary approach. One example: "The truly distressing enemies of Darwinism are the many 'educated' people who have renounced supernatural bases for their theories and explanations, who espouse objectivity, who accept 'Darwinian evolution' in a broad, general, zoological way, but yet who dismiss it out of hand without trying to grasp its exciting and revolutionary implications for understanding human thought and behavior" (p. 13). She advocates tracing human behavior to a common period of evolutionary adaptation--and art is a behavior, potentially available to everyone, that had survival value. Art as an abstract phenomenon unrelated to function is a recent conception tied to the rise of a rarified aesthetic theory.

The next three chapters outline Dissanayake's theory and constitute the heart of the book. Her extended argument derives from the view that the core of art is "making special." Thus, just as in play, novelty and unpredictability may be sought (within rules), so art consists of putting individuality on objects and events. While making special is not always art, "art is *always* an instance of making special (p. 92)." But more than that, art is a molder of feelings. Plays, dance, poems, music, stories, painting, sculpture, and even architecture "structure the viewer's response and give a form to feeling" (p. 46). Ceremonies and rituals also aim to emphasize the extraordinary. This tendency to differentiate the mundane from the special is the source for the origin and function of art behavior. More than that, it also leads to humans attempting to transcend their humanity through art, including trances, emotional states, and the urge to create other worlds. The origins of art and religion are inseparable.

'Making special' begins as a consequence of taking important activities seriously, be they making a tool or taking part in a ritual. It is also a way of exerting "some measure of

control over the untidy material of everyday life (p. 79)." The fact that this taps into the deepest emotional reservoirs of people is the hallmark of art behavior and the responses of both creator and audience. Thus, by 'making special' ordinary sensory elements all around us (shapes, colors, sounds, and movements), early humans created group activities or markers that united them and thus aided survival. Beyond this, when disasters occur, doing something, and thus controlling one's own behavior, is better than doing nothing, for it provides the useful illusion that "the provoking situation is also under control" (p. 78). Along with anthropological examples, Dissanayake uses the example of the orchestra playing as the Titanic sank, which presumably helped people cope with a disaster. Given the recent reappraisal of group selection in human behavior, this aspect of the argument cannot be dismissed out of hand. The process and need to engage in ritual are called Dromena and are related to the universal tendency to separate oneself and like-minded others on some basis, which goes far beyond ethnocentrism or nationalism. Finally, art is a means of enhancement. Even "adornment," as in wearing fine clothes and jewelry, is not trivial and superficial, but a clear instance of the making special process. These chapters aim at reconciling culture and nature.

The book concludes with its longest chapter by bringing in psychobiological findings to support a revamped "empathy" theory of aesthetics. This theory views art as grounded in basic evolved links between events in our environment and emotional responses. What has been lost in modern art theory is the realization that art gratifies the body as well as the soul. In this section recent work on brain mechanisms (e.g., Gazzaniga), perception (e.g., J. J. Gibson), language development, human universals, emotion (e.g., Tomkins), and other areas are integrated into a picture of the proximate mechanisms involved in aesthetic responses. The final chapter returns to debates about modernism, postmodernism, and traditional theories of art.

Dissanayake brings together a wealth of scientific, artistic, critical, and cultural information with copious notes and citations; the nuances of her arguments cannot be articulated here. Sexual selection could have been accorded a more prominent role, and there

could have been more discussion of how environmental differences affect the evolution of artistic expression in different locales.

Regardless, this is a breakthrough treatment and a provocative look at behavior usually considered immune from science and biology. It may be directed mainly at the art world, but the extensive discussion of art theory will make human ethologists vividly aware of the nature of the debates to be expected as evolutionary thought moves in on the humanists' last stand. This is a fascinating book to read. I encourage human ethologists plumb aggression, power, and sex to broaden their perspective with this enjoyable book.

Ethology of the Naked Ape: Two Books by Desmond Morris

Babywatching. Crowne Publishers, P. O. Box 688, Southbridge MA, 01550 USA, 1992, \$15 (hdbk.).

The Human Animal: A Personal View of the Human Species. Crowne Publishers (see supra), 1994, \$25 (hdbk.).

Reviewed by Thomas R. Alley, Department of Psychology, Clemson University, Clemson, SC 29634-1511, USA.

Zoologist Desmond Morris is a prolific author. His many previous books include one that is probably the all-time bestseller in human ethology, *The Naked Ape* (1967), as well as the more recent *Manwatching* (1977).

Babywatching is intended as a guide for parents to the first year of human life. The book focuses on normal infants and their mothers beginning at birth. Morris asks, what is it like to be a baby and what does this imply for parenting? His concise answers provide a good synthesis of contemporary perspectives on age-old questions about human infancy, many of which are surrounded by misconceptions or superstitions. Indeed, Morris frequently addresses false beliefs and parental anxieties about such things as natal teeth, whether or not to respond to crying, and circumcision.

Each of the book's chapters is directed

at a different question, and often includes a suitable photo of a cute baby. A wide variety of topics are covered, including neonatal sensory abilities, language acquisition, the cranial "soft spot", and all of the most obvious infant activities -- e.g., sleeping, reflexes, crying, laughing, crawling, walking, and even burping. Several oddities are covered as well, such as the tradition of new fathers passing out cigars and the origins of the stork legend.

The evolutionary and comparative perspective adopted by Morris sees human infants as possessing numerous adaptive physical and behavioral characteristics. For instance, their "irresistible appeal" helps to elicit the parental care they require. He sometimes goes too far, committing the adaptationist fallacy of believing too many biologically determined traits to be as they are because they are adaptive (see Gould & Lewontin, 1979). The wildest example of this may be when he describes the limited visual abilities of neonates as optimal because their poor distance vision serves as a "valuable anti-anxiety device" and "avoids the confusion of being able to see things that are of no importance to it" (p. 49).

Written as a child care guide, anyone picking up *Babywatching* as a scholarly resource will be disappointed. No references are provided, not even when Morris gives details from specific scientific studies. Furthermore, Morris occasionally makes claims that go beyond current research data or are based on unrepresentative samples of existing studies. For instance, he states that "prolonged contact during the first crucial days of maternity is important [but not essential] in strengthening the parent-offspring bond" (p. 17), whereas careful reviews of the research literature conclude that there is no convincing evidence of positive lasting effects on the parent-infant bond (e.g., Lamb, 1982). Furthermore, the book contains some factual errors, such as his claim that the four basic taste qualities include "acid" rather than salty, and that all tastes except mother's milk are "intensely disliked" by neonates (p. 63).

Nonetheless, *Babywatching* should serve quite nicely as intended, as a guidebook for parents. The book is written in a casual style and provides answers to over 50 common questions without recourse to technical terms.

It help parents to better understand infants at the same time that it fosters an appreciation of many of their remarkable characteristics. It may even promote more and better parent-infant interaction. Consequently, it can be recommended as a fine gift for parents of an infant or for expectant parents.

Morris' *The Human Animal* is a companion volume to a six-part BBC television series with the same title. This book is divided into six chapters which, like the BBC series, deal with (1) nonverbal communication; (2) humans as hunters; (3) territoriality, urban life, and our tribal heritage; (4) the biology of love and sex; (5) birth, parenting, and old age; and (6) art and play. Each of the six one-hour programs was based on one of Morris' earlier books: *Manwatching*, *The Naked Ape*, *The Human Zoo*, *Intimate Behaviour*, *Babywatching*, *The Book of Ages*, and *The Biology of Art*, respectively.

The first chapter of the book, "The Language of the Body", focuses on facial expressions and hand gestures. Some of these are presented as species-typical behaviors but considerable attention is paid to cross-cultural variation in gestures and personal space. There is a fascinating examination of the historical roots of several hand gestures. On the down side, Morris presents some dubious accounts of the origins of certain gestures and facial expressions. For example, he claims that the "hand shrug" (which involves curled fingers on hands held palms up in front of the body) stems from the full shoulder shrug and, therefore, conveys a similar negative message (p. 37).

The next chapter, on humans as "The Hunting Ape", is more provocative. Morris defends Hardy's aquatic theory of human evolution, arguing that our ancestors, unlike those of other primates, passed through a water-living stage. The evidence consists of about 13 human features--including fat deposits, hairlessness, nose shape, and the water baby phenomenon--that appear compatible with a period of aquatic life in our relatively recent past. While his case is strong enough to encourage serious consideration of adaptation to aquatic environments as a significant factor in human evolution, I still find the aquatic theory itself implausible. Indeed, evolution may well have favored human ancestors who were better fit for aquatic

environments (e.g., had better breath control) even though these ancestors were primarily terrestrial. A second problem with his case for the "sea ape" theory is the neglect of alternative explanations, most notably the important process of neoteny (cf. Gould, 1977). Finally, there are some weak arguments. For instance, Morris notes that many people love the water and a few have set impressive swimming records, but swimming is a learned skill and most people are poor swimmers, perhaps no better than many non-human primates.

This chapter does a reasonably good job of revealing such evolutionary effects of hunting as division of labor, improved communication, and foresight. There is also some entertaining speculation on modern "hunting substitutes" such as some jobs, sports, collecting and gambling.

The third chapter focuses on the problems created by urbanization for our tribal species. Much of the discussion concerns territoriality and social hierarchy and their direct effects on aggression, with particular attention paid to urban gangs. Morris traces many urban problems to the increase in encounters with strangers as local populations increase. In some cases he again overlooks alternative explanations. For instance, the lack of response to a stranger in need (commonly known as bystander apathy) is attributed to an "anti-stranger defence mechanism" developed in response to urban life. This may be part of the explanation, but psychologists have shown that diffusion of responsibility plays a major role yet it is never mentioned.

The chapter on sex uses cross-species comparisons to highlight the uniqueness of human sexuality. Our unusual traits include concealed ovulation, increased sexual frequency, prolonged courtship and copulation, and continuous sexual receptivity. As Morris puts it, we are "the sexiest primate." Like some other ethologists before him, Morris claims that female breasts evolved as imitation buttocks. Although breasts evolved as sexual signals, the buttock imitation theory is not necessary and has no additional support beyond some rough morphological similarity. It seems more prudent to view breasts as signals of gender identity and fertility. The same criticism applies to the subsequent claim that

women's lips have evolved to mimic genital labia. Fortunately, Morris' discussion of other sex-linked physical traits and their enhancement (e.g., female hips) treats them straightforwardly as gender signals without reference to self-mimicry. The chapter continues with entertaining discussions of homosexuality, pair-bonding and adultery, harems, and sex differences in mating strategies.

Chapter 5 opens with a misleading treatment of genetic lineage in which Morris

states that reproduction is the only means to pass on our genetic inheritance. Is it possible that Morris, a zoologist, is unaware of kin selection?

Much of Chapter 5 is an abridged version of *Babywatching*, concentrating on the topics of birth, neonates' sensory abilities, and parent-infant bonding. The pedantic flavor of a parenting guidebook is retained here, but left behind when Morris extends his examination of human development beyond infancy. He does a good job in this later section of presenting many developmental highlights of the entire life span in just a few pages. Morris also discusses various ways humans refuse to accept death as final, including beliefs in an afterlife and cryonics. The chapter closes with a listing of traits common in very long-lived people.

The last chapter presents a biological and historical perspective on art. The presentation ranges from prehistoric cave paintings to cubism and surrealism, and from children's art to decorations of human bodies. Morris also reports on the artistic output of a captive male chimp. This output revealed the chimp's intrinsic motivation to paint, but also his very limited artistic ability and failure to attain pictorial representation. The chapter and book end with well-written passages tying man's highest processes--those involving play, curiosity and creativity--back to a past in which our ancestors evolved into bipedal cooperative hunters capable of symbolic representation.

This book has a number of admirable qualities. It is generously illustrated with full-color photos. Also, the book will help communicate the serious problems entailed by overcrowding and population growth. Keeping

in mind that this book is intended for a general audience largely unfamiliar with biological perspectives on human behavior, one may forgive Morris for many instances of simplification of complex or controversial issues. Similarly, his speculations on such matters as the significance of home interior colors can be taken as thought-provoking if not always believable.

Nonetheless, this book presents a misleading portrait of human behavior far too often to merit an enthusiastic recommendation. Even though written for the general public, it can be hoped that Morris will take more care to avoid neglecting important research results and plausible alternative theories in future books.

References

- Gould, S. J. (1977). *Ontogeny and Phylogeny*. Cambridge: Harvard University Press.
- Gould, S. J., & Lewontin, R. c. (1979). The spandrels of San Marco and the Panglossian programme: A critique of the adaptationist fallacy. *Proceedings of the Royal Society of London*, 250 : 281-288.
- Lamb, M. E. (1982). Early contact and maternal-infant bonding: One decade later. *Pediatrics*, 70 : 763-768.
- Morris, D. (1967). *The Naked Ape*. New York: McGraw-Hill.
- Morris, D. (1977). *Manwatching*. New York: H. N. Abrams.

Correction

The December 1995 *Bulletin* contained a review of David Rowe's *The Limits of Family Influence*. A statement on p. 154 to the effect that the minister might want to stop the marriage of two identical twins whose parents are themselves all divorced, given the presumably high risk of divorce in such unions. This remark was intended to be humorous, but was interpreted as revealing eugenics intentions by the reviewer. The editor apologizes for failing to detect this humorous intent.

The Neurotransmitter Revolution: Serotonin, Social Behavior and the Law

Edited by Roger D. Masters and Michael T. McGuire. Southern Illinois University Press, P.O. Box 3697, Carbondale, IL 62902-3697, 1994.

Reviewed by Linda Mealey, Dept. of Psychology, St. John's University, Collegeville, MN 56321 USA.

This book consists of sixteen contributions organized into five parts. Part 1, the "Introduction", consists of an introductory essay by each of the editors, and a synopsis of the book by Roger Masters. Part 2, "Serotonin and Behavior," contains a very technical discussion of the neurochemistry of serotonin, a chapter relating serotonin to suicide, and four reprinted articles on the relation of serotonin to aggression, arson, and seasonal affective disorder. Part 3, "Factors Influencing Serotonin Function," comprises three chapters, each of which attempts to illustrate the complexity of the neurotransmitter-behavior link. Part 4, "The Challenge to Legal Concepts," presents two opposing views on the question of whether the "neurotransmitter revolution" of the book's title is indeed a revolution and if so, whether its discoveries are relevant to the legal system. Part 5, "Implications for Law and Policy," includes two chapters which have absolutely nothing to do with the rest of the book: one on how game theory might be used to analyze the strategies of lawyers, and one addressing the issue of whether the U.S. President should have a line-item veto. It also contains one very good but very short chapter, by David B. Wexler, which tries to delineate the questions and options raised by all the other contributors, and a closing chapter in which Masters presents his own conclusions and suggestions.

The hope of the editors was that this collection would initiate a dialogue among biologists, lawyers, and other interested parties on the subject of how to integrate the exponentially increasing knowledge of the brain into an established and conservative legal system. Unfortunately, in my view the volume will not achieve its intended goal for several (related) reasons.

The first problem is that the book is in essence a collection of contributions to a 1988 conference. Some of the contributions were written well before the conference took place.

Second, while the book is out-of-date with respect to the timing of the original conference, the conference itself was well ahead of its time. The sponsor (the Gruter Institute) and the conference organizers are to be congratulated for their foresight, but what this means in terms of the book is that there really is no clear theme or organization. It was a very good idea to begin a dialogue, but I do not think that the inchoate stages are necessarily worth printing. Future dialogue will be much more informed than what is presented here.

Third, because the book is cross-disciplinary, the editors chose to allow each contributor to use the style and technical format appropriate to his own (yes, all the contributors are male) field. The editor's preface gives a rationale for this choice (that readers from the different disciplines must start to familiarize themselves with the style, rules and traditions of the others), but I found it extremely difficult to switch back and forth between styles. Perhaps if we were further along in the dialogue, so that the gaps between disciplines were not so huge, this might have been an interesting--even wise--decision; but under the current circumstances, I think it would have been better if the editors had taken a stronger role in organizing and connecting the very disparate contributions.

Fourth, even after acknowledging the difficulty of, and making allowances for, the tentative, incipient nature of this endeavor, I still feel that the editors should have been more concerned with the actual content of the book. Three of the sixteen chapters simply do not relate to anything else in the book and should not have been included, and the technical level of most of the scientific papers is such that the editors speculate (p. 230) that most of the legal scholars and other non-scientists reading the book will skip them. If the goal of the book was to encourage dialogue between two extremely busy groups of people who rarely talk to one another, why make it so difficult?

Having read each contribution, I am still unsure that there really is an "urgent

problem" to be addressed (p. 227) and that the contributors (with the exception of the editors) truly want a dialogue. The main message coming from the biologists seemed to be that the chemistry of the brain is so complex that we can never really understand it, and that, therefore, lawyers cannot and should not attempt to integrate reports from biological science into law. (Perhaps this is just careful scientific conservatism, but I read it as defensiveness and a fear of being attacked by the self-assigned protectors of the concept of free will.) The main message coming from the lawyers (with one exception--the chapter on the medicalization of crime by C. Ray Jeffery) seemed to be that since the law uses different methods than science, and has its own traditions, it doesn't want or need science to inform its decision-making. Both groups seemed to agree that it would be "dangerous" to apply our knowledge of biology to law--a conclusion I found to be very disappointing.

What I learned from this book is that the gap between science and law really is as big as I had thought it was; the valiant effort of the conference organizers was doomed to fail. I am, however, fundamentally a pessimist. If there are readers of another ilk who have been inspired by this book, then I encourage them to speak up. Dialogue, after all, is what the editors hoped to encourage.

Race, Evolution, and Behavior: A Life History Perspective

By J. Philippe Rushton. Transaction Publishers, Rutgers University, New Brunswick, NJ 08903 USA, 1994, \$34.95 (hdbk.).

Reviewed by Frank Salter, Research Center for Human Ethology, Max Planck Institute, vorder-Tann-Str. 3-5, 82346 Andechs, Germany.

J. Philippe Rushton first came to my attention as the subject of a radio documentary, broadcast on the Australian Broadcasting Corporation's *Science Show* in 1989. The documentary, a rebroadcast of a Canadian production, ended with Rushton speaking at the 1989 AAAS meeting where he first presented his r-K theory of racial differences. His voice was overplayed by circus music. It will come as no news to readers of the *Bulletin*

that Rushton tends to raise passions, in this case to the extent of causing opponents to forgo their professional responsibilities and to adopt the tactics of propaganda. Such an emotionally charged set of ideas is a thorny object to review.

The book is a formal exposition of research and ideas Philippe Rushton has been developing for more than ten years. In that time he has been prodigious in developing and empirically refining his similarity theory and evolutionary theory of racial differences. The extensive bibliography contains 38 references with him as either sole or first author. This focused line of inquiry in the Galton tradition of psychology makes the book an invaluable annotated bibliography of data and analyses of individual and group differences as addressed in psychometrics, behavioural genetics, and physical anthropology.

In Rushton's approach, findings from these disciplines are plugged into sociobiological theory of the Wilson-Lumsden school, as opposed to the Richard Alexander school, which makes more extensive use of anthropology. The latter tradition is not favoured by Rushton (Alexander receives only two mentions compared with Wilson's 16 text citations, the latter often accompanied by quotations).

This research is less ethological than 'evolutionary psychological'. Ethologists typically pay more attention to cross-cultural universals than individual and group differences, and the latter themes predominate in the present case. Other ethological signature tunes are absent. To give an example, racial differences in size of genitalia, buttocks, and breasts are documented without any systematic treatment of the signalling functions of these organs. The propositional steps linking these to different group locations on an r-K dimension do not involve the causal "pull" of releasing stimuli but rest on the "push" of developmental hormones as part of life-history strategies.

Nevertheless, the book is relevant to that side of human ethology concerned with phylogeny and selective processes. The text sympathizes with those who see evolution as a living force shaping human nature and society. It will challenge those who believe evolution was important only in the distant past as a

force that created universal fixed dispositions in modern humans. For Rushton's theory is that in the relatively brief time since *Homo sapiens'* emergence from Africa, significant group differences have evolved. Of course, the non-scientific relevance of this book concerns ethnic conflict. This and other evolutionary contributions provide much-needed remedial information to counter the biological illiteracy of accepted sages on nationalism such as historian E. J. Hobsbawm (1990). I suspect that Rushton's lasting contribution to the momentous problem of inter-ethnic conflict will be his insistence that biology, and especially evolution, not be overlooked and, more to the point, that the distinction be maintained between social and genetic utility.

Criticisms of Rushton's ideas are largely discussed in Chapter 12, towards the end of the book. This has the advantage of allowing a systematic exposition of alternative views, but has the deleterious effect of separating them from contexts in which they would most effectively help readers to weigh the developing argument. The similarity theory set out in Chapter 4 would have been enlivened by inclusion of more critical responses from peers. This is not to deny that positioning critical discussion can be difficult, and Rushton seems to have opted for the legitimate approach of making his theory as clear as possible before exposing it to full critique. Chapter 12 goes to considerable length reporting and answering data and arguments contradictory of his theory.

To give an idea of the breadth of this volume, consider Chapter 5, which presents a necessarily spotted history of the race concept and of racism. The problem of classification is given a useful, succinct treatment. However, the history of this subject is so vast that a one-chapter survey is bound to be patchy. Rushton's solution is to open a succession of windows onto the topic by summarizing ideas on race advanced by Linnaean taxonomy, traditional Islamic ethnology, European colonialists, Enlightenment thinkers, and post-Darwinian theorists. The result is one of the most interesting chapters in the book, affording accessible summaries of thinkers such as Camper, Voltaire, Hume, Kant, Soemmering, Agassiz, Broca and others. In the present century Rushton offers accounts of major scientific dissenters, often with their data re-

analysed. The sheer scale of scholarship is impressive.

Arguments for racial differences in intelligence and other valued qualities such as "law abidingness" are bound to be abrasive and controversial. As Rushton notes, this tends to compromise scientific standards in race research (p.1). Such arguments can also be insulting in their own right. However, it strikes me as unreasonable to label this work "anthroporn" as did one critic (p.243), or as essentially matching "racist stereotypes" (p.236). *Race, Evolution, and Behavior* is written in succinct prose unadorned by rhetoric or apology. Furthermore, it emphasizes the large overlap between races on performance measures, and places the author's own racial group on the second rung of the "K-selected" ladder, hardly marks of white supremacist ideology.

This book is mandatory reading for scholars wishing to keep up to date with research and debates involving genetic similarity theory (for assortative mate and friend choice, and ethnic favouritism) and the evolutionary study of group differences.

Reference

Hobsbawm, E. J. (1990). *Nations and nationalism since 1780: programme, myth, reality*, Cambridge University Press, Cambridge.

Hormones, Sex, and Society: The Science of Physicology

By Helmuth Nyborg. Praeger Publishers, 88 Post Road West, P.O. Box 5007, Westport, CT 06881-5007, 1994, 256 pages; \$55.00.

Reviewed by Peter M. Frost. Département d'Anthropologie, Université Laval, Ste. Foy, Québec, G1K 7P4, Canada.

This book begins with a plea made by many others, from Ernst Haeckel to Daniel Dennett: The workings of the human mind should be understood as an unbroken chain of cause and effect from the simplest physical/chemical events to the most complex behaviours. The author makes this plea in

opposition to "mentalistic" views that see culture as having emergent properties, with no connection between thought processes and the biological organ they take place in.

To some extent, Nyborg is setting up a straw man. Few social scientists will deny the biological antecedents of culture, no more so than chemists will deny the existence of quarks. It is only for the purposes of their work that chemists treat protons, neutrons, and electrons as indivisible units. Similarly, most physicists prefer Newtonian to Einsteinian physics, the former providing an acceptable, and simpler, approximation to reality.

But why should culture be emergent? The human mind's algorithms contain both "hardwired" and "softwired" portions. The former have their information encoded in the genome. The latter must encode their information during development, i.e., through pre-natal conditioning, imprinting, learning by trial and error, imitation of conspecifics, and language-mediated instruction. In humans, encoding is greatly enhanced by language, which makes possible not only transmission but also storage of information in oral or written tradition for later generations. This is culture. Although it evolves within biological constraints and is subject to analogous Darwinian processes, culture differs from biological systems in its potentially faster rate of change. Hence, cultural evolution is different from biological evolution. This is what social scientists mean when they say culture has emergent properties.

My (lengthy) second criticism focuses on Nyborg's linking of mentalism to qualitative research methods: "The choice is between (1) the quantitative approach preferred by most natural scientists, (2) the less stringent qualitative approach of much of psychology, sociology, and cultural anthropology, or (3) the rational/speculative/formalistic approaches of philosophy. If mind is the brain, a natural science approach probably would suffice. If mind, on the other hand, is a nonphysical phenomenon, application of the methods of physics would be inappropriate" (p. 4).

The quantitative approach was developed for phenomena that could be studied repeatedly using large sample sizes under controlled homogenous conditions. Not all

phenomena meet these criteria, not even in the natural sciences, e.g., case studies, observations of uncommon events or objects. Read the "discussion" section at the end of any journal article and you will see a lot of non-quantitative comparisons and lumping of disparate research findings. Yes, the quantitative approach is less frequent in the social sciences than in the natural sciences. This is largely because of the ethical and practical problems inherent in examination of human populations under controlled conditions. So social scientists have to make do with conditions produced by the vagaries of climate, time, and migration. Moreover, history does not repeat itself and data that have survived the passage of time are usually fragmentary and disparate. It would be nice to rerun the Middle Ages over and over again with different input parameters and using the latest observational techniques. Unfortunately, we cannot. We have to play with the cards we're dealt.

It is largely because of these constraints that social scientists have to accept "soft" qualitative data. It is not because of a pro-mentalistic bias. In any case, many sociologists and psychologists conduct quantitative analyses of behavior with no reference at all to the human mind as a biological organ. Conversely, qualitative analyses are used in biology, especially in identification of new species and other exploratory work.

Both approaches have their place. "Soft" qualitative methods push forward the frontline of research into new territory. "Hard" quantitative methods make up the second wave, consolidating captured positions and mopping up pockets of resistance. Emphasizing the second approach to the detriment of the first tends to make research more conservative: Preference is given to phenomena whose parameters have already been sketched out; funding is provided to established research programs, which usually bow to the pressures of peer review and political correctness.

On another note, Nyborg sees Darwinian evolution as a theoretical framework for both biological and non-biological systems: "the classical Darwinian model of evolution is a special case of a more general principle of survival of the economically most efficient and stable physico-chemical system" (p. 53). "Evolution takes

place at any and all levels from subatomic particles, to molecules, cells, organs, and organisms, to interacting systems, and again to the survival and death of stars, solar systems, and even the universe" (p. 25). Darwinian selection certainly applies to these. Evolution, however, also requires replication of the selected entities and enough variability in the next "generation" to make another round of selection possible. Unless the process of selection - replication - selection is sustained, there can be no evolution.

Nyborg states "there is no proof whatsoever for selection for thoughts, ideas, hopes, fears, or desperation. They are inferred hypothetical constructs, not attributive objects, and it is entirely impossible to justify their evolutionary history by known scientific means" (p. 26). Ideas can replicate themselves, their copies display variability, and the survival of these is non-random. All the conditions are in place for evolution to occur. More importantly, ideas have a history and their trajectory through time is often well documented. We may be ignorant of their actual physical/chemical configuration in the human brain, but this does not preclude study of how they evolve over time.

In the rest of his book, Nyborg fleshes out the chain of cause and effect behind much of human behavior, particularly in the area of behavioral endocrinology. Here, he is on firmer ground and his expertise is more than evident. I have few criticisms, although I would have appreciated some mention of the research by Herdt (1988) on pseudohermaphrodites, by Feinman and Gill (1978) on sex differences in the evaluation of physical characteristics, and of Surbey (1990) on the effects of family composition on timing of sexual maturation.

References

- Feinman, S. and G.W. Gill (1978). Sex differences in physical attractiveness preferences. *Journal of Social Psychology*, 105, 43-52.
- Herdt, G.H. (1988). The Sambia "Turnim-ma: Sociocultural and clinical aspects of gender formation in male pseudohermaphrodites with 5-alpha-reductase deficiency in Papua New Guinea. *Archives of Sexual Behavior*, 17, 33-56.

Surbey, M. (1990). Family composition, stress, and the timing of human menarche. In T.E. Ziegler et F.B. Bercovitch (Eds.) (pp. 11-32), *Socioendocrinology of Primate Reproduction*. New York: Wiley Liss.

Behavior and Evolution

Edited by P.J.B. Slater and T.R. Halliday. Cambridge University Press, 40 W. 20th St., New York, NY 10011-4211, 1994, \$59.95 (hdbk.), \$24.95 (ppr.).

Reviewed by William Abruzzi, 70 Bobwhite Hill, Leicester, NC 28748 USA.

The Slater and Halliday volume addresses behavior genetics, the evolution of intelligence, kinship, and altruism as they affect animal behavior. The book is a scholarly yet fascinating description of the principles by which behavior is affected by evolutionary forces and, in turn, feeds back to affect selection pressures. It may be somewhat technical for the average reader, but the editors are careful to note the limited readership for whom the book is intended.

The first chapter, on genotype-environment interactions, demonstrates how behavioral differences among genotypes often depend on the environment in which they are measured. This fact leads the potential researcher to realize that the effects of genes on quantitative traits should be evaluated in a range of environments if findings are to be extrapolated to natural conditions. Similarly worthwhile are the discussions on gene exchange and barriers to gene exchange. Comparative studies of displays are used to demonstrate convergence of behavior within species, divergence between species, and speciation itself. Lay readers will appreciate the lucid explanation of the difference between homology and analogy.

While Hoffman (chapter 2) does a masterful job of reviewing the literature on behavior genetics and tabulating data demonstrating the genetic basis for individual differences, it no longer seems necessary to prove a genetic component to behavioral variation; it seems more important to understand the consequences of behavioral variation than simply to study the functioning of genes which underlie variation. Since

Hoffman is concerned primarily with the relevance of behavior genetics to evolutionary processes, short shrift is given to humans; instead, he illustrates the fact that closely related species may have genetic differences which are responsible for their sometimes widely divergent behaviors. Evidence for the interrelationship between genetics and the environment in development and evolution is provided by descriptions of butterfly oviposition and of shell banding patterns.

While I was fascinated by the section on behavior and speciation (chapter 3), I am too far removed from the field to assess its merits. Butlin and Ritchie discuss the effects of behavior on the maintenance of species boundaries, concluding that evolutionary processes result in changes in behavior patterns that are responsible for barriers to gene exchange, and that these, in turn, permit the origin of new species. The section on genetic isolation resulting from differences in mating signals describes the problem of the spread of genetic mutations, reinforcement models of speciation, and divergence in mating signal systems. The conclusion here is that populations adapt their signaling to the habitat, with resultant divergence in mating signal properties and mating preferences. The interrelationships of sexual selection and parasite/predator co-evolution are also addressed, using examples from frogs, spiders, and *Drosophila*.

In chapter 4, Gittleman and Decker review different phylogenetic classification techniques--from cladistics to Ridley's taxa counting to Maddison's test for directionality. It is a very scholarly chapter, excellent for serious graduate and post-doctoral students. The authors also remind us that we should keep in mind the value of comparative studies, independent contrasts, and autoregressive methods.

Chapter 5, by I.F. Harvey, provides an excellent summary of variation in behavioral strategies, including a discussion of optimal foraging models, their history and their criticisms. The greatest contribution of this chapter, though, is the clear and logical depiction of the relationship between behavioral strategy and fitness (as illustrated by game theory models of evolutionarily stable strategies) and of frequency-dependent fitness.

Harvey covers the classic hawk-dove model, and then models in which more than two strategies are employed, models in which investment varies along a continuous scale, and models in which the contestants are unequal in resource holding power. One might not expect that reports of the mating patterns and strategies of dragonflies or hedge sparrows would be particularly gripping—but they are!

In keeping with the game theoretic perspective, Harvey presents mating systems as the result of conflicts "between individuals striving to maximize their reproductive success" (p. 149). His fascinating discussion of monogamy, polygyny (dominance, harem-defense, lek, resource defense, and parental care types), polyandry (prostitution, dominance, and resource defense types), parental care and investment, and sexual roles is of great relevance to the study of human behavior as well as of animals.

Halliday (chapter 6) describes various forms of asexual and sexual reproduction, providing insights into the development and maintenance of sexual reproduction in populations containing both sexual and asexual forms. The advantages of the capacity to develop genetically varied progeny, especially where parasites and disease impose strong selection pressures, are outlined. In a section on sequential hermaphrodites (animals that can change their sex), Halliday discusses a variety of examples of facultative changes in reproductive strategy in response to environmental change. Halliday's discussion of mating systems and sexual selection is perfect: brief, objective, and clear.

Chapter 7 provides a summary of kinship and altruism and the levels at which selection may operate. Using examples in squirrels, birds, mice, and other animals, Slater explains the advantages of recognizing kin and the methods of doing so. The section on measuring relatedness leads naturally to a discussion of DNA analysis. Lastly, discussion of cooperation among non-kin (reciprocal altruism and Axelrod's tit-for-tat) is also included.

In Chapter 8 Byrne performs a useful service by summarizing current insights on the evolution of intelligence. I was particularly impressed by his outline (on p. 223) of the

measures necessary to indicate that the development of intelligence is the result of selection pressure. Byrne's discussion of the definition of intelligence, its function, and the degree to which is controlled by genetic constraints is formidable. His conclusion is that, with the exception of great apes and dolphins, most animals do not possess the flexibility required for social learning to take

Editorial Staff

Editor

Glenn Weisfeld
Dept. of Psychology
Wayne State University
Detroit, MI 48202 USA
tel. 1-313-577-2835, -2801, -8596
fax 1-3132-577-7636

Current Literature Editor

Robert M. Adams
Dept. of Psychology
Eastern Kentucky University
Richmond, KY 40475-0937 USA

Chief Book Review Editor

Linda Mealey
Dept. of Psychology
Queensland University
Brisbane 4072, Australia
fax 61-7-3365-4466
e-mail lmealey@psy.uq.edu.au.

French Book Review Editor

Peter LaFrenière
Université de Montréal
C. P. 6128, succursale A
Montréal, Québec H3C 3J7, Canada

German Book Review Editor

Montevideo, Uruguay
Karl Grammer
Ludwig Boltzmann Institute for
Urban Ethology/Human Biology
Althanstrasse 14
A-1090 Vienna, Austria

Spanish & Portuguese Book Review Editor

Eduardo Gudynas
c/o ASMER Regional Office
Casilla Correo 13125
Montevideo, Uruguay

place. Byrne also covers the roles of language food-finding, and social skill development in the phylogeny of cognition. Read this chapter for a rare elucidation of the evolution of intelligence, perspective-taking, social learning, and theory of mind.

The final chapter in the book (by P.C. Lee) begins with an illuminating description of the costs and benefits of social behavior. Lee's definition of social systems is based on relationships, not simple interactions: when a society embodies stable social units, Lee argues, individual relationships define its internal structure. From Hinde, Lee derives the concept that social structure is built through individual actions as they occur in cooperative and competitive relationships with others. The differences between individuals--in age, sex, experience, strength, motivation, and social supports--all affect the outcomes of interactions. These outcomes in turn influence social structure. Systems of dominance are discussed, as is, once again, parental investment and the necessary prerequisites for the development and maintenance of complex, long-term relationships in which individuals cooperate in infant care. According to Lee, the social structures which make this possible are monogamy and shared-care systems.

This chapter ends a valuable book with three paragraphs which should be required reading for all professionals in evolutionary ecology and all those who hope to enter this field: A reductionist model for sociality is proclaimed; the costs and benefits of that sociality are summarized; social options and the factors that provide them are delineated; and the emphasis on individual interactions as essential in determining sociality are reaffirmed.

<p>ISHE ELECTRONIC BULLETIN BOARD: On the World Wide Web at http://evolution.humb.univie.ac.at. Operated by Karl Grammer, e-mail karl/grammer@univie.ac.at.</p>

ANNOUNCEMENTS

ASCAP Meeting

The annual meeting of the Across-Species Comparison and Psychiatry society will take place on Sunday, 5 May 1996 in New York City. The President of ASCAP, Leon Sloman, made initial arrangements. The meeting is just prior to the American Psychiatric Association meeting there, which begins the evening of the 5th. Leon's Presidential address will be on "Mutual compatibility of attachment and agonistic models of depression." John Price will speak on "Resident-intruder animal model of depression," Dan Wilson on "Entrapment and shame processes in depression and mania," Kent Bailey on "Four factor model: Depression and other inhibition states," Russell Gardner on "Sociophysiology as the basic science of sociophysiological medicine," and Aaron T. Beck on "Depression, anger, hostility, and evolution." For further information, contact Russell Gardner, Jr., tel. 1-409-772-7029, fax 1-409-772-6771, e-mail rgardner@UTMB.edu.

Violence and Human Coexistence

The Third World Congress of the International Association for Scientific Exchange on Violence and Human Coexistence will take place at University College, Dublin, Ireland 17-21 August 1996. The theme of the congress will be "Violence and the future of society." One of the suggested section themes is "Darwinian approaches to the future of society." For information contact Prof. Don Bennett, Secretariat of the Third World Congress of ASEVICO, University College Dublin, Dublin 4, Ireland.

Animal Behaviour

Animal Behaviour is published monthly by Academic Press for the Association for the Study of Animal Behaviour and the Animal Behaviour Society. (ISHE held many of its early meetings jointly with ABS.) Founded in 1952, *Animal Behaviour* publishes original research articles and critical reviews of general behavior interest, on all aspects of animal

behavior as well as reviews and notices of books, journals, videos, and software. There is a commentary section for discussion of theoretical psychology, behavioral physiology, sensory behavior, and navigation and migration. **Only institutional subscriptions are sold for this journal; therefore the rate is £365.** For more information or a free sample copy, contact Journals Marketing Department, Academic Press, 24-28 Oval Road, London NW1 7DX, U.K., tel. 44-171-482-2893, fax 44-171-267-0362, e-mail COPIES@apuk.co.uk; or Academic Press Inc., 525 B Street, Suite 1900, San Diego, CA 92101 USA, tel. 1-800-894-3434, fax 1-800-699-6742, e-mail apsubs@acad.com.

Ethological Youth Meeting

The Fourth International Ethological Youth Meeting will take place 21-31 July 1996 in Jákotpuszta, Hungary. It will be jointly sponsored by the Hungarian Biological Society, Gödöllő University of Agricultural Sciences, and the Hungarian Ethological Society (whose President is ISHE member Vilmos Csányi). The meeting is open to young and old alike. Topics will include the ethology of wild, domesticated, and captive animals; ethical issues; animal protection; behavior ecology; and human ethology. Registration deadline is 30 May. Official languages will be German and English. A variety of sports activities, excursions, and social events are planned. Registration fee is US\$50, guest houses in the village of Bercel is \$5-12/day (single, double, triple, quadruple), tourist accommodation at Jákotpuszta farm is \$5-10/day (single, etc.), camping with one's own tent is free, meals are \$10/day. Fees should be transferred to this account: "ETO" 1996, Budapest Bank Rt., 2101 Gödöllő, Szabadság tér, Switch code: Buda HU HB, Account No. 10103836-07976439-0000007, Dr. Keszthelyi Tibor. Indicate preferred language, field/topic of ethology of interest, institution, address, etc. For further information contact Dr. Tibor at Gödöllő University of Agricultural Sciences, Faculty of Agricultural Engineering, Páter Károly u. 1, H-2103 Gödöllő, Hungary, tel. 36-28-310-200, fax 36-28-310-804, e-mail ksap@eng.gau.hu. One-page abstracts of papers, posters, and videotapes and films should be sent to Dr. Tibor. Posters must be one meter square.

Officers of the Society

President

William R. Charlesworth
Institute of Child Development
51 East River Road
University of Minnesota
Minneapolis, MN 55455 USA
tel. 1-612-624-6599
fax 1-612-624-6373

Vice-President/ President-Elect

Charles B. Crawford
Department of Psychology
Simon Fraser University
Burnaby, B. C. V5A 1S6 Canada
tel. 1-604-291-3660
fax 1-604-291-3427
E-mail internet usercbc2@cc.sfu.ca

Vice-President for Information

Glenn Weisfeld

Secretary

Karl Grammer
Ludwig Boltzmann Institute for
Urban Ethology/Human Biology
Althanstrasse 14
A-1090 Vienna, Austria
tel. 43-1-31-336-1253
fax 43-1-31-336-788
Email <http://evolution.humb.univie.ac.at> (World Wide Web)

Treasurer

Barbara F. Fuller
School of Nursing
University of Colorado
4200 E. Ninth Ave.
Denver, CO 80262 USA
tel. 1-303-270-8929
fax 1-303-270-8660
E-mail barbara.fuller@uchsc.edu

Membership Chair

Nancy L. Segal
Department of Psychology
California State University
Fullerton, CA 92634 USA
tel. 1-714-773-2142
fax 1-714-449-7134
E-mail nsegal@fullerton.edu.

HANS: Human Affairs and Natural Selection Computer Program

This read-only program, operating under DOS, allows rapid access to over 200 evolutionary explanations of human behavior and appropriate references. Developed by Frans Roes and Marco Bleeker, the program costs 65 Dutch guilders (approx. US\$42). Pay by international postal money order to the Dutch postal giro No. 5274110 or by VISA or Euro/Mastercard. Write to Dr. V. Falger, Dept. of International Relations, University of Utrecht, Janskerkhof 3, 3512 BK Utrecht, The Netherlands, fax 31-30-537067.

CURRENT LITERATURE

March 1996

Interested in possibly reviewing one of the books below or some other suitable book? Please contact the appropriate book review editor (see Editorial Staff box).

Arnhart, L. (1995). Nature and culture in feminist biology. *Politics and the Life Sciences*, 14, 163-164. (No. Illinois Univ., Dept. Polit. Sci., DeKalb, IL, 60115, USA).

Avital, E., & Jablonka, E. (1996). Adoption, memes and the Oedipus complex: A reply to Hansen. *Animal Behaviour*, 51, 476-477. (Cohn Institute for the History & Philosophy of Science, Tel-Aviv University, Tel-Aviv 69978, Israel).

Barber, N. (1995). The evolutionary psychology of physical attractiveness: Sexual selection and human morphology. *Ethology & Sociobiology*, 16, 395-424. (Birmingham So. Coll., Box 549037, Birmingham, AL., 35254, USA).

Bensing, J.M., Kerssens, J.J., & van der Pasch, M. (1995). Patient-directed gaze as a tool for discovering and handling psychosocial problems in general practice. *Journal of Nonverbal Behavior*, 19, 223-242. (Netherlands Institute of Primary Health Care (NIVEL), P.O. Box 1568, 3500 BN, Utrecht, the Netherlands).

Birke, I. (1995). Sociobiology, ideology, and feminism. *Politics & the Life Sciences*, 14, 165-166. (Univ. Warwick, Ctr. Study Women & Gender, Coventry CV4 7AL, W. Midlands, England).

Burley, N.T. (1995). On unnatural dichotomies, reproductive strategies, and the naturalness of reproduction. *Politics and the Life Sciences*, 14, 167-168. (Univ. Calif. Irvine, Irvine, CA., 92717, USA).

Calafate, L. C. (1995). Etologia e educação: uma perspectiva ontogenética do comportamento de ensino. *O Professor*, 47, 21-28. (Insituto de Botânica Dr. Gonçalo Sampaio, Universidade do Porto, R. do Campo Alegre, 1191, 4100 Porto, Portugal)

Campbell, B. C. (1995). *Human Ecology* (2nd ed.). Aldine de Gruyter, 200 Saw Mill River Rd., Hawthorne, NY 10532 USA, \$34.95 (hdbk.), \$19.95 (ppr.). Needs Reviewer.

Campbell, B.C. & Leslie, P.W. (1995). Reproductive ecology of human males. In A.T. Steegmann, *Yearbook of Physical Anthropology* (pp. 1-26). New York: Wiley-Liss, Inc. (Northwestern Univ., Dept. Anthropol., Evanston, IL, 60208, USA).

Casimir, M.J., & Rao, A. (1995). Prestige, possessions, and progeny: Cultural goals and reproductive success among the Bakkarwal. *Human Nature*, 6, 241-272. (Univ. Cologne, Inst. Volkerkunde, Albertus Magnus Pl. D-50923 Cologne, Germany)

Chapais, B. (1995). Alliances as a means of competition in primates: Evolutionary, developmental, and cognitive aspects. In A.T. Steegmann, *Yearbook of Physical Anthropology* (pp. 115-136). New York: Wiley-Liss, Inc. (Univ. Montréal, Dept. Anthropol., Montréal, PQ H3C J7, Canada).

- Charlesworth, W.R. (1992). Darwin and developmental psychology: Past and present. *Developmental Psychology*, 28, 5-16. (P.O. Box 18, Stockholm, WI, 54769 USA). (also in R.D. Parke, P.A. Ornstein, J.J. Rieser, & C. Zahn-Waxler (Eds.), *A century of developmental psychology*. Washington, D.C., American Psychological Association, 1994, pp. 77-102).
- Charlesworth, W.R. (1994). Evolutionary theory: Ethological and sociobiological aspects, Weinert, (Eds.) *International encyclopedia of education* (2nd ed.), p. 2167-2171. (see supra).
- Charlesworth, W.R. (1995). An evolutionary approach to cognition and learning. In C. Nelson (Ed.), *Basic and applied perspectives on learning, cognition, and development: The Minnesota symposium on child psychology*, 28, 175-217. (see supra).
- Chisholm, J.S. (1995). Sociobiology, feminism, and morality. *Politics & the Life Sciences*, 14, 169-170. (Univ. Western Australia, Dept. Anat., & Human Biol., Perth, WA, 6907, Australia).
- Coe, K., & Steadman, L.B. (1995). The human breast and the ancestral reproductive cycle: A preliminary inquiry into breast cancer etiology. *Human Nature*, 6, 197-220. (Arizona State Univ., Hispan. Res. Ctr., Tempe, AZ, 85287, USA).
- Cowlshaw, G., & O'Connell, S.M. (1996). Male-male competition, paternity certainty and copulation calls in female baboons. *Animal Behaviour*, 51, 235-238. (Department of Anthropology, Univ. College London, Gower Street, London WC1E 6BT, U.K.)
- Custance, D.M., Whiten, A., & Bard, K.A. (1995). Can young chimpanzees (*Pan troglodytes*) imitate arbitrary actions? Hayes & Hayes (1952) revisited. *Behaviour*, 132, 837-860. (Univ. St. Andrews, Sch. Psychol., Psychol. Lab, Scottish Primate Res. Grp., St. Andrews KY16 9JU, Fife, Scotland).
- deCatanzaro, D. (1995). Reproductive status, family interactions, and suicidal ideation: Surveys of the general public and high-risk groups. *Ethology and Sociobiology*, 16, 385-394. (McMaster Univ., Dept. Psychol., 1280 Main St., W. Hamilton, ON L8S 4K1, Canada).
- de Vries, Han (1995). An improved test of linearity in dominance hierarchies containing unknown or tied relationships. *Animal Behaviour*, 50, 1375-1389. (Ethol. & Socio-econ., Group, Utrecht Univ., Postbus 80.086, 3508 TB Utrecht, The Netherlands).
- Dienskie, H., Hopkins, B., & Reid, A.K. (1995). Lateralisation of infant holding in chimpanzees: New data do not confirm previous findings. *Behaviour*, 132, 801. (Schelpenkade 35, 2313 ZW Leiden, Netherlands).
- Dunbar, R.I.M., & Spoor, M. (1995). Social networks, support cliques, and kinship. *Human Nature*, 6, 273. (Univ. Liverpool, Dept. Psychol., POB 147, Liverpool L69 3BX, Merseyside, England).
- Eibl-Eibesfeldt, I. (1996). *Love and Hate: The natural history of behavior patterns*. Aldine de Gruyter, 200 Saw Mill River Rd., Hawthorne, NY 10532 USA, \$21.95 (ppr.), orig. published in 1972.
- Ellis, L. (1995). Dominance and reproductive success among nonhuman animals: A cross-species comparison. *Ethology and Sociobiology*, 16, 257-334. (Minot State Univ., Div. Social sci., Minot, ND, 58707, USA).
- Fairbanks, L.A., & McGuire, M.T. (1995). Maternal condition and the quality of maternal care in vervet monkeys. *Behaviour*, 132, 733-754. (Univ. Calif. Los Angeles, Dept. Psychiat. & Biobehav. Sci., Los Angeles, CA., 90024, USA).
- Fausto-Sterling, A. (1995). Attacking feminism is no substitute for good scholarship. *Politics and the Life Sciences*, 14, 171-173. (Brown Univ., Div. Biol., & Med., Providence, RI, 02912, USA).

- Fernandez-Dols, J.M., & Ruiz-Belda, M.A. (1995). Are smiles a sign of happiness? Gold medal winners at the Olympic games. *Journal of Personality and Social Psychology*, 69, 1113-1119. (Univ. Autonoma Madrid, Fac. Psicol., E-28049 Madrid, Spain).
- Field, T. (1996). Attachment and separation in young children. *Annual Review of Psychology*, 47, 541-561. Finch Research Institute, University of Miami School of Medicine, P. O. Box 016820, Miami, FL 33101 USA.
- Fitch, W.T., & Hauser, M.D. (1995). Vocal production in nonhuman primates: Acoustics, physiology, and functional constraints on "honest" advertisement. *Journal of Primatology*, 37, 191-220. (HAUSER, M.D., Harvard Univ., Dept. Anthropol., Divin Ave., Cambridge, MA., 02138, USA).
- Fujita, K., Watanabe, K. (1995). Visual preference for closely related species by Sulawesi macaques. *American Journal of Primatology*, 37, 253-262. (Kyoto Univ., Inst. Primate Res., Dept. Behav. & Brain Sci., Inuyama, Aichi 484, Japan).
- Geary, D.C., Rumsey, M., Bow-Thomas, C.C., & Hoard, M.K. (1995). Sexual jealousy as a facultative trait: Evidence from the pattern of sex differences in adults from China and the United States. *Ethology and Sociobiology*, 16, 349-354. (Univ. Missouri, 210 McAlester Hall, Columbia, MO 65211, USA).
- Gowaty, P.A. (1995). False criticisms of sociobiology and behavioral ecology: Genetic determinism, untestability, and inappropriate comparisons. *Politics and the Life Sciences*, 14, 180-181. (Univ. Georgia, Inst. Ecol., 711 Biol. Sci., Bldg., Athens, GA., 30602, USA).
- Guth, W. (1995). An evolutionary approach to explaining cooperative behavior by reciprocal incentives. *International Journal of Game Theory*, 24, 323-344. (Humboldt Univ. Berlin, Spandauerstr. 1, D-10178 Berlin, Germany).
- Hamer, D., & Copeland, P. (1994). *The Science of Desire: The search for the gay gene and the biology of behavior*. Simon & Schuster, 200 Old Tappan Rd., Tappan, NJ 07675 USA, \$13 (ppr.).
- Haugschnable, G. (1992). Daytime and nighttime enuresis: A functional disorder and its ethological decoding. *Behaviour*, 232-261. (Univ. Frankfurt, Gustav Emden Zentrum Biol. Chem., Inst. Biol 1, Res. Grp. Prof. Dr. B. Hassenstein, W-6100 Frankfurt 70, Germany).
- Hansen, T.F. (1996). Does adoption make evolutionary sense? *Animal Behaviour*, 51, 474-475. (Dept. of Biology, Univ. of Oregon, Eugene, OR 97403, USA).
- Henzi, S.P. (1996). Copulation calls and paternity in chacma baboons. *Animal Behaviour*, 51, 233-234. (Behavioural Ecology Research Group, University of Natal, King George V Avenue, Durban 4001, South Africa).
- Heyes, C.M. (1995). Self-recognition in primates: Further reflections create a hall of mirrors. *Animal Behaviour*, 50, 1533-1542. (Dept. of Psychology, Univ. College London, Gower Street, London, WC1E 6BT, U.K.).
- Heyes, C.M. (1996). Self-recognition in primates: Irreverence, irrelevance and irony. *Animal Behaviour*, 51, 470-473. (Dept. of Psych., Univ. College London, Gower Street, London WC1E 6BT, U.K.).
- Hockings, P. (Ed.) (1995). *Principles of Visual Anthropology (2nd ed.)*. Aldine de Gruyter, 200 Saw Mill River Rd., Hawthorne, NY 10532 USA, \$59.95 (hdbk.), \$29.95 (ppr.).
- Kaplan, H.S., Lancaster, J.B., Bock, J.A., & Johnson, S.E. (1995). Does observed fertility maximize fitness among New Mexican men? A test of an optimality model and a new theory of parental investment in the embodied capital of offspring. *Human Nature*, 6, 325-360. (Univ. New Mexico, Dept. Anthropol., Albuquerque, NM, 87131, USA).
- Karmiloff-Smith, A. (1995). *Beyond Modularity: A developmental perspective on cognitive science*. MIT Press, 55 Hayward St., Cambridge, MA 02142 USA, \$12.50 (ppr.), orig. published 1992.
- Kinzey, W. G. (Ed.) (1996). *New World Primates: Ecology, evolution, and behavior*. Aldine de Gruyter, 200 Saw Mill River Rd., Hawthorne, NY 01532 USA, \$49.95 (hdbk.), \$24.95 (ppr.).

- Klindworth, H., & Voland, E. (1995). How did the Krummhorn elite males achieve above-average reproductive success? *Human Nature*, 6, 221-240. (Voland, E. Univ. Giessen, Zentrum Philosophie & Grundlagen Wissensch, Otto Behagelstr. 10, C-2, D-35394 Giessen, Germany).
- Kuester, J. & Paul, A. (1992). Influence of male competition and female mate choice on male mating success in Barbary Macaques (*Macaca sylvanus*). *Behaviour*, 192-217. (Univ. Gottingen, Inst. Anthropol., W-3400 Gottingen, Germany).
- Kummer, H. (1995). *In Quest of the Sacred Baboon*. Princeton Univ. Press, 1445 Lower Ferry Rd., Ewing, NJ 08618 USA, \$29.95 (hdbk.).
- Langton, S.D., Collett, D., & Sibly, R.M. (1995). Splitting behaviour into bouts: A maximum likelihood approach. *Behaviour*, 132, 781-800. (Cent. Sci. Lab, Tangely Pl., Surrey GU3 3LQ, England).
- Ledgerwood, J.L. (1995). Khmer kinship: The matriline matriarchy myth. *Journal of Anthropological Research*, 51, 247-262. (East West Ctr., Program Cultural Studies, 1777 East West Rd., Honolulu, HI, 96848, USA).
- Lepper, H.S., Martin, L. R., & DiMatteo, M. R. (1995). A model of nonverbal exchange in physician-patient expectations for patient involvement. *Journal of Nonverbal Behavior*, 19, 207-222. (Dept. Of Psych., Univ. Of California, Riverside, CA, 92521, USA).
- Liesen, L.T. (1995). Feminism and the politics of reproductive strategies. *Politics and the Life Sciences*, 14, 145-162. (Loyola Univ., Chicago, IL, 60611, USA).
- Liesen, L.T. (1995). Response to Beyond the dualism of nature and culture: Sex and the frontiers of human nature theory. *Politics and the Life Sciences*, 14, 194. (Loyola Univ., Chicago, IL, 60611, USA).
- Lucas, J.R., Creel, S.R., & Waser, P.M. (1996). How to measure inclusive fitness, revisited. *Animal Behaviour*, 51, 225-228. (Dept. of Biological Sciences, Purdue University, West Lafayette, IN 47907-1392, USA).
- Luey, B. (1996). *Handbook for Academic Authors (3rd ed.)*. Cambridge University Press, 110 Midland Ave., Port Chester, NY 10573 USA (hdbk.).
- MacCallum, R.C. & Mark, C.M. (1995). Distinguishing between moderator and quadratic effects in multiple regression. *Psychological Bulletin*, 118, 405-421. (Ohio State Univ., Dept. Psychol., 142 Townshend Hall, Columbus, OH, 43210, USA).
- Mackey, W.C., Day, R.D., (1995). A test of the man-child bond: The predictive potency of the teeter-totter effect. *Genetic, Social and General Psychology Monographs*, 121(4), 425-444. (1015 South Gear Ave., P.O. Drawer F., West Burlington, Iowa 52655-0605, USA)
- Maestripieri, D. (1995). Maternal encouragement in nonhuman primates and the question of animal teaching. *Human Nature*, 6, 361-379. (Emory Univ., Yerkes Reg. Primate Res. Ctr., 2409 Taylor Lane, Lawrenceville, Ga., USA).
- Manson, J.H. (1995). Do female rhesus macaques choose novel males? *American Journal of Primatology*, 37, 285-296. (Univ. Calif. Los Angeles, Dept. Anthropol., 405 Hilgard Ave., Los Angeles, CA, 90095, USA).
- Marks, J. (1995). *Human Biodiversity: Genes, race, and history*. Aldine de Gruyter, 200 Saw Mill River Rd., Hawthorne, NY 10532 USA, \$46.95 (hdbk.), \$23.95 (ppr.).
- Mealey, L. (1995). The sociobiology of sociopathy: An integrated evolutionary model. (With open peer commentary). *Behavioral and Brain Sciences*, 18, 523-541. (Coll. St. Benedict, Dept. Psychol., St. Joseph, MN, 56374, USA).
- Michel, G. F., & Moore, C. L. (1995). *Developmental Psychobiology: An interdisciplinary science*. MIT Press, 55 Hayward St., Cambridge, MA 02142 USA, \$55 (hdbk.).
- Mitchell, R.W. (1996). Self-recognition, methodology and explanation: A comment on Heyes (1994). *Animal Behaviour*, 51, 467-469. (Dept. of Psych., Eastern Kentucky University, Richmond, KY, 40475, USA).

Morris, P.H., Reddy, V., & Bunting, R.C. (1995). The survival of the cutest: Who's responsible for the evolution of the teddy bear? *Animal Behaviour*, 50, 1697-1700. (Dept. of Psychology, Univ. of Portsmouth, Portsmouth PO1 2ER, U.K.)

Nakamichi, M., Itoigawa, N., Imakawa, S., & Machida, S. (1995). Dominance relations among adult females in a free-ranging group of Japanese monkeys at Katsuyama. *American Journal of Primatology*, 37, 241. (Osaka Univ., Fac. Human Sci., Dept. Ethol., Suita, Osaka, 565, Japan.)

Nielsen, F. (1995). Feminism and selfish genes. *Politics and the Life Sciences*, 14, 182-184. (Univ. N. Carolina, CB 3210, Hamilton Hall, Chapel Hill, NC, 27599, USA).

Owren, M.J., Dieter, J.A., Seyfarth, R.M., & Cheney, D.L. (1992). Food calls produced by adult female rhesus (*Macaca mulatta*) and Japanese (*M. Fuscata*) Macaques, their normally-raised offspring, and offspring cross-fostered between species. *Behaviour*, 129, 218-232. (Univ. Penn., Dept. Psychol., Philadelphia, PA 19104, USA).

Parmigiani, S., & Saal, F. S. vom (1994). *Infanticide and Parental Care*. Switzerland: Harwood Academic Publishers.

Paul, A., Juester, J., & Arnemann, J. (1996). The sociobiology of male-infant interactions in Barbary macaques, *Macaca sylvanus*, *Animal Behaviour*, 51, 155-170. (Institut für Anthropologie, Universität Göttingen, Bürgerstraße 50, D-37073 Göttingen, Germany.)

Peccei, J.S. (1995). The origin and evolution of menopause: The altriciality-lifespan hypothesis. *Ethology and Sociobiology*, 16, 425-450. (Univ. Calif. Los Angeles, Dept. Anthropol., 341 Haines Hall, 405 Hilgard Ave., Los Angeles, CA, 90024, USA).

Pontius, A. A. (1995). Neuro-developmental aspects of adolescence: commentary on Conference on Strengths and Potentials of Adolescence. *Bull. New York Academy of Medicine*, 72, 157-161. Massachusetts General Hospital, Dept. of Psychiatry (APS), Fruit St., Boston, MA 02114 USA.

Pontius, A.A. (1995). In similarity judgments hunter-gatherers prefer shapes over spatial relationships in contrast to literate groups. *Perceptual & Motor Skills*, 81, 1027-1041. (see supra).

Pontius, A. A. (1996). Forensic impact by psychotic episode in partial seizure, superimposed on schizophrenia: exemplified by "limbic psychotic trigger reaction." *Bull. American Acad. Psychiatry & Law*, 24, 1-10. (see supra).

Price, J.S. (1995). The Westermarch trap: A possible factor in the creation of Frankenstein. *Ethology & Sociobiology*, 16, 349-354. (Odintune Pl., Plumpton BN7 3AN, E. Sussex, England).

Prkachin, K.M., & Craig, K.D. (1995). Expressing pain: The communication and interpretation of facial pain signals. *Journal of Nonverbal Behavior*, 19, 191-206. (Psych. Prog., Univ. of Northern British Columbia, 3333 University Way, Prince George, B.C., Canada, V2N 4Z9).

Queller, D.C. (1996). The measurement and meaning of inclusive fitness. *Animal Behaviour*, 51, 229-232. (Dept. of Ecology and Evolutionary Biology, Rice University, 6100 Main St., Houston, TX 77251-1892, USA).

Rossi, A. (1995). A plea for less attention to monkeys and apes, and more to human biology and evolutionary psychology. *Politics and the Life Sciences*, 14, 185-187. (34 Stagecoach Rd., Amherst, MA, 01002, USA).

Ruse, M. (1993). *The Darwinian Paradigm: Essays on its history, philosophy and religious implications*. Routledge, 29 W. 35th St., New York, NY 10001 USA, \$17.95 (ppr.), orig. published 1989.

Salkever, S.G. (1995). Sociology and monotony: On the need for a polyphonic social science. *Politics & the Life Sciences*, 14, 188-189. (Bryn Mawr Coll., Bryn Mawr, PA., 19010, USA).

Sambrook, T.D., Whiten, A., & Strum, S.C. (1995). Priority of access and grooming patterns of females in a large and a small group of olive baboons. *Animal Behaviour*, 50, 1667-1682. (The Psychological Laboratory, Univ. of St. Andrews, St. Andrews, Fife KY16 9JU, U.K.)

Santangelo, A. (1995). *Brain Network and Cultural Shape*. La Pietra, Viale Giacomo Matteotti 489, 20099 Sesto San Giovanni, Milano, Italy (ppr.). *Needs Reviewer* (review copy received).

Savin-Williams, R. C., & Cohen, K. M. (1996). *The Lives of Lesbians, Gays, and Bisexuals: Children to adults*. Harcourt Brace & Co., 6277 Sea Harbor Dr., Orlando, FL 32887 USA (ppr.). *Needs Reviewer*.

Scheib, J.E. (1995). Primatism? Bugs, birds, and rodents are important too. *Politics and the Life Sciences*, 14, 190-191. (McMaster Univ., Hamilton, OH L8S 4KI, Canada).

Schmitt, A., & Atzwanger, K. (1995). Walking fast- ranking high: A sociobiological perspective on pace. *Ethology and Sociobiology*, 16, 451. (Univ. Vienna, Inst. Humanbiol., Ludwig Boltzmann Inst., Stadtethol., Althanstr. 14, A-1090 Vienna, Austria).

Singh, D. (1995). Female judgment of male attractiveness and desirability for relationships: Role of waist-to-hip ratio and financial status. *Journal of Personality and Social Psychology*, 69, 1089-1101. (Univ. Texas, Dept. Psychol., Mezes Hall 330, Austin, TX, 78712, USA).

Somit, A., Arwine, A., & Peterson, S. A. (1996). *Birth Order and Political Behavior*. University Press of America, Lanham, MD, USA.

Stamps, J.A. (1995). Sociobiology: Its evolution and intellectual descendants. *Politics and the Life Sciences*, 14, 191-193. (Univ. Calif. Davis, Evolut. & Ecol. Sect. Davis, CA, 95616, USA).

Stebbins, R.C., & Cohen, N. W. (1995). *A Natural History of Amphibians*. Princeton University Press, 1445 Lower Ferry Rd., Ewing, NJ 08618 USA, \$29.95 (hdbk.).

Sugiyama, Y. (1995). Drinking tools of wild chimpanzees at Bossou. *American Journal of Primatology*, 37, 263. (Kyoto Univ., Primate, Res. Inst., Inuyama, Aichi 484, Japan).

Tattersall, I. (1995). *The Last Neanderthal: The rise, success, and mysterious extinction of our closest human relatives*. Macmillan, 100 Front St., Box 500, Riverside, NJ 08075 USA, \$39.95 (hdbk.). *Needs Reviewer*.

Thornhill, R., Gangestad, S.W., & Comer, R. (1995). Human female orgasm and mate fluctuating asymmetry. *Animal Behaviour*, 50, 1601-1615. (Dept. of Biology, Univ. of New Mexico, Albuquerque, NM 87131-1091, USA).

Timme, A. (1995). Sex differences in infant integration in a semifree-ranging group of *Barbaray macaques* (*Macaca sylvanus*, L1758) at Salem, Germany. *American Journal of Primatology*, 37, 221-232. (NIHAC, Comparat. Biol. Lab., POB 529, Poolesville, MD., 20837, USA).

Waynforth, D., & Dunbar, R.I.M. (1995). Conditional mate choice strategies in humans: Evidence from "lonely hearts" advertisements. *Behaviour*, 132, 755-780. (DUNBAR, RIM, Univ. Liverpool., Dept. Psychol., POB 147, Liverpool L69 3BX, Merseyside, England)

Weislo, W.T. (1995). A false antithesis and evolutionary psychology (with reply). *Ethology and Sociobiology*, 16, 343-344. (Smithsonian Trop. Res. Inst., Unit 0948, APO, AA., 34002, USA).

White, M., & Gribbin, J. (1995). *Darwin: A life in science*. Dutton, \$24.95 (hdbk.).

Williams-Blangero, S., & Blangero, J. (1995). Heritability of age at first birth in captive olive baboons. *American Journal of Primatology*, 37, 233-240. (SW FDN Biomed. Res., Dept. Genet., POB 28147, San Antonio, TX., 78228, USA).

Wilson, D.S. (1995). A false antithesis and evolutionary psychology: Reply. *Ethology and Sociobiology*, 16, 345. (SUNY Binghamton, Dept. Biol. Sci., Binghamton, NY, 13902, USA).

Wilson, E. O. (1995). *Naturalist*. Warner. \$11.99 (ppr.). Orig. published in 1994.