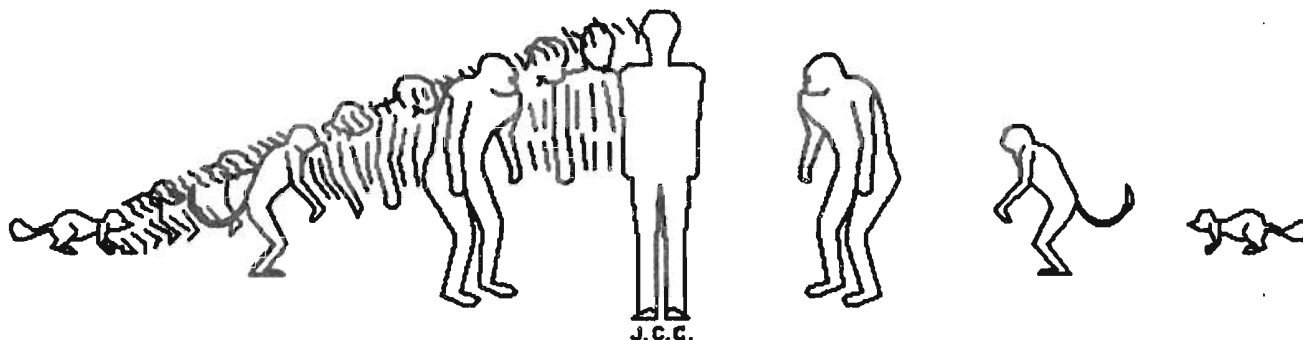


GRADUAL AND/OR DISCRETE  
VARIATION



# HUMAN ETHOLOGY NEWSLETTER

JOAN S. LOCKARD, EDITOR  
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## OF SPECIAL ATTENTION

Sections on our International Meeting, Membership Renewal, and Elections require immediate action. Become involved!

## A BENCHMARK?

Incremental changes and/or giant steps--symbolized by the masthead of this issue--was the topic of a little publicized workshop, largely attended by paleontologists and evolutionary biologists, held some 15 months ago in Chicago. Although from all reports a shouting match in good British parliamentary form, it may well have been a cornerstone for a new "Modern Synthesis." The aftermath has been just that, a synopsis here and there by a mere handful of reviewers whose charge is to distill the news of science, but in the main, small coverage (to the best of my knowledge, not even a Proceedings) of what, in retrospect may signal a monumental happening. The issues were few but highly significant for the theory of natural selection in general and for human evolution in particular:

(a) Microevolution or phyletic gradualism. Do large morphological changes within families or genera stem from many smaller increments, solely shaped by ecological variables?

(b) Microevolution or punctuated equilibrium. Or are family, generic, or even species' differences within phyletic branches best described as discrete steps with few or any intermediate forms?

(c) Alternatively, and less dichotomously, are both (a) and (b) co-evident evolutionary processes?

(d) Or, going full cycle, is (b) the beginning rather than the end point of (a), as has been more traditionally held?

For really the first time since the merger of biology and genetics in the 1940's has the Darwinian window been subject to serious reglazing, although the paucity of transitional species has been periodically bemoaned over the four decades. Even relatively complete series--such as those leading to the modern horse or, in a shorter time sequence, the darkened variants of the pale-brown peppered moth in industrialized English towns and adjacent countrysides--suggest constraints on the possible directions that variations may take.

In the main, most of the issues that were discussed were not new but had lacked visibility heretofore. The declaration by Maynard Smith that the major ideas were in a book he had written 25 years ago was countered by a colleague quibbling that he may have had the wheel but he had not ridden away on it. The importance of the concept of stasis was reaffirmed, namely, that evolution is generally a conservative affair where individual species remain virtually unchanged for millions of years. It was a re-emerging focus on how speciation (the branching of a new species from an established one) takes place that was the new emphasis. The discussion centered around three main topics: (1) the tempo of evolution, (2) the mode of evolutionary change, and (3) the constraints on the physical form of new organisms.

With respect to the third point, it was argued that there are fundamental constraints on morphological changes that are imposed by mechanical properties of the basic materials and genetic blueprints. The resistance to change of the embryological process indicated that whole sets of possibilities are not available when preadaptations are limited by specialization. Illustrative of this restriction is the bifurcation in the evolution of feathers versus hair. George Oster of Berkeley suggested that there cannot be a smooth evolutionary transition from one to the other since feathers require the process of evagination, while hair requires invagination.

It was this realization that the number of possible phenotypes that could arise might be finite that provided both the crux of the problem and the new insight to emerge. It may well be that natural selection works not on potentially infinite genetic variation, but on a smaller scale of developmentally feasible characteristics, from which are selected those with suitable adaptive features. Let it not go unnoticed that that 1980 Chicago meeting may well signal a new benchmark for the Theory of Natural Selection and that, in

particular, the "missing link(s)" in the evolution of Man may not be.

Lewin, R. Evolutionary theory under fire. Science, 1980, 210, 883-887.

Silcock, B. The new clues that are challenging Darwin. The Province, Vancouver, British Columbia, March 22, 1981.

Urba, E.S. Evolution, species and fossils: How does life evolve? South African Journal of Science, 1980, 76(Feb), 61-84.

**SEPTEMBER LOGO**

Since no responses were submitted concerning Wolfgang Schleidt's logo, Pattern(s) Behind the Masks (September issue), I thought the membership might enjoy some of the correspondence that occurred in readying his logo for print.

June 13, 1981  
Dear Joan:

Since I feel that I do have "a flair for the obscure" (as well as a little experience in design) I am responding to your invitation to submit material for the LOGO contest.

I am currently preoccupied with the mapping of facial expressions (on the computer), and plowing through the literature on previous attempts. In a quite interesting book on 18th century views on this matter by Lavater, I found a neat looking "standard face" which I transformed into a design, which was transposed by my artistically more eloquent wife into a more contemporary version. I leave the interpretation to your own fantasy, but should mention that to my taste it is still too detailed.

I did not like either logo with the puppets [issues 1 and 2], mainly because they reduce a complex issue into a caricature (instead of a concise statement). I love, however, the puppets as such, and I wonder whether you have them on a 3-D computer program...

With kind regards,  
Wolfgang M. Schleidt

July 8, 1981  
Dear Wolfgang:

The more I study your logo idea, the more captivated I become with its intended message. However, my interpretation may not be consonant with yours, and in order not to impose my particular views on your contribution, some additional discourse between us is necessary...

More specifically with respect to the evolution of facial patterns from fish to man, as the angle increases--as circumscribed by the line of the eyes and the line of one eye and the edges of the nostril and mouth-- the cerebrum and vocal apparatus both increase. In other words, hominids may be characterized as "big brain, big mouth" animals. Your stylistic adaptation of Lavater's drawing has an angle of approximately 53 degrees and Monika's takes it even further to 60 degrees. Moreover, in addition to the artistic rendition which the masks lend, they also provide an element of detachment and thus facilitate more objectivity. However,

a) Why did you change from male features in Lavater's drawing to female features in your own and that of your wife? Was this part of the message?

b) Why did you cut off the forehead on the masks? Was it solely a traditionally artistic outcome or were the reasons more subtle?

I would like to use your logo in the September issue of the Newsletter and, therefore, would appreciate an early reply. In closing let me just say in my own defense, with an element of comradery, and as a compliment to you that your "simple characterization" is of an even more complex concept than was every imagined in the first two logos.

Sincerely,  
Joan S. Lockard

July 15, 1981  
Dear Joan:

Once I cooperated on a newsletter (which faded away after its third issue because everyone loved it and no one wanted to do the work) which we had called "The Noisy Channel." The obvious logo (which never got realized) was plain white noise. Everybody then could have seen her or his favorite (or most hated) piece of music, etc. Human ethology is a tough problem...

a) Neither I (nor Monika) changed the features from male to female. In my considered opinion even the frog is female, as are most faces in frontal view. I did use the frontal view mainly because the angle was easier to draw, and possibly because in human

interactions the frontal view is obviously the preferred orientation, while profile is used to express serenity or arrogance, befitting to kings or presidents, to be embossed on coins. If there is a message (though not intended) it may be to face the problem head on.

b) The masks I grew up with were either eye masks or face masks including the eyebrow, and this is, I think, consistent with the Greek masks of comedy and tragedy, displayed in architectural ornaments on theaters, etc. in Europe. Egghead for males or round bulging foreheads for females are held in high esteem by some, I know, and no one in my closer family or any of my closer friends has a Neanderthal cranium. I wear my hair (of what's left) over my front, and have preferred this "Roman" style for many years.

c) The series with the angle was prepared a few weeks ago by myself for a paper on measuring facial features, as an historic sideline ("you have come a long way, baby"). The hidden message is--in my interpretation--one of caution. Look at these people who try to find a scientific reason to disadvantage others by labeling them as stupid... As I understand evolution, all creatures who are around today have done better than those now extinct. Rats and starlings are among the most successful!...

Finally, a word in defense of the "one face" designs with the mask: logos should be like a banner, coat of arms--striking, unique, clearly recognizable at a distance. A logo is not a seal, which is differentiated, rich in detail (like a fingerprint), unique. If you look at the earliest flags they are very simple, two colors, one sign (e.g., Switerland or Austria). The flags with whole landscapes are an invention of the 19th century, when people had to add more and more detail, not to interfere with the already existing simpler designs. Ultimately, countries put their seal on the flag (like several states in the U.S., or Central and South American countries) with persons, cows, plants, stars, tools, whole landscapes. Since we are early in the game--there is no competing club in human ethology--we should take advantage and keep our logo simple. Let the competition worry about the problem to come up with their own. I thought that "Looking Behind the Mask" is a good idea to convey...

Sincerely,  
Wolfgang M. Schleidt  
Department of Zoology  
University of Maryland

→ The editor again invites LOGO contributions from members as foci of interaction and information.

INTERNATIONAL HUMAN ETHOLOGY MEETING

By now, all ISHE members should have received information about presentation of papers, proposals for symposia and workshops, accommodations, etc. for the International Human Ethology Meeting to be held in conjunction with the IXth Congress of the International Primatological Society in Atlanta, Georgia during August 8-13, 1982. Please be reminded of the following deadlines: 1) February 1, 1982: proposals for symposia and workshops, abstracts for regular paper sessions; 2) March 31, 1982: Registration fee; 3) June 30, 1982: Reservations for Colony Square Hotel and student dormitory rooms. If you have not received the information packet about these meetings and would like to attend, please write for an information packet to: Ms. Cathy Yarbrough, Congress Office, Yerkes Center, Emory University, Atlanta GA 30322, USA.

Also, we need people who will be willing to referee abstracts submitted for the meetings. If you are interested, please send your name, address, and research areas to: Ron Weigel, Human Ethology Laboratory, Neuropsychiatric Institute, UCLA, Los Angeles CA 90024.

--Ron Weigel and Gail Zivin, Committee for an International Human Ethology Meeting.

MEMBERSHIP RENEWALS: Everyone, please note

Memberships run on a calendar year basis; please send in U.S. \$5.00 for 1982, or this issue will be your last. The mailing label indicates the extent of your membership. For example, if it says 1981, you need to send the fee for 1982. If it says 1982, 1983, or 1984, then you are prepaid for those calendar years. Send your dues, along with the membership application attached to this newsletter, as soon as possible in order to assure receipt of the Human Ethology Newsletter in 1982.

Since September we have gained 36 new members, for a total of 274: 204 U.S., 24 Canada, 46 foreign.

ELECTION NOTICE

Attached to the newsletter is an election statement and ballot. We need to elect four new Executive Board members for the 1982-1983 inclusive term; please send in your ballot by January 31, 1982!

**NEWSLETTER BLUES**

Our membership needs to confront the following problem: costs of printing and mailing the newsletter substantially exceed the annual dues received from members. Two alternatives (both of which include increases in the annual dues beyond the current \$5.00 rate) come to mind: 1) the editor can continue to publish the newsletter, or 2) the editor can continue to prepare the newsletter, but would forward a ready-copy to a publisher for printing and mailing. In the latter case, the final product would be more professional. The editor is currently looking into the possibility of outside publishing and would welcome your comments. A vote will be taken on this issue at our annual meeting in Atlanta next year. Please send your reactions to the editor now in order to facilitate discussion with publishers.

**HUMAN ETHOLOGY ABSTRACTS**

Human Ethology Abstracts IV, edited by Larry Stettner and Karen Olson, is now available from ASMER, P.O. Box 57, Orangeburg, New York 10962. Dr. Aristide Esser of the Association for the Study of Man-Environment Relations, offers the following package of bibliographies for U.S. \$15.00 postpaid. The price of the bibliographies would total \$20.00 if purchased individually.

Offprints, HEA IV	\$3.00
Pfeiffer: Human Ethology	2.00
Evans: Personal Space	1.00
Crabtree and Moyer: Human Aggression	3.00
Oshiro: Eye Contact	1.00
Sobal: Ecological Psychology	.50
Travis, et al.: HEA I	2.00
Travis, et al.: HEA II	2.50
Adams: HEA III	5.00

A reminder to everyone -- please send abstracts (150 words, APA format) this year to Wade Mackey for inclusion in HEA V. Wade's address is: Division of Social Sciences, Iowa Wesleyan College, P.O. Box 369, Mt. Pleasant IA 52641.

**ERRATA**

Please be aware that three items from previous issues need correction. An apology is in order for any inconvenience these may have caused.

1) Our members from West Germany were inadvertently omitted from the worldwide membership count (p. 3, Sept. issue). At that time we had twelve members from West Germany; since then we have added a thirteenth!

2) APA Update (p. 44, Sept. issue) needs further updating. The President of Division 6, Physiological and Comparative Psychology is now William A. Mason, the President-elect is Allan F. Mirsky, and the Secretary-Treasurer is Marlene Oscar-Berman.

3) In the June issue (pp. 23-27) Clara Jones reviewed R.D. Alexander's book Darwinism and Human Affairs. The quote from Auden (last paragraph) should have read "Science, like Art, is a playing with truths..."

**FALL FORUM → WINTER FORUM**

The forum question posed in our September newsletter by Thomas Wiegele and Roger Masters was:

How can human ethology illuminate the study of politics?

More time was needed to address this topic, so it will be carried over to 1982 and occur as our Winter Forum. The coordinators would still welcome your comments, which can be sent to Tom at the Center for Biopolitical Research, Northern Illinois University, Dekalb IL 60115, or to Roger at the Department of Government, Dartmouth College, Hanover NH 03755.

**FORUM RERUN**

Regarding our Winter Forum (February, 1981: State of the Science of Human Ethology), Adriaan Kortlandt, University of Amsterdam, recently reminded me of an essay by him that was printed some years back in our Human Ethology/Sociobiology Newsletter No. 14, November, 1976. It is reprinted below to give us perspective and exemplify the continuity and progress of our science.

What is Human Ethology?

Since I began to observe and study animal behavior almost 40 years ago, all sorts of philosophers, psychologists, psychiatrists, sociologists, etc. occasionally phone me, or come to see me, and ask questions about animal behavior. In most cases it turns out that they want to collect animal data in order to support some theory or other on human behavior that they have fallen in love with. Since there are many, many theories of human behavior, and since there are



perhaps even more data on animal behavior, there is quite a big market for this kind of "applied" ethology. Should we call this "human ethology"? I would prefer rather to call it a mild form of scientific prostitution of ethology, or, in still milder terms, a case of redirection of human philosophy, psychology, psychiatry, sociology, etc. towards an ersatz object. What is lacking in this type of applied ethology is the scientific honesty and integrity which constitutes the heart of true science.

Discarding the above category, now what is human ethology? Some esteemed colleagues place the main emphasis on methodological aspects, e.g., meticulous observation, objectivistic interpretation, etc. Such methodology has, however, been fairly current in vast fields of human psychology; e.g., in child psychology since 1882 when W. Preyer published his epoch-making Seele des Kindes (a book which every human ethologist should read). Using such criteria to define human ethology would lead to throwing out the baby of ethology with the bath water of psychology.

In my opinion the essential contribution of ethology to the behavioral sciences is that it is a biological science, i.e., evolutionary thinking is its central concept. Philosophy, psychology, psychiatry, sociology, etc., on the other hand, currently tend to ignore, and sometimes even deny, the evolutionary aspects of human behavior. Either they study man from the viewpoint of eternity, "sub specie aeternitatis" as the old theological philosophers coined the term, as if man were created for all eternity; or they study man from the viewpoint of a given social and cultural setting, "sub specie temporis."

Human ethology, therefore, should be defined as the study of human behavior and related phenomena, focussing on evolutionary theory as its central scientific concept and viewpoint, i.e. "sub specie evolutionis." Otherwise the term will become meaningless because it will ignore what ethology means. By accepting this criterion we will certainly cause quite a row and lose part of our following. But in this way we will shake off the intellectual burden of all those fellow travellers who have never learned to think in evolutionary concepts and who, consequently, will never understand what ethology has contributed to scientific thinking.

#### BOOK REVIEWS

PATTERNS OF ATTACHMENT: A PSYCHOLOGICAL STUDY OF THE STRANGE SITUATION. By M.D.S. Ainsworth, M.C. Blehar, E. Waters, and S. Wall. New York: Halstead Press, John Wiley and Sons. (1978)

Reviewed by Bruce Ambuel, Department of Psychology  
and the Institute for Child Behavior and Development  
University of Illinois, Champaign-Urbana

A 12-month old infant is in an unfamiliar room with a strange woman. The child is crying, but as the stranger approaches the child to comfort him, the infant avoids physical contact. The child's mother enters the room -- the infant continues to cry and moves toward the mother. However, as the mother picks up her son his body becomes stiff, he cries louder, and he pushes her away.

This male infant and his mother are being observed in the Strange Situation, a prompted behavioral test for observing attachment between an infant of 9 to 12 months and its mother. In Patterns of Attachment, Ainsworth and her colleagues present a general review of the Strange Situation and of the construct of attachment, a thorough argument for using the Strange Situation to explore attachment behavior and guidelines for researchers interested in using the Strange Situation. As a result of their efforts, the Strange Situation should be useful to other workers interested in either attachment or the longitudinal development of social behavior spanning the ages of 9 to 18 months. I found the book interesting beyond these specific issues because the authors have pursued a systematic program of research to identify and study patterns of behavior which are functionally complex. The book makes an important contribution to research in human development.

In this review I discuss four substantial issues which are the heart of this volume: norms and individual differences in behavior in the Strange Situation (hereafter S.S.); the psychometric properties of the S.S.; the validity of the S.S.; and, the usefulness of the S.S. as a standardized instrument for studying social development.

Attachment behaviors are those which function to maintain physical contact, proximity and communication between specific individuals (Ainsworth et al., 1978; Cohen, 1974). The S.S. infant-mother attachment is observed in an unfamiliar room for 21 minutes during a series of 8 consecutive episodes which prompt the infant's responses to: the new environment (episodes 1 and 2); the arrival of a stranger (3); the mother's departure and being alone with the stranger (4); the simultaneous return of the mother and the departure of the stranger (5); the departure of the mother and being alone (6); and the successive returns of the stranger (7) and the mother (8). Using transcripts or video tape, experimenters rate three classes of infant behavior: discrete infant behaviors, interactive infant behaviors, and the quality of infant-mother attachment.

The discrete behaviors include locomotion, crying, vocalization, smiling, and other categories. Each category is described further along the dimensions of (a) mode (i.e. for locomotion -- hitch, crawl, walk, etc.) and (b) orientation (i.e. toward mother, stranger, toys, door, etc.). Unfortunately most discrete behaviors, when analyzed as frequency counts per episode in the S.S., show poor test-retest reliability and have not been useful in describing patterns of attachment. I will not describe these

behaviors further. A detailed account appears in the book.

For each of the eight episodes in the S.S., six ratings are made of the infant's behavior toward the mother and five ratings of the infant's behavior toward the stranger. These interactive variables are: seeking proximity or contact, maintaining physical contact, resisting physical contact, avoiding physical contact, communication without physical contact, and searching for the parent. The first five are rated for both the infant's behavior toward the mother and the infant's behavior toward the stranger. The first four variables have been most useful in describing attachment.

Finally, each infant is classified into one of three categories of attachment: secure, ambivalent, and avoidant. This classification was originally based upon the authors' global impressions of individual differences in attachment behavior in the S.S. However, discriminant analysis confirmed that the three groups of children differ and that the classification of a given infant is based primarily upon the infant's interaction with its mother in the two reunion episodes (episodes 5 and 8). A brief description of these three categories follows.

Secure infants actively seek proximity, contact, and interaction with their mothers, they become distressed whenever their mothers are absent, they actively maintain contact with their mothers and resist release, and they neither resist nor avoid contact with their mothers. Avoidant infants do not seek proximity or contact with their mothers, they avoid proximity to and interaction with their mothers especially during the reunion episodes, they become distressed when alone but not when alone with the stranger, and they do not resist being picked up or held. Like the fictional child described at the beginning of the review, ambivalent infants approach their mothers but resist contact especially during the reunion episodes, and they do not attempt to maintain contact with their mothers.

The authors treat these three categories (and eight subcategories) as discrete groups, but they do not provide a rationale for why these categories should be preferred to continuous variables. In fact, their own data from the discriminant analysis of the three categories indicate that we could describe the quality of attachment more accurately by using four continuous dimensions to delineate the behavior during the two reunion episodes (5 and 8): seeking proximity and contact; avoiding proximity; maintaining contact; and resisting contact. This approach has the dual advantages of being more descriptive of individual behavior than categories and of allowing investigators to study separately the correlates, antecedents, and consequences of each dimension.

A further problem with the author's treatment of these variables of attachment quality is their continued reliance upon the judgment of trained observers to classify infants. I can see no

advantage in continuing to use this intuitive approach once they have identified through discriminant analysis a simple combination of variables which will replicate systematically the intuitive decisions. The discriminant functions, or modifications of them, could be used to create either the categories of attachment quality or continuous variables that describe attachment quality. This systematic approach would simplify the scoring of infant behavior by replacing a subtle judgment made by "experienced researchers" with a simple calculation. This change could only make the S.S. easier to describe to others and thus easier to disseminate to other research teams.

In exploring the psychometric qualities of the S.S., the authors identify all the important issues of observer agreement and test reliability. Their experimental evaluation of observer agreement leaves some questions unanswered, but their evaluation of test reliability is artful and convincing.

Observer agreement is the extent to which observers trained in the S.S. protocol use the behavioral dictionary of the S.S. to describe the same behavioral events in identical codes. The authors examined observer agreement for every major group of variables and report that observers showed very high rate of agreement for the interactive variables and for the three categories of attachment quality. Unfortunately the experimental conditions used in assessing agreement are poorly described in the book. Yet we know that the outcome of studies of observer agreement can be affected dramatically by the experimental conditions (Johnson and Bolstad, 1973). For example, observer generally agree earlier in a study or when they know they are being observed. One cannot evaluate observer agreement without a careful description of experimental conditions. As a result, I had a difficult time evaluating the generally positive evidence presented in the book. This problem was compounded because the data on observer agreement is scattered throughout several chapters of the book. The book would be improved if observer agreement were discussed systematically in a separate chapter.

The authors do an excellent job of evaluating the reliability of the S.S. through a series of test-retest studies. Retesting is the logical approach to evaluating reliability, but it is also problematic. With a brief retest interval, the S.S. will be familiar during the retest and should create greater anxiety among all infants (Ainsworth et al., 1978). As the retest interval becomes longer, familiarity should diminish, but the retest behavior will be increasingly confounded by developmental changes in the infant and the infant-mother relationship. To strike a balance between these two problems, reliability was evaluated in test-retest studies at the age of 12 months with a retest 2 weeks later, and at the age of 12 months with a retest 6 months later. In the 2 week retest, all infants became more anxious and changed their behavior so that many variables, including attachment quality, were unreliable. However, there was consistency in the behavior of

individuals which was not reflected in these variables. For example, infants who scored low on seeking proximity and contact in the first S.S. scored high in the second, while infants who scored high in the first S.S. became so upset in the second that they only sat and cried (Ainsworth et al., 1978). There is impressive evidence of reliability from 2 test-retest studies with children at 12 and 18 months of age. All interactive behaviors in the reunion episodes (5 and 8) were positively correlated, and the classification of infants was stable.

The chapters discussing the ecological validity of the S.S. are well written and present a convincing argument that behavior in the S.S. does reflect important features of the infant-mother relationship. In a series of studies the authors compared infant-mother behavior at home with behavior in the S.S. -- a brief summary follows. In the home, resistant infants cry more frequently when their mothers leave the room than other infants. Their mothers are generally less responsive to crying, commonly pick up their infants while performing routine tasks but rarely pick them up for affection, and are rated as inept in holding their children. At home, avoidant infants respond negatively to close bodily contact more frequently than other infants. Their mothers are unresponsive to crying, commonly fail to acknowledge their infant when entering a room, commonly pick up their infant abruptly, rarely pick up their infant affectionately, reject their child more, and interfere more frequently with their child's solitary behavior. Extensive data are available in the book.

The fit between the behavior of infants in the S.S. and the home behavior of both infant and mother indicates to me that, although observation in the S.S. focuses upon the infant's behavior, the S.S. taps the quality of attachment between infant and mother. Thus, attachment may best be considered as a pattern of interpersonal or interactive behaviors rather than a quality of an individual. This interpretation of attachment is parsimonious with the new recognized reciprocal nature of parent-infant interaction.

Two crucial issues of ecological validity are not resolved in this volume. First, we do not know if we can use the S.S. to investigate dyads other than the infant-mother pair such as infant-father or infant-caretaker dyads. Second, we do not know if we can use the S.S. to study attachment in subcultural groups other than the middle and upper-middle class, caucasian Americans with whom the test has been developed. Will the same patterns of S.S. behavior appear among these different populations?

This book meets its primary goals of critically reviewing the S.S. and the concept of attachment and describing the S.S. in detail. The authors convinced me that the S.S. is tapping an important dimension of infant-mother behavior. With further development, the S.S. has the potential of becoming a valuable, standardized instrument which would be useful for many researchers. Towards this end, the procedure could probably be streamlined by

using video tape to record the S.S. and by coding (directly from the tape) only the interactive behaviors. The discrete behaviors need not be made from the global impressions of "expert" observers but rather from synthetic variables created from the interactive behaviors.

We can trace the theoretical roots of the S.S. to Bowlby's ethological-evolutionary theory of child development which considers attachment behavior as a functional set of behaviors that play a central role in human survival and emotional development (Bowlby, 1980). However, one need not accept this theoretical perspective to use the S.S. or adopt the concept of attachment. The S.S. makes only three minimal assumptions: (1) that an important feature of infant-mother interaction is maintaining or avoiding communication, proximity or physical contact; (2) that these attachment behaviors appear as patterns of interactive behavior, not discrete behaviors; and (3) the S.S. has ecological validity. Once these assumptions are accepted, the S.S. can be incorporated into various theoretical approaches including cognitive, social learning, interpersonal and ethological-comparative theories of child development.

Bowlby, J. Attachment and Loss, Volume III. New York: Basic Books, 1980.

Johnson, S.M. and Bolstad, D.D. Methodological issues in naturalistic observation: Some problems and solutions for field research. In: L.S. Hamerlynck, L.C. Hardy, and E.J. Mash (Eds) Behavioral Change: Methodology, Concepts and Practice. Champaign, IL: Research Press, 1973.

THE EVOLUTION OF HUMAN CONSCIOUSNESS. By John H. Crook. London and New York: Oxford University Press. 445 pp. (1980)

Reviewed by Ian Vine, Interdisciplinary Studies  
University of Bradford, Bradford, England

By any standard, Crook has written a remarkable book -- surely the most "liberated" to emerge so far within the developing corpus of human sociobiology. He sets out to analyze human nature and human activity from the firm biological foundation of an evolutionary perspective rooted in animal ethology and in theories of inclusive fitness. Without ever losing sight of this foundation, his discussion ranges through a wide variety of topics in individual and social psychology and in cultural anthropology. This discourse culminates in a recognition of the role which meditation and altered states of consciousness may play in a dialectical transformation of our personhood. Such awareness, in turn, permits us to evolve new modes of social relationships and cultural forms to preserve human adaptiveness in the world of the future.

This monograph offers the most sustained attempt yet to refute the claims of those who insist that consciousness (the intersubjective worlds we create through language, and the cultural inheritance and innovation these features made possible long ago) removed us from the biological realm, making sociobiological analyses a dangerous irrelevance. Crook acknowledges that E.O. Wilson's "excessive reductionism" and failure to recognize the cultural complexities of a species whose behavior is dominated by cognition rather than direct genotypic control, have gravely handicapped human sociobiology's beginnings. But he can still see it as an important strand in the explanation of what we are and do, so long as it emphasizes (a) multi-level causation and partial autonomy of consciousness, and (b) broad genetic constraints on learning and the significance of selection for the reproductive success of individuals in shaping these constraints.

It is impossible to do justice to the vigour, sophistication, erudition, and breadth of vision of Crook's analyses within a short review. Nor would it be appropriate to quibble with the inevitable partiality of his presentation of some topics. More importantly, though he has moved far from the confines of his earlier ethological research on birds and primates; he has done so without jumping to tenuous analogies or unsupported speculations. Merely to summarize the coverage of topics in this long, densely argued work is a demanding task. Nevertheless, some outline of several major themes must be attempted before I can offer at least a global assessment of the book's contribution to human ethology.

Crook begins by stressing the need for an "ethology of cognition" that will enable us to understand ourselves as conscious, self-monitoring creatures. Simultaneously, he manages to maintain our phylogenetic history and the modes of explanation which we apply effectively to nature in general. It is a persuasive case for considering the evolution of consciousness as an inferred property of organisms who monitor their internal states. He then attempts to develop an analysis of how consciousness came to have adaptive value in terms of its utility in elaborating more and more sophisticated systems of reciprocal altruism. This general preface is established by way of detailed consideration of various aspects of social behavior, with a continuing emphasis on the role of ecological conditions as a molding process. He argues that complex cooperative social organization tends to evolve in conditions where food resources are relatively constant and the population is principally limited by the carrying capacity of the environment. In this vein, he argues that in many respects open country baboons rather than the chimpanzee provide a more relevant prototype for human forms of societal organization, and especially for lasting male-female reproductive bonds and complex kinship relationships.

In discussing hominid evolution Crook constantly places emphasis on the role of social factors in selection. He further deploys now fairly standard sociobiological analyses to explain species universals in our reproductive, child-rearing and kinship

systems, in dominance and reciprocity relations, and so on. The cultural evolution of human societies is discussed in terms of moves away from nepotism and towards the institutionalized reciprocities of complex hierarchical societal structures. Again, however, the role of ecology in influencing the precise forms of marital, kinship, and other systems in particular societies is stressed. Crook then turns to the nature of the "self-process" and to the role of the individual within the social unit. Our awareness of self is seen as developing out of social processes, and as having evolved because of its adaptive value to the individual in coping with social interactions. In particular, a concept of self is seen as paramount in lasting partnerships where the costs of being deceived and exploited are high. Empathy for others' internal states is required, but so is an ability to distinguish their states from one's own. A sense of personal identity and self-esteem is needed to maintain an adaptive autonomy within the highly complex conditions of human interdependence.

Crook hypothesizes that there are two major dimensions of human interaction, dominance-submission (status) and approach-withdrawal (solidarity). He suggests that while these reflect "biostrategic constraints" on our social learning, they are sources of ambivalence in our views of both ourselves and our relations with other selves. We remain largely unconscious of dispositions reflecting innate biostrategies which are not socially acceptable. We are thus prone to internal conflicts which may damage the self-process and yield neurosis. Focussing attention on the self as an object may reveal damaging discrepancies from one's ideal self. But in contrast we are capable of a more primitive "outward" focus of awareness onto objects or activities, in which loss of ego-concern can be intensely satisfying. Meditative techniques can help restore the balance between these two forms of self-consciousness. It can help in the search for personal meaning to which a creature aware of the conflicts and insecurities of life and death is impelled. In our current human socio-ecological context, the "transpersonal humanism" arising out of meditative self-discovery can help to replace outmoded religious systems of meaning and to justify an altruistic ethic going beyond nepotism and narrow in-group reciprocity.

The ultimate message of this book is that we can transcend our biology, as the critics of sociobiology insist, through appropriate efforts and choices. But that we can hope to do so depends upon our possession of evolved mental structures, and on our understanding fully how past adaptations have shaped our present natures. Our re-education must extend to emotional systems and largely unconscious processes, selected for because of their contributions to inclusive fitness in past social systems and ecological circumstances. Crook's analyses are not always as convincing as one might wish, particularly where he relies rather heavily on weakly confirmed hypotheses from psychoanalytic and humanistic psychology, and on elusive concepts from Eastern religious traditions. Nevertheless, they are always stimulating and informative. More generally, although much remains to be said in the explication of



relationships between our physical and mental aspects, and between the facts of our biology and normative values, this volume must surely count as an heroic attempt to set the stage for much future interdisciplinary research.

I strongly suspect that if Crook's approach to sociobiology, which was being developed as long ago as 1970, had appeared in print before Wilson's text, then much of the initial hostility generated among social scientists could have been avoided. As it is, we still have good cause to be glad that this text has finally appeared. Although rather expensive, it is a gilt-edged investment, a book to be read and re-read, to be consulted for valuable insights on many topics (with the aid of a good index and excellent chapter summaries). It may not turn many human ethologists into Buddhists, but it should certainly prove to every skeptic that there is a middle way between biologism and psychologism, and between individualism and cultural determinism.

#### MINI COMMUNICATIONS

Two manuscripts in this issue are being regarded as mini communications. The second is a preamble to an appended survey. The subject matter of the first contribution is in keeping with the current masthead and could very well be illustrative of punctuated equilibrium.

#### The Throwing Theory for Language Origins

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What were the evolutionary steps which led to the lateralization of language? Rather than elaborating species-specific vocalization machinery, was language cortex built upon a foundation of sequencing machinery selected by something immediately useful, such as throwing stones with the opposite hand?

In the beginning -- which for the present discussion would be back in the Pliocene or late Miocene -- it is convenient to postulate two tendencies in the background: a mutation or novel combination of genes which led to relatively larger brains (through, for example, neoteny; Gould 1977), and another which led to a lateralization of the neurons involved with orchestrating rapid muscle activation sequences other than locomotion (some mild functional left-right asymmetries are seen in motor aspects of various brains; Glick and Ross, 1981). My shorthand term "throwing genes" merely refers to these global tendencies, under selection by throwing success.

But we must specify the selection pressures which tend to conserve such tendencies in the genome. The chicken-and-egg, which-came-first problem often leads to "generally useful" adaptation arguments rather than a close cause-and-effect explanation. We should have a better chance of identifying evolutionary ratchets, of specifying the back-and-forth influences, when examining possible examples of saltatory evolution, such as the emergence of the genus Homo. One has, after all, to account for the extraordinary tripling of hominid brain volume since the Pliocene and the extraordinary extent of lateralization, not just the abilities unique to modern man.

The throwing theory suggests that one-handed throwing of projectiles was facilitated by a better rapid motor sequencer in the opposite hemisphere. While various skills might have been improved by a sequencing specialization, throwing seems likely to have had the maximal exposure to selection pressures. Throwing stones, rather than the usual predator-prey chase scene, opens up hunting the small animals and birds whose habitats extend far beyond those occupied by typical large primates.

Monkeys have been observed to drop coconuts from a tree to crack them open, in a manner reminiscent of seagulls dropping snail shells; chimps throw stones at the skull of a dead monkey, also in aid of extracting a delicacy food from its interior. Braining a downed prey to avoid being bitten, then throwing the stone to down the prey in the first place would be a possible invention sequence.

But the two-handed, over-the-head throw of the chimp is of limited value unless its range is extended. One-handed throwing, with its windup allowing angular momentum to be translated into linear velocity, does that. Its invention need not have coincided with the lateralization of rapid motor sequencing. But once they both existed, there would be a strong tendency to use the hand and arm opposite to the better sequencer.

A one-handed skill would interact with a one-hemisphere specialization. The throwing aspect would seem to favor rapid evolution for three reasons: what might be called the "fast ball" effect, the "new niche" effect, and the "two-for-the-price-of-one ratchet."

Throwing has an internal imperative for speed. The "stopping power" of a projectile is a matter of its kinetic energy. While this is proportional to the projectile's mass, it is also proportional to the square of the velocity. A nine-fold improvement occurs when one triples the speed. The small-but-faster principle would have meant that the hominid using a one-handed throw of a small rock would have had the advantage over a more symmetrical-brained animal throwing a large rock over its head with two hands. An additional advantage of speed is that a fast projectile gives the prey less time to react. But the primary advantage of speed is range, as it too is a function of projectile

velocity. Faster is better.

While it seems likely that many slow actions such as grooming are coordinated by an ad hoc committee of neurons residing in many regions of the brain, a single concentrated neural "center" would have substantial advantages where speed is of the essence. A throw involves about one second of throwing time, during which the desired trajectory must be translated into a muscle sequence, orchestrating the times at which the various muscles are brought into play. A larger sequencing center is likely to be required for precise sequences (trajectories need millisecond precision) which are also variable (unlike a lobster tail-flip, the coordinated sequence needs to be capable of many fine variations for different trajectories.) Bigger is faster?

While a motor sequencing center might enlarge at the expense of other adjacent functions, the easiest way to get more sequencer machinery in a center would be to simply enlarge the next generation brain, thus providing some uncommitted cortex nearby.

The postulated genetic tendencies, bigger brain and lateralized sequencer, could thus interact strongly with the cultural invention of throwing projectiles at prey. One-handed throwing, having a greater range or accuracy due to a somewhat larger brain, would conserve those genes through reducing infant mortality. It would expand their numbers, as an ability to eat small animals and birds would allow a foraging population to expand into quite different habitats. The hominid would essentially have discovered an empty ecological niche for action-at-a-distance predators, just as there is now an empty niche for a bacterium which can learn to digest nylon (Boulding, 1978). Population explosions are the traditional reward for finding a new niche.

Selection pressures favoring enlargement of a left hemisphere sequencing lateralization would give rise to symmetrical enlargement of the right brain as well. This two-for-the-price-of-one effect would likely allow the incidental improvement of other functions, such as the visual-spatial functions which seem to have settled in, opposite language. Some extra right cortex might well improve hunting, thus leading to more left and right cortex the next time around. Thus lateralization per se allows incidental improvements in other abilities as well -- they hypertrophy through no selection efforts on their own behalf.

Sequencing and visual-spatial is probably a special case, in that the two-for-the-price-of-one ratchet can be driven from both sides by the same strong selection pressure, predatory throwing. But one can imagine examples of where one skill could "bootstrap" another unrelated skill such as music, thanks to lateralization. Indeed, the enlargement of the rest of the brain could be secondary to the bigger-is-faster-is-better selection pressure on the small unilateral portion involved in motor sequencing.

While it might be the throwing aspect of the lateralized sequencer which was exposed to such strong selection, other skills might be augmented "for free" in a manner more direct than the extra space effect. Using one rock to chip another rock -- to shape a scraper or cutting edge -- makes use of a unilateral movement sequence: one typically holds the tool-to-be with the left hand and then strikes a sharp, well-aimed blow with another rock held in the right hand.

Another bonus from the sequencer would be manual gestures -- which brings up the issue of language. Although it is natural to suppose that verbal language evolved out of the usual species-specific vocalizations, there is a problem with that: the cortical specializations for such vocalizations in monkeys are near the midline supplementary motor area (Sutton, 1978), far from the peri-Sylvian language area of man. Might sequencing have provided the major scaffolding for language instead of snarls or signs (Kimura, 1976)?

Recent mapping experiments in human language cortex by Ojemann and Mateer (1979; also see Calvin and Ojemann, 1980) have shown that an extensive central core of the left language area is devoted to the sequencing of oral-facial musculature and to the discrimination of phonemes. While this is oral-facial rather than hand-arm sequencing, those experiments grew out of the observations by Kimura (1976) on the effects of left hemisphere strokes on manual sequencing tasks. Such patients have difficulty mimicking a sequence such as turning a key, then rotating the doorknob and pulling/pushing -- with either hand. Mateer and Kimura (1977) then showed that left hemisphere stroke patients had similar difficulties mimicking a series of oral-facial sequences -- with either side of the face. It is the oral-facial sequencer which has been further localized by stimulation mapping in awake patients during epilepsy operations (see Ojemann, 1980 for a recent review), but the manual sequencer is presumably nearby, just as the face is near the hand on the motor strip.

Tempting though it may be to speculate about the modern manifestations, the earliest lateralizations show more promise -- they are more fundamental and more exposed to natural selection -- of being a saltatory step in hominid evolution rather than an incremental influence. One might better speculate on how the throwing genes were concentrated in the hominid gene pool by the elimination of individuals lacking them.

Consider a hominid subpopulation after the first population blush, now isolated in a habitat with only modest forage, using a combination of chase and throwing. Contrary to what one would surmise from the present male expertise in throwing, it might well have been the throwing behavior of female hominids which conserved the throwing genes most effectively. Predator-prey chases present the mother with the difficult choice of carrying the infant along for the ride, or of leaving the infant temporarily unattended, which

increases infant mortality. Similarly, a chase would likely increase spontaneous abortions. The mother endowed with better "throwing genes" could better throw rocks at small mammals and birds which ventured into range. Her success in this regard would have a quite direct effect on conserving the throwing genes, as it would enhance both the infant's food and protection. Indeed, modern females (but not males) exhibit a strong preference (Lockard et al., 1979) for carrying infants with their left arm, which has the effect of freeing the right arm. While male behaviors such as guarding the troop may be generally useful, the skills of a philandering male do not usually boost the success of his own offspring more than others. Although one scarcely needs another reminder in these days of Japanese transistor radios, this serves to emphasize that origins should not be judged by present-day hypertrophy: the first star pitcher may have been a mother.

The sequencer seems likely to be a core resource for throwing, tool-sharpening, manual gesturing, and rapid oral-facial expression. Sequencing has numerous advantages over the other aforementioned as a candidate for the foundation of language cortex. It is strongly exposed to selection, in that it directly affects food gathering and infant mortality. Success in throwing could lead to a remarkable expansion of habitat, a statement which cannot be made for the others. And throwing has its multiple imperatives for ever-increasing speed which would more readily lead to a streamlined center to replace the slow ad hoc committee of scattered neurons which might suffice for primitive throwing behaviors.

Undoubtedly humans are the outgrowth of a whole series of selective pressures, which forced our predecessors to learn to eat novel foods, live in colder habitats, develop kinship strategies. Each Ice Age has probably left behind a residue of skills which, like the boulders scattered across the landscape, remain after the stresses have retreated. Did the generalized animal develop out of accumulated leftover specializations -- just as the general purpose computer developed out of such leftover special purpose computers as the player piano and anti-aircraft aiming systems?

But some skills are more fundamental or more exposed than others, and throwing specializations would seem to be a reasonable candidate for an early special purpose invention which boosted the hominid into a whole new ecological niche. It may have been the lateralization which started the two-for-the-price-of-one ratchet. While selection may have depended upon throwing performance, there were some free bonuses as well: neural machinery which could facilitate the cultural inventions of tool sharpening and language.

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Patterns of Ejaculation in Male Macaques  
(Macaca mulatta, M. radiata, M. fascicularis)  
and a Request for Further Information

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We have been studying single-mount (SME) and multiple-mount (MME) ejaculatory patterns in three species of male macaques. An ejaculatory sequence was defined as a series of any number of mounts, on any female(s), complete with intromission, ending in ejaculation on the final mount. An ejaculatory sequence was defined as beginning after a prior ejaculation or after 20 minutes of observation on the focal male in which it did not associate with any females. Termination of the sequence was determined by observation of fresh semen on the male and/or female. Any ejaculatory sequence in which ejaculation occurred on the first mount was considered SME, all other ejaculatory sequences were counted as MME.

In rhesus (n=5), we observed 11 complete sequences, 91 percent of which were MME. In bonnets (n=8), we observed 22 complete sequences, 91 percent of which were SME. In crabbeaters (n=7), we observed 17 complete sequences of which 51 percent were MME and 49 percent were SME. We found no individual pattern preference in the crabbeaters, that is, no individual was either exclusively SME or MME. All subjects were housed under identical conditions in

multi-male groups, by species, in half-acre outdoor field cages at the California Primate Research Center.

Our findings agree with those of other investigators for rhesus (Kaufman, 1965) and bonnets (Rahaman and Parthasarathy, 1969), but not for crab-eaters (deBenedictis, 1973; Furuya, 1961-1962; Kanagawa et al., 1972). Crab-eaters have been reported to be SME or MME, whereas our findings suggest they are both. Liontail macaques (M. silenus) may also show both patterns (Lindburg, personal communication), but results on this species are still preliminary.

It has also been reported in the literature that stumptail macaques (M. arctoides) are SME (Goldfoot et al., 1975); Japanese macaques (M. fuscata) MME (Tokuda, 1961); pigtail macaques (M. nemestrina) MME (Tokuda, 1968); Celebes macaques (M. nigra) MME (Dixon, 1977); and barbary macaques (M. sylvanus) SME (Taub, 1980).

Why should such closely related species show different patterns of sexual behavior? It may be that different social or ecological pressures are involved. We are interested in finding out what others know of ejaculatory patterns in nonhuman primates, whether similar or different from what we have observed and reported. Appended to this newsletter is a questionnaire pertaining to various social and ecological pressures that might be involved in the pattern preferences shown by these species. We would appreciate any information on this topic. Our data concerning the sexual behavior of the three species we studied are available on request.

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#### BULLETIN BOARD

Human Sociobiology: New Research and Theory, a workshop symposium sponsored by the Department of Anthropology at Northwestern University, was held November 12-14 in Illinois. The workshop was organized by Professors Napoleon A. Chagnon and William Irons and was an extension of the research and theory presented in their jointly edited 1979 book, Evolutionary Biology and Human Social Behavior: An Anthropological Perspective (Duxbury Press). Areas covered included Optimal Foraging Theory, Resource Accrual, and Human Behavioral Ecology; Family Organization and Strategies; Kinship and Other Social Strategies; and the Nature of Sociality and Other Issues. Send \$15.00 to receive pre-publication copies of the papers presented. Contact: William Irons, Dept. of Anthropology, Northwestern University, Evanston IL 60201.

Federal Budget Update. With this document, APA and AAP provide a detailed description of this year's federal budget activities relating to all aspects of psychological research, training, and service. This document will be regularly updated with the goal of keeping the psychological community aware of the short- and long-term effects of the budget on federal support for a variety of programs of interest to psychologists, and other social and behavioral scientists and service providers. If you want to receive budget information, send your name and address to APA's Research Support Network, 1200 17th Street, N.W., Washington, DC 20036. You will be send a form on which you can indicate the specific federal programs of interest to you.

Developmental Psychobiology. The major focus of this journal is on the development of behavior, whether in the embryo, fetus, neonate, or juvenile animal. Anatomical, physiological, biochemical, hormonal, pharmacological, genetic and evolutionary approaches are also appropriate. Experimental and descriptive studies, whether carried out in the laboratory or field, and irrespective of the particular species being studied, are welcomed. This is the official journal of the International Society for Developmental Psychobiology, however, membership in the Society is not a prerequisite for submission or publication. Co-editors: R.W. Oppenheim and W.G. Hall.

Friends of Washoe is a non-profit organization dedicated to communication research and enrichment for captive chimpanzees. Its immediate goal is to secure funds for a 50 by 100 yard outdoor recreation area for the five chimpanzees currently in residence at Central Washington University. Dr. Roger Fouts is directing the project, which is partially funded by the National Science Foundation. The long range goal is to secure funds for a several hundred acre outdoor compound, where researchers could study the role of communication in the formation and maintenance of relationships. Washoe (16 years old), one of the chimpanzees in residence, has participated in sign language research since the age of 6-8 months. She was the first non-human to acquire human sign language. For information: Friends of Washoe, Central Washington University, Ellensburg WA 98926.

Earthwatch is an international research corps with the goal of involving more people in the pursuit of knowledge. Volunteers are sought to join expeditions, or to support them from home. Earthwatch also trains teachers and students, works with schools and museums in 50 states, handles special expeditions for clubs and corporations, and makes films for television and classrooms. Some of the research expeditions described in the Fall, 1981 Earthwatch catalogue are: rhesus monkey of Kathmandu Valley, Nepal; humpback whales of the Caribbean (Samana, Dominican Republic); origins of the Maya (Belize); and prehistoric man of Majorca.

Earthwatch volunteers share the cost of expeditions as well as the administrative costs of planning and mobilizing each project. Membership in Earthwatch costs \$20/year. For information about membership and/or the expeditions, write to: Earthwatch, 10 Juniper Road, Box 127, Belmont MA 02178.

Wayne State University offers graduate and post-doctoral training in developmental psychology with a life-span perspective. Graduate training is also offered in the field of human ethology. Wayne State University recently purchased the assets of the Merrill-Palmer Institute, which include superb child development laboratory and research facilities, an excellent human development research library, and the Merrill-Palmer archives. For information, contact Larry Stettner, Dept of Psychology, Wayne State University, Detroit MI 48202. Phone: (313) 577-2833.

Proposal to Split JCPP. In August, 1981 the APA Ad Hoc Committee on Editorial Policy Issues voted to recommend to the APA Publications and Communications Board that beginning in early 1983, as an experiment, the Journal of Comparative and Physiological Psychology will be split into a) a neuroscience journal to be edited by R. Thompson, and b) a separate comparative journal. The Journal of Experimental Psychology: Animal Behavior Section (JEP:ABS) will continue to be primarily a learning and motivation journal edited by D. Blough.

Cognition and Brain Theory is a quarterly journal that publishes interdisciplinary communications and multidisciplinary research relating to mind, brain, and language. The journal aims to advance cognitive science, examine its philosophical implications, and analyze the neural underpinnings of cognition. Papers in all areas of cognitive science and brain theory are welcomed. Editors are Martin H. Ringle and Michael A. Arbib. The publisher is the Society for the Interdisciplinary Study of the Mind, Poughkeepsie, New York.

Behavioral Processes. Elsevier Scientific Publishing Corp. (Amsterdam) publishes this international journal with the goal of bringing together ethology studies from diverse scientific disciplines such as psychopharmacology, comparative physiology, physiological psychology, and biochemistry. It attempts to bridge the gap between purely descriptive ethology and laboratory studies. Issues of a purely theoretical nature will also be considered. Editor-in-Chief: G. Thines.

Applied Animal Ethology. This international journal deals with studies of the behavior of all animals which are domesticated in any degree or fashion. It publishes ethological studies in which the "applied" aspects are of special importance and interest. Scientifically documented behavioral data and objective behavioral reports, both experimentally derived and gathered as a side-result of agricultural or veterinary studies, are relevant. Published by Elsevier Scientific Publishing Corp. (Amsterdam). Editor-in-Chief: A.F. Fraser.

NEW PUBLICATIONS -- all in English

Developments in Environmental Biology of Fishes. Vol. 1: Ecology: Ethology of Fishes. Kluwer Academic Publishers Group (Dordrecht). First issue 1981. Irregular.

International Journal of Family Psychiatry. International Universities Press (New York). First issue 1980.

Research Annals in Sociology. Eurospan Ltd (London). Editor: R.J. Simon. First issue 1981. Annual.

Research Annals in Behavioral Science. Eurospan Ltd (London). Editor: R.L. Sprague. First issue 1981. Annual.

Speech Communication. Elsevier Science Division (Amsterdam). First issue 1982. Quarterly.

Studies in Australian Culture Series. Howard Arnold (Maidenhead). First issue: 1980. Irregular.

Studies in Historical Archaeology. Academic Press (New York). Editor: S. South. First issue 1981. Irregular.

Studies in Social and Demographic History. Edward Arnold (Maidenhead). First issue 1980. Irregular.

Zooscene. Biosciences Information Service (Philadelphia). First issue 1981. Quarterly. Designed to keep readers aware of developments concerning the Zoological Record.

#### UPCOMING MEETINGS

Evolution of Hormone-Receptor Systems. (Symposia on Molecular and Cellular Biology) March 14-21, 1982 in Los Angeles. Organized by Ralph A. Bradshaw and Gordon N. Gill, Molecular Biology Institute, University of California, Los Angeles.

Gene Regulation. (Symposia on Molecular and Cellular Biology) March 28-April 4, 1982 in Los Angeles. Organized by Bert W. O'Malley, Molecular Biology Institute, University of California, Los Angeles.

20th International Congress of Applied Physiology. July 25-31, 1982 in Edinburgh. For information: Centre for Industrial Consultancy and Liaison, University of Edinburgh, Great Britain.

International Human Ethology Meeting. August 8-13, 1982 in Atlanta, Georgia. Held in conjunction with the IXth Congress of the International Primatological Society.

Animal Behavior Society annual meeting. August 15-19, 1982 at the University of Minnesota, Duluth. Cohosts: Dr. Kamal S. Gindy and Dr. H. Mitzi Doane, Dept. of Psychology.

XIth International Congress of Anthropological and Ethnological Sciences. August 14-25, 1983 in two phases: 1) Quebec City, Quebec, August 14-17, and 2) Vancouver, B.C., August 20-25. The theme of the Congress is "Anthropology and the Public -- the Communication of Scholarly Ideas and the Human Context of Data." Suggested for symposia are now being solicited. For information: Executive Secretary, XIth ICAES, Dept. of Anthropology and Sociology, University of British Columbia, 383 NW Marine Drive, Vancouver, B.C., Canada V6T 2B2.



18th International Ethological Conference. August 29-September 6, 1983 at the University of Queensland, Brisbane, Australia. The Scientific Program Committee welcomes suggestions for plenary sessions. Proposals should contain the following information: 1) title, 2) area to be covered, 3) the case for choosing this topic, 4) suggested subdivision into separate topics, 5) suggestions for possible chairman and speakers, and 6) references. Plenary sessions should be strongly didactic to capture the interest and attention of colleagues from other specialties, yet allow a picture of recent developments and an insight into the contemporary problems or controversies. For further information, write to: Glen McBride, Conference Secretary, Animal Behaviour Unit, University of Queensland, St. Lucia, Australia 4067.

Meeting Reminders:

Ethological Approaches to the Study of Politics. January 6, 1982 in Washington, D.C. Symposium sponsored by the American Association for the Advancement of Science as part of the annual meeting.

Western Association of Sociology and Anthropology 23rd annual meeting. February 11-13, 1982 in Saskatoon, Saskatchewan, Canada.

Immunologic Diseases. February 18-March 3, 1982 in San Antonio, Texas. Symposium sponsored by the Southwest Foundation Forum, World Association of Veterinary Microbiologists, Immunologists, and Specialists in Infectious Disease, and the World Health Organization.

Joan S. Lockard, Ph.D., Editor  
Human Ethology Newsletter  
Departments of Psychology and  
Neurological Surgery (RI-20)  
University of Washington  
Seattle WA 98195  
U.S.A.

QUESTIONNAIRE

EJACULATORY PATTERNS IN NONHUMAN PRIMATES

Your Name: \_\_\_\_\_ \* Cite references  
Address: \_\_\_\_\_ when possible for  
Animal Genus-Species: \_\_\_\_\_ the information  
Where housed/Institution: \_\_\_\_\_ you report.  
Housing Condition: \_\_\_\_\_

- 1) Are these animals:  
single mount-to-ejaculation (SME): \_\_\_\_\_  
multiple mount-to-ejaculation (MME): \_\_\_\_\_  
Both: \_\_\_\_\_  
If both, do you know what proportion? \_\_\_\_\_  
If both, does the ejaculatory pattern vary with rank? \_\_\_\_\_  
\_\_\_\_\_
- 2) Do you observe sexual competition for females between males? \_\_\_\_\_  
\_\_\_\_\_ At what age does intermale competition begin? \_\_\_\_\_  
\_\_\_\_\_
- 3) Do all males housed together engage in sexual behavior? \_\_\_\_\_  
\_\_\_\_\_ How many males are housed together? \_\_\_\_\_  
\_\_\_\_\_ How many females are housed with these males? \_\_\_\_\_  
\_\_\_\_\_ How old are the males \_\_\_\_\_  
\_\_\_\_\_ How old are the females \_\_\_\_\_

- If some males do not engage in sexual behavior, are they subordinate animals? \_\_\_\_\_  
\_\_\_\_\_ dominate animals? old animals? young animals? \_\_\_\_\_
- 4) How much interindividual tolerance does this species exhibit:  
\_\_\_\_\_ with the same sex (female): \_\_\_\_\_  
\_\_\_\_\_ with the same sex (male): \_\_\_\_\_  
\_\_\_\_\_ between the sexes: \_\_\_\_\_  
\_\_\_\_\_ (You may wish to compare your species with rhesus, who are described as having little intermale tolerance, medium interfemale tolerance and little male-female tolerance in contrast to stump-tails which show a lot of interindividual tolerance between all age-sex groups throughout the year.)
- 5) Do males, females or both initiate sexual contact? \_\_\_\_\_  
\_\_\_\_\_ If both - do you know in what proportion? \_\_\_\_\_  
\_\_\_\_\_ Do you observe consorts in this species? \_\_\_\_\_
- 6) How much sex skin coloration and swelling changes do you see associated with the estrous cycle in the females of this species? \_\_\_\_\_  
\_\_\_\_\_ (Again, you may want to use rhesus females as a comparison.)  
\_\_\_\_\_ Do you notice any other behavioral or physiological changes associated with estrous? Please describe: \_\_\_\_\_  
\_\_\_\_\_

- 7) Do males investigate the female genital region by sniffing with the nose or touching with the finger? \_\_\_\_\_  
 If so - how frequently? Everytime they contact a female?  
 More than 50% of their interactions? \_\_\_\_\_  
 50% of their interactions? \_\_\_\_\_  
 Less than 50% of their interactions \_\_\_\_\_  
 Very infrequently? \_\_\_\_\_
- 8) Are these animals subject to predation in the wild? \_\_\_\_\_  
 by what predators? \_\_\_\_\_  
 to what extent? (heavy predation, some predation, little predation) \_\_\_\_\_
- 9) Does male social rank correlate with relative accessibility to estrous females? \_\_\_\_\_  
 Please describe the relationship: \_\_\_\_\_  
 How many different partners might you expect an individual female to have through one estrous cycle? \_\_\_\_\_
- 10) Does male age correlate with relative accessibility to estrous females? \_\_\_\_\_  
 Please describe the relationship: \_\_\_\_\_
- 11) Does SNE or MNE pattern vary with age? Please describe: \_\_\_\_\_
- 12) Does this species live in unimale, age-graded or multimale groups in the wild? \_\_\_\_\_

13) In considering a continuum with dominance and territoriality at the extreme opposite endpoints, what is the degree of territoriality in this species? (you may wish to use a scale with dominance = 1 and territoriality = 5 e.g. dominance 1 territoriality) 5

14) Is the dominance hierarchy in this species rigid and linear or more labile and prone to modification by the formation of alliances?

15) Does male attention to particular females increase at the time of ovulation?

Please send completed questionnaire to:

Carol Shively  
 G. Mitchell  
 Dept. of Psychology  
 University of California-Davis  
 Davis, California 95616

ISHE EXECUTIVE BOARD

The International Society for Human Ethology has a governing structure of an 8-person executive board. Each person serves for a two-year term, with four new members elected each year. In an effort to include diverse perspectives on issues, methods, and theory, one member from each of the following discipline categories must be represented on the board: 1) Animal Behavior, 2) Anthropology, 3) Psychology, and 4) Other Social Science. Current members of the Board who will continue to serve in 1982 are Robert Adams (Psychology), Gordon Burghardt (Animal Behavior), Wade Mackey (Anthropology), and Gail Zivin (Psychology).

VOTE FOR FOUR OF THE FOLLOWING CANDIDATES. BALLOT MUST BE RETURNED BY JANUARY 31, 1982.

→ Please realize when you vote that the executive board must have a representative from the category "Other Social Science". Mail ballot to: Cheryl Travis, Ph.D., Chair, Nominating Committee, Department of Psychology, University of Tennessee, Knoxville, Tennessee 37996, U.S.A.

\_\_\_\_ Camras, Linda A., Ph.D., 1975, Developmental Psychology, University of Pennsylvania. Assistant Professor, Department of Psychology, DePaul University. Research interests: children's facial expressions, display communication, dominance and friendship relations; linguistic pragmatics.

\_\_\_\_ Essock-Vitale, Susan, Ph.D., 1976, Psychology, Brown University. Assistant Research Psychologist and Staff Psychologist, Department of Psychiatry/Biobehavior Sciences, Neuropsychiatric Institute, University of California, Los Angeles. Research interests: human social networks viewed from an evolutionary perspective; comparing the social support networks of normal and psychiatric patients; determining family characteristics which influence patterns of helping.

\_\_\_\_ Fogel, Alan, Ph.D., 1976, Educational Psychology, University of Chicago. Professor, Department of Child Development and Family Studies, Purdue University. Current interests: ontogeny of human mother-infant communication system; development of expressive behavior in the first year of life, including both facial expressions and body motion, particularly gestural activity; analysis of social interaction data, particularly the analysis of elapsed-time effects; development of arousal control and neuro-endocrine factors involved in this process during early infancy.

\_\_\_\_ Jones, Clara B., Ph.D., 1978, Psychobiology, Cornell. Post-doctoral fellow, Museum of Comparative Zoology, Harvard University. Research interests: social evolution in mammals; reproductive competition in mammals, especially primates.

\_\_\_\_ McGuire, Michael T., M.D., 1960, University of Rochester, New York. Professor of Psychiatry, UCLA School of Medicine. Current interests: behavior-biochemical relationships in monkeys and humans; ethological studies of humans, particularly psychiatric patients; sociobiological studies of humans; biosociopharmacology. Currently editor-in-chief of Ethology and Sociobiology.

\_\_\_\_ Porter, Richard, H., Ph.D., 1970, Comparative and Physiological Psychology, Wayne State University. Professor, Department of Psychology, George Peabody College of Vanderbilt University. Current interests: development of social behavior and social preferences; chemical communication; kin interactions (parent-infant and sibling interactions).

\_\_\_\_ Somit, Albert, Ph.D., 1947, Political Science, University of Chicago. President, Southern Illinois University at Carbondale. Political scientist and chairman of the International Political Science Association Research Committee on Biology and Politics. Primary research interests: "biopolitics" -- the application of biological, ethological and sociobiological concepts to the study of political behavior.

\_\_\_\_ Thelen, Esther, Ph.D., 1977, biological science (Animal Behavior), University of Missouri. Professor, Department of Psychology, University of Missouri at Columbia. Current interests: human infancy, especially motor development in a functional and evolutionary context. Looks especially at the nature of the "building blocks" of skilled movement, and the adaptive consequences of prolonged motor immaturity. Teaching interests: human ethology, developmental psychology, infancy, and the psychology and women (with a biological focus).

\_\_\_\_ Vine, Ian, 1966, Philosophy and Psychology, University of Bristol. Lecturer in Social Psychology, School of Interdisciplinary Human Studies, University of Bradford, England. Associated for several years with Dr. John H. Crook's research team in Bristol and became particularly interested in territoriality, interpersonal spacing, and crowing stresses. Current interests: human sociobiology; relationships between adaptive functional analyses of behavior and psychological analyses of proximal causal processes; developmental and evolutionary aspects of altruism and morality (both biological and cultural).

\_\_\_\_ Wiegel, Ronald, Ph.D., 1979, Zoology, University of Illinois. Assistant Research Zoologist, Human Ethology Laboratory, Neuropsychiatric Institute, University of California, Los Angeles. Research interests: conflict resolution strategies in children; ethological studies of language; mathematical models of social behavior; primate communication and social organization. ISHE activities: Co-chair, Committee for an International Human Ethology Meeting; investigating attaining a more formal status for ISHE.

\_\_\_\_ Weisfeld, Glenn, Ph.D., 1978, Human Development, University of Chicago. Assistant Professor, Department of Psychology, Wayne State University. Current research: longitudinal, cross-sectional, and cross-cultural research on dominance relations in children and adolescents. Study in press: erectness of posture as an indicator of dominance or social success.

BALLOT

BALLOT