

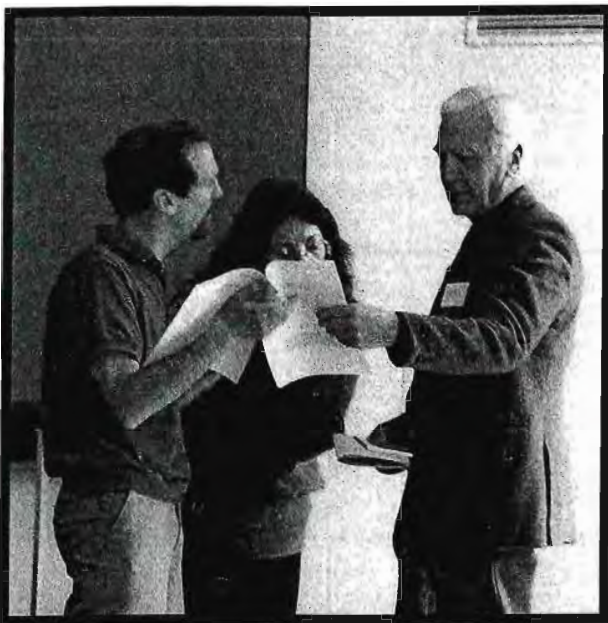
# Human Ethology Bulletin

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## AN INTERVIEW OF ROBERT HINDE

by Linda Mealey

Robert A. Hinde is well known for his ethological studies of birds as well as of humans. Many of us (the interviewer included) first learned about ethology from his comprehensive textbook *Animal Behaviour* (McGraw-Hill, 1966/1970). In his Preface to that text, Professor Hinde described the inter-disciplinary nature of the questions that motivated his career. His comments reflect the influence of his primary mentor, Niko Tinbergen, whose work (especially the 1963 paper) continues to motivate and influence most of the ISHE membership. Professor Hinde wrote: "In this text I

have attempted to survey the area where psychology, physiology, and ethology overlap. The term ethology is applied particularly to the work of students who, although differing widely in the problems they tackle, the level of analysis at which they work, the methods they use and the theoretical interpretations (if any) they adopt, share certain orienting attitudes which are, perhaps, more important as unifying factors than any particular theoretical scheme. Many of these attitudes are a consequence of the zoological training of the early ethologists. They felt, for instance, that the description and classification of behaviour is a necessary preliminary to its analysis; that the behaviour of an animal cannot be properly studied without some knowledge of the environment to which its species has become adapted in evolution; and that questions about the evolution and biological function of behaviour are, in principle, as valid and important as those about its immediate causation".

Hinde, Professor Emeritus at Cambridge, was interviewed at the 10th annual meeting of the Human Behavior and Evolution Society, which met in July, 1998 at the University of California at Davis. Professor Hinde attended one of the early meetings in Ann Arbor, but this was his first appearance at HBES since then. At Davis, he gave a talk entitled "The Bases of Religious Systems".

**HEB:** Can you tell us who or what it was that stimulated your initial interest in ethology?

**Hinde:** Mainly that I was a bird-watcher in my youth. I read Zoology at University, but was interested long before that... maybe age 10.

**HEB:** So, as a young bird-watcher you were more interested in behaviour than in simply ticking off a list of species?

**Hinde:** Yes, I suppose so. As an undergraduate I used to spend a great deal of time on the Cambridge sewage farm which, in those days was an admirable place to find migrant waders. While there, I was lucky enough to stumble on a bird with young which had never bred in Britain before— the Moustached Warbler, *Luscinola melanopogon*. Many ornithologists came to see it, and it got me my first job with David Lack! Then I was fortunate again in that W.H. Thorpe was just starting an ornithological field station at Madingley when I got my doctorate, and he needed a curator.

**HEB:** How have your initial interests in ethology shifted over time?

**Hinde:** Well, I started with birds and have since moved "up the phylogenetic scale" to man. In part, this came about as a consequence of my interactions with John Bowlby. I was involved in his weekly seminars when he was first formulating his ideas on maternal separation in the 1950s. Niko Tinbergen was asked to join in the group, but he was too busy and suggested me instead. It was in this group that I learned the importance of eclecticism; the group included a Freudian, a Kleinian, a Hullian, a Skinnerian, a Piagetian, several psychiatric social workers, and myself. We had nothing in common— only an interest in parent/offspring relationships.

Working with Bowlby also gave me the opportunity to work with monkeys. He needed experimental evidence that separating a child from its parent for days or weeks, as was then the practice in many hospitals, could have long-term psychological effects— and we were able to get that evidence with rhesus monkeys. It also provided an opportunity to discuss the evolutionary implications of such aspects of mother-child interaction.

Later, Jane Goodall and Diane Fossey came to work with me as students in Cambridge. It was as a result of my work with monkeys that I developed an interest in personal relationships— and that led me to study the most interesting species of all!

**HEB:** You were recently overheard to say that you had spent most of your career fighting the concept of instinct. Why?

**Hinde:** This really goes back to the debate between ethology and comparative psychology in the 1950s and 60s. My closest friend was Danny

Lehrman. We were concerned with integrating the insights of ethology with the ideas of comparative psychologists on the roles of experience in development.

**HEB:** Why was it such a long and hard struggle?

**Hinde:** It wasn't really. (Chuckles). That was just hyperbole! But in the context of the HBES meeting there has been an over-use of the module concept, with people falling into the same errors as they did earlier when once over-using the concept of instinct.

**HEB:** Can you tell us about your relationships with Niko Tinbergen and Konrad Lorenz?

**Hinde:** I was a graduate student of David Lack at Oxford. Then when Tinbergen immigrated, he at first had no students— so I had him all to myself in my second year! He was an enormous influence. At that time ethologists were a small and happy band. The text *Animal Behaviour* was originally conceived as a joint enterprise with Tinbergen, and although he dropped out during the planning stage, I still continued to see a lot of him.

Konrad I met on many occasions at conferences; he was always kind and helpful to me. Then, in the mid-50s I criticized the Lorenzian energy model and he regarded me as a traitor until the year he died— when I got a Christmas card from him for the first time in many years.

**HEB:** What stimulated your interest in the evolution of the Teddy Bear?

**Hinde:** I went to a display of Teddy Bears in a local folk museum in Cambridge.

**HEB:** And what was the reaction to your paper in *Animal Behaviour*?

**Hinde:** (Smiles). Benign amusement, I think.

**HEB:** While training in animal behaviour you seem to have developed a deep interest in, and respect for, multi-level explanations.

**Hinde:** Working with monkeys in social groups, I became aware that their behavior was influenced both by their individual characteristics and by their relationships. When Joan Stevenson-Hinde and I were working with pre-school children, we found that girls who tended to be shy (within the normal range) got on better than girls who were not

shy, but boys who tended to be shy got on worse than non-shy boys. This seemed, in turn, related to maternal values: it is seen as good for little girls to be shy, but not little boys. This indicated that cultural beliefs were also important influences on behaviour. From this it became apparent that we must think in terms of levels of social complexity—each level with its own properties, and each affecting and affected by other levels, the physical environment and the socio-cultural structure.

I suggest that it is of critical importance for students of human evolution to remember this: the behaviour we observe is the result of these dialectic relations between pan-cultural human characteristics, the several levels of social complexity, and the socio-cultural structure. All the complexity of human behaviour derives from these relations.

**HEB:** Like Dawkins, you are interested in the relationship between science and religion. How are your views on this topic different from his?

**Hinde:** I agree with Dawkins' view about the fallacious nature of many religious beliefs. But his comments seem purely destructive. This is unsatisfactory because: a) religion is important to some people and until we have something better to put in its place, we should be careful about taking it away; b) Dawkins criticizes religious belief and doesn't seem to realize that there is much more to religion than belief; and c) religion poses the ultimate question for Darwinists.

**HEB:** Many American ISHE members refer to themselves as 'behavioural ecologists' or 'evolutionary psychologists'; very few refer to themselves as 'ethologists'. In America, computer spell-checkers do not even include the word 'ethology'. In his classic (1963) paper "On Aims and Methods of Ethology", Tinbergen was unable to define the field other than by reference to a particular body of literature. Now that the literature is significantly larger and somewhat different, can you update us with a definition?

**Hinde:** I still like to go by the definition in the introduction to Animal Behaviour. It is no good being passive: I suggest you get American spellchecks up to date!

For Further Reading:

R.A. Hinde, Animal Behaviour: A Synthesis of Ethology and Comparative Psychology, McGraw-Hill, 1966/1970.

R.A. Hinde, Ethology: Its Nature and Relationship with Other Sciences, Oxford, 1982.

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R.A. Hinde, Individuals, Relationships and Culture: Links Between Ethology and the Social Sciences, Cambridge, 1987.

R.A. Hinde, Relationships: A dialectical perspective, Psychology Press (UK), 1997.

N. Tinbergen, "On the Aims and Methods of Ethology", Zeitschrift für Tierpsychologie 20:410-433, 1963.

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## New Membership Directory

We are now preparing the new membership directory 2000 with a more extensive use of the internet resources. As we have our own internet server, provided by Karl Grammer for a number of years, our new directory will "happen" there.

FIRST, your personal info should be sent via the internet. I will provide the form like the current email-form, which you can find at the old maillist-form-address:

<http://evolution.anthro.univie.ac.at/maillist/form.html>

Even if you have already used the email-form on the server, you need to use the new form on the same page again! If it is not possible for you to use the internet-form or email, please send your data via fax to Astrid Juette (+43-1-31336-788) (Full name (first, last name), title, postal address, tel, fax, working field (max 6 words), email, homepage)

SECOND, the directory will be permanently available via the internet. Contrary to the email list, which is now accessible for everyone on the internet and serves as a kind of advertisement for

our society, the member directory will be accessible only for members via password which will be very simple and will be distributed with the autumn newsletter. The email list will probably be shortened to only the homepage and email, and the affiliation-info will be integrated into the new directory.

THIRD, you will have to check on the form (or indicate on your fax) if you want a printed version of the directory. This also saves money for printing and shipment and many of us will be faster with finding the list on the internet than finding the booklet anyhow. By the way I encourage you to send an email (fax) if your data changes during the following years (or is printed incorrectly). This also means the internet-directory will be more recent than a printed one can be. Please send your info for this directory today! Take the time even if you think your data is still correct! In order to meet our publication date, deadline for submission of personal information is the 31st August 1999.

Also, Please note, that the name of our server will change with the end of this year to <http://evolution.anthro.univie.ac.at/ishe.html>

Astrid Juette, membership chair  
(see officer box at right)

**ISHE Web Page:**

<http://evolution.humb.univie.ac.at>

**Membership Renewals**

It is time to renew your membership for 1999 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 the current year, it is time to renew your membership.** Please report any errors, change of address, etc. to the Treasurer. Current dues and directions for payment are given on the last page. Allow four weeks for recording changes.

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# Brief Articles

## *Human Ethology in Extreme Settings:*

### *From the individual in orbital flight to a small group in a polar base*

By Carole Tafforin

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Studies of human behavior in unusual and extreme environments have been developed over the past 12 years in Toulouse in France first, at the Laboratory of Neuroethology (Paul Sabatier University) then, within the frame of "Ethospace" (Research and Study Group in Human and Spatial Ethology) dedicated to applied human ethology. Our basic objective was to analyze the adjustment strategies of individuals to new situations through quantitative ethological descriptions. Applications provide solutions for organizational problems of living, working or entertainment spaces by improvement techniques of selection, learning, training and simulation techniques. Results deal with behavioral adjustments of humans to weightlessness (orbital and parabolic flights), immersion (swimming pool), training (ground), sensory disturbances (aerobatics), visual stimulation (computer model), antiorthostatic decubitus (bedrest), social and spatial confinement (tank and polar base).

#### **Orbital flight studies**

Ethological analysis of video recordings on board US shuttles and the orbital Mir station provide quantitative descriptions of behavioral adaptations of astronauts as a mission proceeds (Tafforin et al., 1989). Data showed how astronauts elaborate a new world of perceptions and actions through the diversification of body orientations in a real 3D weightless space. Changes of sensory environment and motor behavior accordingly induce new functions for movements such as sequences of hand graspings

followed by body impulsions for moving while assuming slightly flexed postures and downward body orientations with head-down positions.

#### **Parabolic flights studies**

On the first day of a space mission, an astronaut's previous training allowed immediate adaptive adjustments. A complementary study of the first minutes in microgravity experienced during parabolic flights (Tafforin, 1996) revealed significant motor disturbances: swimming reflexes, very slow movements, forelimb lateralization and motility, predominant grasping and persisting upright position. Untrained humans progressively freed themselves from vertical position with time and experience, optimizing their adjustment to 3D. They elaborated new environmental constraints by assuming orthogonal positions between their body axis and cues direction. Astronaut's behavioral skills improved their mental representation of space.

#### **Swimming pool studies**

During both water immersion and orbital and parabolic flights, humans can orient in any direction of space without weight load. Ethological data of a similar experiment in parabolic flight and swimming pool, i.e. null buoyancy, (Zappalorto & Tafforin, 1993) revealed both a large diversity of orientations and postures repertoires. Nevertheless body segments dispositions in immersion seemed to optimize hydrodynamics, modulating speed and trajectories. With time and experience, swimming movements were progressively replaced by hand graspings and press holds similar to microgravity.

#### **Ground studies**

Both in parabolic flight, water immersion and on ground, a training procedure inspired from dancing techniques (Dubois & Tafforin, 1994) was applied for improving astronauts's motor skills. Ethological validation showed better behavioral adaptation to microgravity for trained subjects: conservation of movements, direct body stabilization in space, easy graspings and press holds with limbs, pelvis motility with twisting movements, wider postural adjustments by trunk flexions, head tight to neck-trunk axis allowing accurate movements. Following these studies dealing with the role of visual vs gravitational vertical in space, a new visual localization for 3D human moving in a shuttle are not much impaired as by as the gaze does not pivot over the horizontal. It would be based on a transformation mode of spatial information mode beyond.

**Aerobatics studies**

In that way, onboard a cockpit constraining to immobility with direction changes, visual information prevails. Ethological data collected in aerobatics showed that experienced pilots reorganized efficiently their movements with fixed head and trunk positions, frequent eye movements scanning alternately dials and sky cues for active and accurate piloting. Conversely, neophytes cope with the stress with frequent head movements, impairing visual information, and passive and inaccurate mortality, not anticipating aircraft movements.

**Bedrest studies**

Effects of hypokinesia and cardio-vascular deconditioning in space were also simulated in bedrest situations. Ethological data showed that behavioral flow increased significantly the first day with many comfort movements and collateral activities. Number of postural changes increased when the subject tried to grasp and manipulate any object in the proximate environment, better reorganizing his body segments than changing whole body orientation. This suggests that microgravity impair the organism as a whole.

**Confinement tank studies**

As a result, space missions simultaneously require behavioral adjustments to unusual physical conditions and social adaptation to the crew. Ethological data in terms of interindividual distances and interactions collected on small confined crews (3 to 6 members), during simulations in tanks (ISEMSI (1), EXEMSI (2) and HUBES (3)) revealed social group disorganization. Over time (1 to 4 months) crew members built successively personal, social and public spaces, according to Hall's classification (1971) but with confinement duration social stress increased and long term social adaptation never succeeded.

**Polar base studies**

Another confinement situation was studied in Antarctic Base. Reduced space, working load, rough climate, hazard and isolation duration (about a year) were the conditions surrounding enforced social adaptation. Preliminary ethological observations showed members of the studied group scattering more as wintering proceeded. Group composition became unbalanced with members grouping together by status. But the whole team stayed in a limited space, exhibiting stability from the beginning. At mid-winter, about half-time, interindividual distances reached a

maximum, then behavioral stereotypes developed and proximities remained constant.

To conclude, these studies in human ethology revealed that behavioral adaptation to unusual or extreme conditions, real or simulated, appeared more duration (from 1 month to 1 year) than environment dependent. Nevertheless sensory and physical constraints forced motor behavior changes and social ones induced new spatial strategies. As a result, the observed adaptive dynamics must be considered synergistically with physiological, psychological and behavioral factors.

- (1) ISEMSI : Isolation Experiment for European Manned Space Infrastructure
- (2) EXEMSI : EXperimental campaign for European Manned Space Infrastructure
- (3) HUBES : HUman Behaviour in Extended Spaceflight

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*Environmental Systems*, Monterey, California, United-States.

Zappalorto, R. & Tafforin, C. (1993). Ethological analysis of the human spatial behavior in three-dimensional and weightless environment. *23rd International Ethological Conference, Torremolinos, Spain.*

*Acknowledgment:* These studies were supported by the Centre National d'Etudes Spatiales (CNES), the Conseil Régional de Midi-Pyrénées, de l'Institut de Médecine et Physiologie Spatiale (MEDES), the Eurpena Space Agency (ESA), the Ministère de la Défense (DRET) and the Institut Français pour la Recherche et la Technologie Polaire (IFRTP).

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## The Legacy of Mary Salter Ainsworth (1913-1999)

By Peter LaFreniere

Mary D. Salter Ainsworth, one of this century's most influential developmental psychologists and an early pioneer of human ethology died in Charlottesville, VA on March 21, 1999, after a lengthy illness. She will be greatly missed by the many students, colleagues and friends whose lives she touched. Her empirical work on the development of the mother-infant attachment bond has had an ever-widening impact on the way we view infant socio-emotional development, parent-child relations, and relationships in general.

Mary Ainsworth grew up in Toronto and remained there throughout her formal academic training, earning her BA from the University of Toronto in 1935, her MA in 1936, and her Ph.D. in developmental psychology in 1939. She then went on to become involved in attachment research at London's Tavistock Clinic under the direction of John Bowlby, and the rest, as they say, is history. During her stay at Tavistock she was not much swayed by Bowlby's ethological explanations, having already become convinced that attachment and dependency were best explained by principles of drive theory. However, the first and most important test for Bowlby's theory of attachment

was to come from Mary Ainsworth in a series of landmark naturalistic and laboratory studies.

Her first independent research opportunity arose a short time later while living in Uganda. She intended to study weaning practices in Ganda mothers because she had heard that they weaned their children by sending them off to stay with their grandparents. When she found out that such separations were no longer practiced, she turned her attention to the attachment behaviors described by Bowlby. Much to her surprise, the experience of observing 28 Ganda mothers and their infants in their everyday environment convinced her entirely of the essential validity of Bowlby's ethological model. She observed that the typical Ganda infant formed a specific attachment to the mother, used her to explore the surrounding environment, and protested separation by crying or attempting to follow her. The different stages of their attachment appeared to unfold according to the sequence outlined in Bowlby's model, though Ainsworth remained alert to observations that did not seem to fit his theory. Indeed, her attention to individual differences in the attachment relations she observed in Ganda formed the basis of her extremely important contribution to attachment research.

Her first scheme for classifying these different attachment patterns describes a three-fold taxonomy including secure, insecure and unattached types based on the apparent strength and security of the attachment relation (Ainsworth, 1963). Later Ainsworth became convinced that all infants became attached but that some showed little felt security and other's attempted to conceal their need for their mothers. The empirical process exerted its own inevitable press on theory development.

In 1962 Ainsworth returned to this task in her now classic Baltimore longitudinal study of mother-infant attachment. Again she relied upon extensive naturalistic observation of relatively few subjects. Regular four-hour home visits were made to observe 26 families beginning a few weeks after delivery, and continued at 3-week intervals until about 54 weeks. Consistent with the traditions of ethological field work, Ainsworth believed that only extensive naturalistic observation could provide a broad enough, and fine enough net to capture the details of the attachment process as it was played out in each unique setting. From this inductive approach involving about 72 hours of observation in each home, together with the cross-cultural

observations in Uganda, Ainsworth was able to document an ethogram of the typical attachment behaviors shown by the Ganda and American infants.

With this descriptive base, Ainsworth was now in a position to develop a laboratory procedure to assess attachment patterns. The impetus for developing such a procedure was provided in part by her failure to observe secure base phenomenon in the American babies, as she did with the Ganda babies. Ainsworth reasoned that the American infants were comfortable with the familiar routines of the mother coming and going inside the home and that she would need to place the infant and mother in a less familiar environment in order to elicit the secure base behavior.

The breakthrough came during a half-hour flash of inspiration during which Ainsworth worked out the essential details of what has become known as the Strange Situation (Karen, 1994). The goal of the procedure was to provide a novel environment that would arouse the infant's motivation to explore while at the same time arouse a certain degree of security seeking. Separation in such an unfamiliar setting would also be likely to activate the attachment system and allow for a direct test of its functioning. The validation of the procedure and its scoring method was grounded in the naturalistic observation of exploration, crying, and proximity seeking in the home. No single behavior can be used to assess the quality of the infant's attachment to the caregiver. By itself, crying in response to separation merely shows that the attachment system has been activated. Infants could differ in the amount and intensity of crying as a function of many factors including age, temperament and transitory contextual factors like illness. In her second book, *Patterns of Attachment, a Psychological Study of the Strange Situation* (Ainsworth, Blehar, Waters, & Wall, 1978), Ainsworth and colleagues describe the behavior-in-context criteria for scoring attachment in the strange-situation. The key to this assessment lies in detecting the organization or pattern of the infant's responses to the changing context, particularly the infant's response to the caregiver upon reunion.

Without question Ainsworth's strange-situation paradigm provided the impetus for moving attachment theory out of the armchair of theoretical speculation and into the crucible of empirical debate. It is supremely ironic that Ainsworth has been criticized for relying on an

artificial laboratory procedure to assess the quality of the infant's attachment to the mother. No one, before Ainsworth, and no one since, has ever invested anything like the 72 hours of home observation per infant-mother pair, to say nothing of the earlier years invested in observing attachment patterns in the everyday life of Ugandan mothers and children. Looking back at the phenomenal interest the scientific community has accorded her laboratory procedure, Ainsworth commented, "The fact that the Strange Situation was not in the home environment, that it was in the lab, really helped ... I only did it as an adjunct to my naturalistic research, but it was the thing that everyone could accept somehow. It was so demonstrable." (Karen, 1994, p. 163.).

Throughout her career at Johns Hopkins University and later as Commonwealth Professor at the University of Virginia, Mary Ainsworth was a model of the involved scientist-practitioner. Towards the end of her career she was to earn well-deserved recognition as one of the pre-eminent developmental scholars of her era, garnering numerous awards and honors.

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### ***Sexually transmitted diseases and biocultural responses: Best way to skin a paradigmatic cat?***

**By Ronald Immerman & Wade Mackey**

Two recent developments offer an opportunity to witness how the dynamics of biocultural evolution operate. The two developments are (i) the (publicity of) increasing rates of sexually



transmitted diseases in the U.S. and (ii) the very high rates of HIV infection in Sub-Saharan Africa. Sexually transmitted diseases (STDs) in general and HIV in particular have the potential to worsen the reproductive health of a group or community. For example, STDs can generate pelvic inflammatory disease which, in turn, results in infertility by causing a blockage of the fallopian tube, and STDs can greatly increase rates of ectopic pregnancies which lead to increases in maternal mortality. Indeed, prior to modern surgical techniques, 80% of ectopic pregnancies were lethal to the mother. In addition, STDs, which are passed from the mother to the fetus, can increase infant mortality and infant morbidity. Of course, an HIV infection which eventuates in AIDS is currently fatal.

*Ceteris paribus*, those families or clans within a group that reduce or preclude STD infections from occurring among their mating partners would have a clear advantage vis-à-vis within-group competition in terms of reproductive health and proportions of productive members. Similarly, those groups that minimize or preclude STDs from occurring would have a clear advantage over alternative groups that were pandemically infected with STDs, i.e. in between-group competition. STD free communities would systematically displace or replace STD laden communities.<sup>1</sup>

Of interest to this note are one epidemiological trend and two gender asymmetries which occur within the domain of STDs. The epidemiological trend is that the best marker for an individual contracting an STD is for that individual to have multiple sexual partnerships. The two gender asymmetries include (i) male-to-female transmission of the diseases is generally more efficient than female-to-male transmission: females, compared to males, are more vulnerable to STDs per copulation, and (ii) STD infections, once contracted, are more likely to result in female infertility rather than in male infertility.

#### Options to respond to endemic STDs

There are three biocultural options by which a culture can successfully counter an STD infestation. (1) The culture can do nothing substantive and let the co-evolution of the parasite and the host allow a mutual adaptation. If successful, the mutual adaptation would entail surviving hosts whose fertility is minimally reduced and surviving parasites which are not lethal to the

hosts. (2) The culture could institute mores & folkways -- and appropriate sanctions -- which minimize multiple partners and thereby minimize STD contagion. Such a reduction would tend to eventuate in some version of the nuclear family. (3) The culture could cultivate and rely upon sophisticated prophylactic and medical technologies either to prevent or to ameliorate dangers from STD infections.

Currently, Sub-Saharan Africa seems to be relying more upon options #1 and #2. Western Europe and its extensions have increasingly shifted emphases from option #2 toward option #3. Other cultures, e.g. cultures incorporating fundamentalist religions, rely more upon option #2 to cloister females and to prescribe female monogamy. Such cloistering and prescriptions minimize multiple sexual partnerships and, thereby, attenuate the spread of any STDs which may be harbored in the breeding population.

An interesting question becomes: "Is there any one of the three strategies which is more effective across generations than its competitors?" Or framed differently: "Is there an interaction effect such that different types of social structures are better pre-adapted to one strategy rather than alternatives, and, thereby, distinct mosaics of society x strategy are equally effective, but for different reasons?"

Either by tautology or by definition, the "winners" will be those biocultural groups which have a higher proportion of the world's Homo Sapiens than their competitors in subsequent generations. The interface of ethological theory and demographic data emanating from populations experiencing STD epidemics should prove both informative and challenging.

#### FOOTNOTE

1 For an expanded discussion on the relationship between STDs and cultural evolution, see "Establishing a link between cultural evolution and sexually transmitted diseases": *Genetic, Social, and General Psychology Monographs* 123(4): 441-460. (1997) by Ronald S. Immerman & W. C. Mackey

## ANNOUNCEMENTS

The XXVI International Ethological Conference will take place 2-9 August, in Bangalore, India. This year's topic is "Individual Differences in Humans and Other Animals". Below is the line-up of speakers and topics.

### Part 1: Patterns and Adaptations

Samuel Gosling: "Personality dimensions in hyenas and other animals"  
Rebecca Ledger: "The validation of a questionnaire for the assessment of individual differences in pet dogs"  
Marie Bouissou: "Individual differences in fear reactions in farm animals: Methods of assessment and factors of variation"  
Sergey Budaev: "Adaptive analysis of human Big Five personality traits"  
Kristine Coleman: "Behavioural inhibition: A new look at a familiar trait:"

### Part 2: Proximate mechanisms

Stephen Suomi: "Genetic and experiential influences on individual differences in personality development in rhesus monkeys"  
Ton Groothuis: "The development of inter-individual differences in social behaviour: The interplay between social experience, early hormones and non-genetical inheritance in black-headed gulls"  
Vera Voznessenskaya: "Mechanisms of individual variation in sensitivity to androstenone in mice: Genetic and environmental influences"  
Igor Nechayev: "Development of alternative strategies in social behaviour and dispersal patterns in fishes"  
Pict Drent: "Functional significance and heritability in coping styles in a free living bird, the Great Tit"  
Krisztina Lakatos: "Infants, mothers and infant temperament: Who shapes the other?"

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### \*\*\*\*\* The 1998 ESS Meeting in Moscow \*\*\*\*\*

By Frank Salter, Max-Planck- Institut für Verhaltensphysiologie, Von-der-Tann-Straße 3, D-82346 ANDECHS, Germany

The 1998 annual meeting of the European Sociobiological Society was held between 31 May and 4 June at the Russian State University for the Humanities, an institution converted to civilian use after a long history as a special establishment for training Soviet apparatchiks. Lenin spoke there in the 1920s. What a transformation! The Institute of Cultural Anthropology, whose members hosted the meeting, demonstrated an openness to ethological and other evolutionary approaches that compares very favourably with universities in Western Europe and the United States.

Our hosts were Dr. Marina Butovskaya, Dr. Andrey Korotayev, and Dr. Olga Khristoforova, all of the Laboratory of Social and Cultural Anthropology in the Institute of Cultural Anthropology. The meeting was supported by a grant from the Russian Foundation for Basic Research.

The conference was conducted in English. As Peter Meyer remarked, this created a privileged environment for attendees from Western Europe and America, all of them native English speakers or familiar with the language. While many of our hosts were also competent in English (among other languages!), on the whole this represented an act of considerable generosity on their part, for which we were grateful and which should never be taken for granted.

Preliminaries included a tour of the spectacular architectural sites of the Kremlin and Red Square, and an official welcome from Yuri N. Afanasiev, Rector of the host university. The conference theme was the sociobiology of ritual and group identity, though papers covered a wider range of topics. The paper titles convey the breadth of these themes:

Robin Allott, Group identity and nation identity

- Konstantin Bannikov, Ritual and social structure of "extreme groups"
- M. Bujatti-Narbeshuber, Meta-meme rituals teleonomically change meme-rituals and a gene-ritual.
- Bergljot Borresen, Rituals could influence a hypothalamic "main switch" for social emotions
- Zhang Boshu, Biological and social perspectives of human group identity: A case of Chinese culture
- Marina Butovskaya, Gender identity as a basis for fundamental social opposition Valery Chalyan, Behaviour of free-ranging hamadryas baboons on meeting
- Johan M.G. van der Dennen, Ritualized "primitive" warfare and rituals in war: Phenocopy, homology, or...?
- Margarita Deriagina, Social behaviour and communication of neotropical monkeys
- Harald A. Euler, Sabine Hoier, and Elizabeth Politz, Kin investment of aunts and uncles: Why is the matrilineal bias stronger in women?
- Vladimir Friedmann, Ritualized demonstration effectiveness as supporting mechanism for integrating some different individual social life strategies in steady social structure framework: An experimental study of the great spotted woodpecker
- A.A. Gliskov and M.G. Sadovsky, On the existence and duration of social norms
- Natalia Haldeyeva, The role of human appearance and the concept of anthropological autoidentification
- Sabine Hoier, accelerated menarche of women from irregular family environments: How to find an explanation?
- A.A. Kazankov, Factors of the inter-community conflicts among the hunter-gatherers of the arid zones
- William Kitchin, Law as anti-ritual
- Alexander Kozintsev, On the adaptive value of laughter: Tickling and the origins of humour
- Natela Meishvili, Intergroup differences of parental behaviour in macaques
- Peter Meyer, Peculiarities of human rituals: A borderline for homologies?
- Balaji Mundkur, The migration of rituals and sexual symbols in folk religion
- A. V. Oleskin, I. V. Botvinko, T. A. Kirovskaya, and E. R. Kartashova, Primitive human social structures and modern society: An ethological perspective
- Zhanna Reznikova, T. Novgorodova, and E. Dorosheva, How ants identify their symbionts and competitors: Special ways for special mates
- Zhanna Reznikova and Boris Ryabko, Using ideas of information theory to reveal analogies of ant and human languages
- M. G. Sadovsky and A. A. Gliskov, Toward the biology of law
- Osamu Sakura, The reception of sociobiology in Japan, with a preliminary comparison to Germany and Korea
- Frank Salter, The welfare state versus ethnic pluralism: Ethological theory, research program, and invitation to collaborate
- Stephen K. Sanderson, Extending sociobiology's explanatory power. Synthetic materialism: An integrated theory of human society
- Vladimir N. Shinkaryov, The Khasi procreation ideas: Aristotle or Galen?
- Marina Vanchatova, L. Firsov, and N. Savina, Introduction of a group of hamadryas baboons from Leningrad Zoo to an island: Individual changes of behaviour
- Tatu Vanhanen, Roots of group conflict in ethnic nepotism?
- Oleg V. Yegorunin, Ethnonyms of Tai-speaking peoples and problem of their self-identification

Abstracts can be found at the ESS website:  
<http://jurix.rechten.rug.nl/rth/ess/ess.htm>  
 The next meeting of the ESS will be held in the year 2000; the place has yet to be determined.

## Book Reviews

### *Male and Female: Evolution of Human Sex Differences*

By David C. Geary. Washington, DC: American Psychological Association, 1998, 397 pp.

Reviewed by Kevin MacDonald. Department of Psychology, California State University—Long Beach, Long Beach, CA 90840-0901 USA

Human sexual behavior has become the centerpiece of the evolutionary analysis of human behavior at least partly because there is a very rich theoretical basis stemming from Trivers's (1972) seminal article on parental investment. In stark contrast to other social science perspectives, this theoretical base has provided evolutionists with the ability to make predictions regarding human behavior, and the result has been dozens of empirical studies that essentially confirm the utility of this approach.

Given the overwhelming success of the evolutionary perspective in this area, it is tempting to suppose that little remains to be done. However, reading this book made me realize how badly a scholarly book in this area was needed. This is first and foremost an excellent book—a must-read, both for specialists in the area of sexual behavior, as well as people interested in evolutionary psychology generally. Throughout the volume the reader is provided with highly detailed, nuanced presentations rather than superficial summaries. Particularly noteworthy in this regard are Chapters 2 and 3 that cover the theory of sexual selection and the data from animals. Many of those doing research on humans from an evolutionary perspective are not familiar with the details of this literature, and the typical examples appearing in popularized treatments fail to convey the subtlety and variation that is actually out there. Geary has covered this literature in an authoritative manner. He has not relied on summary statements or thumbnail sketches or on widely known examples like elephant seals and peafowl, but has delved deeply into the original literature and the result is an awareness of the complexity and subtlety of the issues.

By the nature of their interests, evolutionists are forced to become familiar with literatures in evolutionary biology, neuropsychology and genetics, anthropology, and psychology. Geary is up to the task. Chapters 4 and 5 on paternal investment and sexual selection in contemporary humans are cases in point. There are discussions of general theoretical issues grounded in evolutionary biology, primate patterns, the cross-cultural data gleaned from anthropological accounts, the social regulation of sexual behavior in historical Western societies that has resulted in socially imposed monogamy, neurophysiological mechanisms, and individual differences revealed by psychological research in contemporary Western societies. His emphasis on the developmental literature and his attention to individual differences are often lacking in treatments by evolutionists. Particularly welcome is the chapter on paternal investment. Paternal provision of resources has a clear effect on offspring survival in many pre-industrial societies, but also in contemporary developed societies, Geary concludes that "children living in stable social and home environments and with both biological parents appear to be in better health and apparently enjoy a longer life span, on average, than children living in other situations" (pp. 113–114). Because many children abandoned by their biological father do survive, however, Geary concludes that over evolutionary time paternal investment resulted in conditional rather than an absolute benefits to children. The conditional importance of paternal investment then sets the stage for the complex dynamics of sexual selection in humans.

This book is far more than an exhaustive review of the literature, it is chock-full of insights and original ideas. Indeed, Geary's main contribution really amounts to a powerful new paradigm for conceptualizing evolutionary psychology. Geary's starting point is Figure 1. At the apex of the triangle is the fundamental goal of controlling social, biological, and physical resources that support survival and reproduction. For example, males and females evolved very different strategies for controlling reproductive resources, including a greater interest in social dominance issues in the case of men and placing a higher value on reciprocal social relationships in the case of women. In the middle of the triangle are emotional mechanisms that support and direct strategies aimed at acquiring resources. Examples are the various attributional mechanisms that

allow people to interpret failure as due to external causes, and fantasy mechanisms that allow people to rehearse desired scenarios in a manner that would reduce the difference between fantasized and actual outcomes in the real world.

The bottom three domains, consisting of social, biological, and physical modules, all presuppose evolved cognitive systems. Geary reviews the controversy over domain-specific versus domain-general mechanisms in psychology, and concludes that both types of systems are important. Some systems are domain-specific and have a modular architecture (e.g., song learning in birds), but other systems are domain-general, such as the prefrontal cortex which regulates a variety of more specific systems. Domain-specific systems

are contextually sensitive: "Evolved systems do not result in fixed systems of behavior that reflexively respond to environmental contingencies but rather are designed to produce behavioral and cognitive variability" (p. 199) so that people can respond adaptively to situational demands. Based on Ernst Mayr's work and much research in child development, Geary distinguishes between open genetic systems and closed genetic systems, the latter impervious to environmental influences while the former represent a sort of "skeletal knowledge" where domain-relevant experience during development (e.g., social play) is required for full adult competence. Children are programmed to seek out such domain-relevant experience by seeking out novel or highly stimulating environments (e.g.,

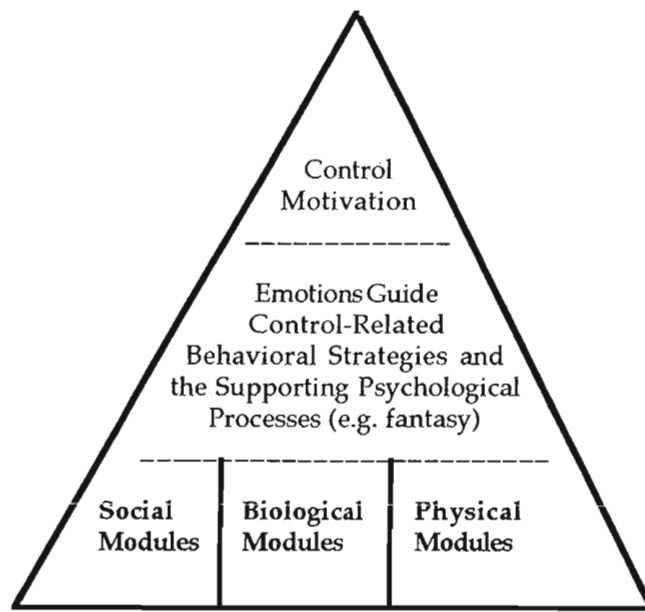


Figure 1: The motivation-emotion-cognition triangle. From Geary, p. 160.

rough and tumble play) and rehearsing social scripts (e.g., playing 'mommy'). Nevertheless, while there is a great deal of inborn structure to the cognitive modules underlying behavior, Geary rejects the view that human behavior is reflexively driven by such modules in response to their eliciting environments. Here Geary emphasizes the modulating effects of belief

systems, a phenomenon that is presumably unique to humans.

Geary distinguishes between two types of open genetic programs. One is exemplified by language learning where the genetic program codes for a finite list of possibilities and experience during a sensitive period activates or deactivates subsets of the possibilities. Such a program is



relatively closed compared to the other type of open genetic program which is exemplified by biological modules where there is no preset finite list of possible flora and fauna. In this case the open genetic program biases the processing of domain-relevant information and influences the categorization processes. However, extensive experience is required to develop the sophisticated knowledge that humans are able to develop. This latter type of cognitive model is quite common, and Geary proposes that one function of the prolonged pre-adult stage of humans is to allow the development of adult competencies adapted to local conditions from the set of skeletal open genetic programs.

With very few exceptions, evolutionary psychologists have tended to focus exclusively on domain-specific mechanisms viewed as adaptations designed to solve recurrent problems in the environment of evolutionary adaptedness (EEA). Geary goes beyond this very restricted paradigm to discuss sex differences in evolutionarily novel domains, particularly domains that rely on domain-general mechanisms like general intelligence ( $g$ ). As Geary notes, high intelligence is an advantage in novel, complex, constantly changing environments where people must attend to a multiplicity of tasks and where learning new skills has great payoffs. As such, general intelligence is the very antithesis of an adaptation narrowly defined as a solution to a specific recurrent adaptive problem in the EEA. Rather general intelligence is a domain-general adaptation that evolved to deal with a general class of problems, the need to cope effectively with novel (non-recurrent) ecological conditions and some aspects of human social interaction. Regarding the relationship between general intelligence and human social interaction, Geary notes that while not all social skills are related to  $g$ ,  $g$  is correlated with skill at negotiating complex social environments such as those present in contemporary business and professional contexts.

Geary proposes that  $g$ , which includes abilities such as speed of information processing and working memory, "reflects the ability to use evolved, or biologically primary, cognitive competencies in ways that are unrelated to their evolutionary function" (p. 308). An example is reading which uses many of the same primary (domain-specific) adaptations involved in language comprehension and production to perform the non-evolved, biologically secondary task of reading. Individual differences in reading ability

are correlated with  $g$  and reflect the ease with which children can adapt their evolved systems to accomplish a novel task. Unlike spoken vocabulary which develops rapidly and effortlessly—a defining feature of a domain-specific adaptation, reading develops slowly and with effort, and it is facilitated by  $g$  as a domain-general evolved mechanism.

Geary's treatment is a much needed antidote to the exclusive emphasis on domain-specific mechanisms so common among evolutionary psychologists. In this new paradigm, domain-general mechanisms assume their rightful place at the very center of evolutionary psychology. Geary notes that people with relatively high general intelligence are viewed as a valued resource in mate-choice in cultures around the world, indicating that individual differences in  $g$  have been a critical resource in sexual selection and human mate choice. Moreover, reading, writing, and other evolutionarily novel skills, such as solving mathematical problems, turn out to be very important in attaining social status in contemporary and many historical societies. It is noteworthy that social status has been highly correlated with reproductive success in traditional human societies—a phenomenon that has undoubtedly resulted in a eugenic effect, at least until very recently, in human evolution (Lynn, 1997). General intelligence has therefore been a critical component of human adaptation, and individual differences in  $g$  have been a very salient feature of the human mating landscape.

Geary rejects the proposal that males have a higher  $g$  than females. Although some commonly used subtests of intelligence do show sex differences, Geary argues that the sex differences that have been found are most likely the result of sex differences in biologically primary domain-specific systems. However, there are also a variety of important sex differences in secondary adaptations, such as sex differences in some areas of mathematics favoring boys and sex differences in some areas of language processing favoring girls. In Geary's view, these sex differences stem from evolved sex differences in primary adaptations such as those involving three-dimensional spatial abilities required for navigation in the EEA, but utilized now in the service of the biologically secondary task of solving algebraic word problems. Sex differences in average ability in these primary abilities are important for occupational attainment in contemporary societies. For example, 3 out of 5 boys outscore the average girl in

mathematics achievement in samples from the general population. Because of greater variability among males, for gifted samples the ratio is as high as 13:1 for adolescents, and 19:1 for those taking the mathematics portion of the Scholastic Aptitude Test in high school.

However, interest in math-intensive careers tends to be lower even among women who have sufficient mathematical ability to succeed in such careers, a finding that Geary attributes indirectly to sexual selection. Females, to a greater extent than males, are attracted to careers involving intimate and reciprocal social relationships and animate objects (e.g., biology, medicine) rather than inanimate objects (e.g., physics, engineering). Thus "the sex differences in occupational pursuits are a reflection, at least in part, of the the different reproductive motives, such as status striving and interest in people, of men and women" (p. 329).

*Male and Female: The Evolution of Human Sex Differences* is a mature work of great depth and breadth. Its greatest strength is the manner in which it unifies the findings from evolutionary biology, cognitive science, developmental psychology, neuroscience, individual differences, behavior genetics, and ethology. This makes it especially welcome as a publication of the American Psychological Association, since much work remains to be done to convince a great many psychologists of the value of an evolutionary perspective. But I hope that it will also have a broadening influence on those already converted to the evolutionary paradigm, many of whom remain wedded to simplistic paradigms with an exclusive emphasis on domain-specific systems that are unable to encompass the complexity of human behavior. Without such an integrating focus, evolutionary psychology will have only a limited impact and will appear at best as a sterile specialization, and at worst, as a scientific cult, within the broader scope of the behavioral and brain sciences.

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## *Maternal Personality, Evolution and the Sex Ratio*

By Valerie Grant. Routledge 1998, 11 New Fetter Lane, London EC4P 4EE and 29 W. 35th St., N.Y. 10001. ISBN 0-415-15879-6 (hb) or 0-415-15880-X (pb). 222pp. £14.99 or US\$24.99

Reviewed by Linda Mealey, Psychology Department, College of St. Benedict, St. Joseph, MN 56374 USA

It is not often that we hear from our colleagues in the antipodes, so I am pleased to be able, at this time, to both welcome Valerie Grant as a new member of ISHE, and to introduce you to her new book: *Maternal Personality, Evolution and the Sex Ratio*.

When I first became aware of Valerie's book, I thought that the narrowness of its topic might restrict its appeal to only a few other sex ratio specialists. Indeed, those of you who are specialists will already have read much of the literature in this area, perhaps including Val's previous publications, and you will not find anything "new" to justify buying the book. Yet, upon settling down to read this very nice production (keep Routledge in mind for any of your own forthcoming texts), I discovered that its appeal and usefulness would, in fact, be quite broad, and I can recommend it to all ISHE members.

As might be inferred from the title, the book presents a model of maternal facultative sex ratio manipulation (summarized below). It also presents a broad historical background that serves as an excellent example of scientific method and the sociology of science. Because of the inherently interesting nature of the central topic, I could see students in a mandatory (and otherwise perhaps boring) class on research methods or sociology of science digging into this text with relish-- and learning an awful lot in the process. Among the scientists whose work is covered are: biosociologists Richard Udry, Allan Mazur and James Dabbs; evolutionary anthropologists and psychologists Elizabeth Cashdan, David Buss and Robin Dunbar; personality theorists and psychophysicists Hans Eysenck, Marvin Zuckerman and James Gray; and reproductive biologists William James, David Haig and Mark Bellis. Even lay readers who are interested in the psychosocial aspects of mothering would find this



book accessible and exciting: the subtitle "Do Mothers Control the Sex of the Infant?" could snare a significant popular readership (if it were more visibly displayed on the book's cover).

Grant has tried to integrate the Trivers-Willard model of ultimate causation with the various proximate explanations that have been proposed to explain human sex ratio patterns. She first establishes that "dominance"- as measured by a personality questionnaire- can, with greater than chance accuracy, predict the sex of a pregnant woman's future offspring; the more extreme the test score, the more likely her prediction will be correct. These sections essentially present the work that has already been published in her scientific papers (1990, 1996). Next she relates dominance as a personality characteristic to the hormonal patterns that reproductive physiologist William James (1985, 1992) has associated with the conception of males. Finally she invokes known differences in the parent-offspring interactions of mothers of sons versus mothers of daughters, to explain the facultative and adaptive nature of these statistical patterns.

Grant's model adds a series of twists to more traditional interpretations of sex differences in childrearing. Whereas early models suggested that sex differences in children's behavior resulted from the differential treatment they received from parents and other authority figures (who, presumably, held sex-role stereotypes which were imposed upon the *tabula rasa* that was assumed to be the natural state of newborns), developmental research has shown that although adults do hold sex-role stereotypes and treat babies of different sexes differently, there is no direct cause and effect relationship between these stereotypes, parental behavior, and subsequent child development. Later models therefore posited that the differential parental treatment of boys and girls was *elicited* from parents by innate behavioral differences in the babies themselves. Of course, it is not an either/or situation, and the reciprocal dynamic of this interaction is no surprise to human ethologists. It is a dynamic, however, that is still not widely appreciated in the social sciences.

Grant's model accepts neither a direct causal explanation of these correlational patterns, nor a proximate description of the dynamic. Instead, she suggests that both the parenting style of mothers and the sex of their offspring are caused by a third variable, which can explain the

correlation at both proximate and ultimate levels. That third variable is maternal testosterone level. Grant posits (1) that socially dominant women produce more testosterone than others; (2) that the physiochemistry of these women makes them (a) more likely to conceive sons and (b) more physically active, more assertive, and more independent than other women; (3) that these behavioral differences in women affect the style they use in childrearing; and (4) that boy babies and girl babies respond differently to various styles of parenting such that boy babies profit more from the style of parenting that a dominant woman will tend to use and girl babies profit more from the style of parenting that a sub-dominant woman will tend to use. Thus, according to Grant's model, a woman's physiology facultatively adjusts to her immediate status in a way that will affect *both* the sex of her child *and* her parenting style, in concert. Not only does the mother's parenting style best match the needs of her child, her hormonal status during fetal development also "matches" the interests of the child, in that the mother's blood has relatively high levels of testosterone during the gestation of a son, and low levels of testosterone during the gestation of a daughter.

According to this model, the fact that a woman's dominance status (and therefore testosterone output) has both a heritable (stable) basis and an environmental (labile) basis, is the reason why a few women have children of all one sex, but most women who have several pregnancies will have children of both sexes. For a woman to have several children all of one sex, she would have to have a consistently low (or high) testosterone level with only small fluctuations; most women have average levels of testosterone (on a normal curve) and have fluctuations that push them occasionally above and occasionally below the average, therefore not allowing accurate prediction of the sex of child that would be conceived at any given time.

In Grant's model, the relevant chemical events that select for offspring of one sex or the other probably occur prior to conception. Perhaps, e.g., there is differential chemical composition of the membranes surrounding the unfertilized ovum to preferentially allow only X- or Y-bearing sperm to penetrate. Coney and Mackey (1998) suggest that there might be additional mechanisms at work post-conception that allow a mother to adaptively encourage or discourage the

implantation and growth of a conceptus of "the wrong" sex.

Although Grant's research was not inspired by the Trivers-Willard model, her results clearly fit with its premises and supplement the results of other authors who have reported dominance-related patterns in human secondary sex ratios (e.g. Bereczkei & Dunbar 1997, Chacon-Puignau & Jaffe 1996, Chahnazarian 1988, Gaulin & Robbins 1991, Mackey 1993, Mackey & Coney 1987, Mealey 1990, Mealey & Mackey 1990). Perhaps because her book tends to proceed chronologically along the historical lines of her own thinking, it is not until she has discussed her own data and studies of proximate explanations of sex ratio patterns that Grant reviews the cross-species literature and evolutionary explanations. Although I found this organization surprising, I think it makes for a better book: the generalist reader will not want to start directly with theory, and the psychology of mothers is a more interesting and perhaps less threatening way to begin.

I did find one significant "error" in the book- an error of omission: no book on sex ratio is complete without an extensive discussion of Ronald Fisher's evolutionary model of sex ratio, yet despite its otherwise excellent historical coverage, this book neglects Fisher entirely. A single sentence (on p. 106) even attempts to justify sex ratio manipulation in terms of group selection! Fortunately, appearing only so briefly, this inference will go unnoticed by the majority of readers.

All in all, the book's extensive integration of literature across such a diversity of disciplines is impressive. At the same time, the style is personable and accessible; there is frequent use of the pronoun "I" and many research findings are reported in narrative style. At US\$25, the paperback is priced in the same range as most popular books, and is significantly less than most textbooks-- making it reasonable to buy for a personal library or to assign as a course supplement.

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## *Animal Vocal Communication: A New Approach*

By Donald H. Owings and Eugene S. Morton.  
Cambridge University Press, New York, NY, 1998,  
hardback.

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The theoretical ethological perspectives of Owings and Morton provide a rich opportunity for readers to gain a new hold on relationships among the functions of vocalizations, body postures and gestures of various animals, including humans. The key ideas in this intriguing book represent an elaboration of the notion that the communicative acts of nonhumans are generally acts of "management" rather than acts of 'information transfer'. If we think of information transfer as communication about things in the world, things that are external to either the sender or the receiver of the message, then most of what is communicated by animals does not represent information transfer. Instead the communications tend to represent acts of transmission about the physical or emotional states of the sender. More importantly, the acts appear to be selected according to the extent to which they may, as a result of the effects they have on the receiver, establish a survival advantage for the sender of the communication. For example, if the alpha monkey in a troop, growls and makes a fierce-looking face, he says nothing about objects in the world, and in a sense transmits no "information" about the world. He does, however, display his presumable power, and may as a result frighten off potential rivals.

This volume presents numerous engaging examples of the ways that vocal and visual displays of various animals are used for purposes of management of the behavior of other animals. Equally important to the thesis of the volume is the concept of 'assessment'. Just as the animal sender of communications does not typically engage in 'information transfer' about objects in the world, so too the receiver of the communication does not typically engage in information processing about objects in the world. Instead, the receiver engages primarily in an assessment of the value of the sender's communication and what it indicates

about the sender's capabilities or state. The receiver makes decisions based on the assessment, and often they appear to be intelligent ones. For example, the lower-ranking rival monkey may hear and see the alpha monkey's threat display, and assesses it to determine whether the display effectively characterizes both the willingness of the alpha monkey to fight to protect his prerogatives, as well as his ability to succeed in a fight if opposed vigorously.

Both successful living within groups of animals and the natural history of the kinds of displays that are available among animals in any species appear to be determined by the interplay of management and assessment. The authors argue that management and assessment should always be recognized as distinct. It is the fact that the management goals of the sender may not be accepted by the receiver (who may recognize the goals but not accept the purported capabilities and willingness of the producer) that yields the basis for constant scientific interest in communication among many animals. Further, the authors argue that the distinction between management and assessment spurs evolution of communicative systems to new heights by fostering successive adjustments in displays produced by senders (who may find it advantageous to alter signals so that they may get their way with other animals) and in interpretations rendered by receivers (who may find it advantageous to learn when they should disbelieve the signals of other animals).

The book begins with a prologue of delightful examples of communications in various species ranging from the Carolina wren to the human infant. Each of the examples is constructed with the purpose of laying the groundwork for the management/assessment distinction and the development of perspective on how evolution of communicative systems can be best understood in the context of an interpretation that keeps the two clearly separate.

The book continues with a background in fundamental ethology, reviewing Tinbergen's distinction between proximate and ultimate questions of causation in behavior. Adaptive evolutionary change in signals, within this classical interpretation, is often the result of 'ritualization', a stereotyping of actions that increases their efficiency as signals. A key background argument of the book is that this very influential information theory, while making important contributions to evolutionary theory of



communication, may have misdirected our attention by focusing too much upon the transfer of veridical information that could be of use to both sender and receiver. Owings and Morton emphasize instead the self-interested actions of animals both as senders and receivers, actions that often incorporate both intended or potential deception by the sender and the attempt to thwart such deception on the part of the receiver. The authors give important credit to the pioneering work of Dawkins and Krebs (1978) who wrote of 'manipulation' as a primary goal in animal communication, contrasting their approach to the then prevalent view of information transfer.

The authors offer a useful review of the history of research in communication among animals, emphasizing the important new roles that have been played by field recordings and instrumental analyses that have in recent years substantially raised the level of our understanding of evolutionary changes in communication. Morton's (1977) 'motivation-structural rules' interpret many features of animal vocalizations as predictable by reference to a frame in which certain intentions appear to be naturally expressible most effectively with certain acoustic features. Large size, for example, is naturally expressed with loud, low-pitched vocalizations. Consequently, if senders seek dominance, it may be to their advantage to vocalize loudly and at low pitch. The book places these motivation-structural rules squarely in the context of the assessment/management interpretation, because, of course, the sender's intention may be to establish dominance through deception about size, and the receiver's motivation may be to thwart that goal.

After having established the theoretical importance of the assessment/management distinction, the remainder of the book provides a rich elaboration of its implications in face-to-face and long-distance communication, and in communication both within and across species. There are specific sections (Chapter 4) that address implications for perception, motivation, emotion, cognition and development. This breakdown is useful in putting the assessment/management view in perspective. A concluding chapter reinvokes the original examples of animal communication from the prologue and provides interpretation for them in terms of the contrasting 'information' and 'assessment/management' approaches.

If there is something missing from this book, something that could have enhanced its impact, I think it is a perspective-taking in the realm of linguistic philosophy. The work of J. L. Austin (1962) for example, has taught us that human speech communication is delicately structured to accomplish both informational and assessment/management functions. The important distinction Austin promulgated is that between illocutionary force (roughly social intention) and meaning (roughly information). He taught that there is always a distinction to be drawn between the illocutionary force that an utterance conveys and the meanings that it transmits. If one says 'lion', one invokes a concept of the class of beings, lions, and in this way expresses a meaning. But in addition there are a variety of possible social intentions that can be simultaneously transmitted. The utterance could constitute a labeling of a lion in a cage. It could constitute a warning about an impending attack. It could constitute a correction of a prior claim that the animal in question was a tiger. It could constitute a threat that the speaker is about to act like a lion. In each case the meaning of the word is the same, because the same conceptual class of beings is invoked. But the illocutionary force can vary. I think Owings and Morton's treatment of the evolution of communication could have been profitably augmented by consideration of Austin's distinction. For example, an animal communicator (at least in some cases) can be portrayed as transmitting both management intentions (illocutionary forces such as threat or appeasement) and intentional implied information (meanings such as 'I am big and strong' or 'I am small and weak'). Similarly the animal receiver can be portrayed as interpreting both the management intentions of the sender and the validity of the implied information upon which the management goal is expressed by the sender. The authors of this fascinating book clearly understand these possibilities. But the fact that the linguistic philosophy perspective was not addressed may have limited the potential impact of the work in providing a bridge to understanding of relationships between communicative acts of humans and nonhumans.

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## **HUMAN EVOLUTION: A NEUROLOGICAL PERSPECTIVE**

By **John L Bradshaw**. Psychology Press, 27 Church Rd., Hove, East Sussex, BN3 3FA UK. 1997

Reviewed by **Glenorchy McBride**. (Prof emeritus) Psychology Department, University of Queensland, St. Lucia Qld 4072 Australia

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This topic is important to human ethologists. Despite the subtitle and the neurological perspective of this book, the evolution of the brain, of language and praxis is central to what people do and how they go about it. Thus ethologists are concerned here. Less relevant but certainly part of studying our evolution involves starting with the first life on the planet and tracing the path to modern humans, drawing attention to recent developments (provided one reads the relevant references). Bradshaw thus begins with Precambrian and Cambrian life forms with the transitional details through to the mammals, then gives a summary of the evidence on which primates began the change to hominids some 5 to 8 million years ago.

Bipedalism begins the hominid evolutionary story: the various explanatory accounts are covered, along with the skeletal changes and a detailed account of the postural, heat load and obstetric problems involved. Here, as throughout the book, multi-factorial-interactive explanations are favored. Indeed the author sticks to accounts of evidence and reviews of hypotheses, ignoring the needs of many readers to see what conclusion the author has reached from examining the evidence. New evidence on recent hominid discoveries is introduced, with appropriate recognition that it will take time for a new synthesis of the evolutionary progression to emerge and become accepted.

In separate chapters the reader is taken through an account of hominid evolution through the various forms of evidence: molecular, genetic, physical, cultural, environmental, archeological and palaeontological. The lines of evidence are brought together, though clearly, the links are often tenuous. Indeed it is the nature of the evidence in this field that conclusions are rarer than speculations.

The real focus of the book is on language, praxis, behavior, aesthetics and thought, and their association with areas of the brain and the nervous system. There is an impressive array of evidence throughout, though only specialists will be familiar with the many references, often without details of the evidence involved. The similarities between the genetic and linguistic relationships between people are presented and discussed. Various forms of human communication are compared, and spoken and gestural language are analysed and compared with the Chomskyan view of a special language module and with the "continuity theorists" who see slow continuous changes over evolutionary time. Sign languages are not well treated and are not seen as an evolutionary step towards speech.

Evidence from apes and other animals, genetic and trauma damage and the structure of the brain are presented in considerable detail, moving towards a multi-factorial theory of language origin, but without a clear picture of how this could or might have occurred. Most human ethologists see human communication as comprising a complex of speech, voice control, gesture and body form, perfectly integrated, indeed as closely integrated as are the syntactic, phonetic and semantic components of the same process. This differs from the traditional view of gesture being of different form from speech, which is the central problem in human communication. Language and tool use are both hierarchically organised with similar brain areas involved, and it is suggested that both may have evolved from the same pre-existing structure. The author subscribes to the view "that all of our cherished human attributes, so far from being unique, are grounded in our primate evolutionary history". He sees a Machiavellian model, along with primate capacities for care, reciprocity and altruism, as the basis of our social intelligence.

The first step to bipedalism freed the hands and probably made everything that followed inevitable. The stretching of estrous to continuous sexual receptivity gave females access to the help of males when they most needed it, and probably changed the societal structure. Speech and its non-verbal accompanists in voice, hands and bodies is an ancient whole; the components can be separated for discussion, yet their treatment together is needed for a step towards their understanding. Non-verbal behavior accompanying speech can be

treated as emotive and dismissed as not relevant in the study of language- indeed this author does

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All items of interest to ISHE members are 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 book review editor. All submissions should be in English, and sent to the appropriate editor via e-mail, as an attachment in order to maintain formatting. If e-mail is impossible, hard copies will be accepted, as long as they are accompanied by the same text on diskette (preferably in Microsoft Word version 6.0 or earlier). 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.**

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 ideas among scholars. The fact that material appears in the newsletter never implies the truth of those ideas, ISHE's endorsement of them, or support for any policy implications that might be inferred from them.

so-yet the belief that language can be understood only through its study in syntactic, phonetic and semantic structures seems dominant over a study of integrated human communication.

There are many issues which attract ethologists which are not discussed on books on our evolution. Most animals have one or two, mostly seasonal forms of society while we make hundreds, independent of season. Most animals move and hold status in two or three subgroups; we may move in dozens. Attention structures have not been widely studied either in animals or humans though there is excellent work available in groups of children. These are central in all social animals, yet they have not been studied in the neurological situations reviewed by this (or any other) author. There are so many other topics ignored in our conventional human oriented view of ourselves. Religion or

spirituality, chauvinism, music and bonding are very basic human characteristics, probably with as much (or little) hard wiring as the conventional attention to aggression, submission and status, yet we know little about effects on these deriving from various forms and sites of brain injury.

This book covers what is known neurologically of humans, and the topics relevant to our evolution are well presented in a very readable form. It is, however, one of many books that have appeared lately on this topic. My criticism is more about the selectivity of studies of the human condition than it is of this particular book. For this I apologise to readers and to the author.

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### *Diversity of Human Relationships*

By A.E. Auhagen, & M. von Salisch, (1996)  
Cambridge University Press, New York, NY 10011-4211, USA. 1996, 347 pp.

Reviewed by Patricia Noller, School of Psychology, University of Queensland, Queensland, 4072, Australia.

This book was originally published in German in 1993, and has now been published in English. Twelve of the contributors are from Germany or Austria, three are from the United States and one is from England. Thus it has a very different authorship from many other books about relationships.

The aims of the book are to 'broaden vision beyond types of relationships generally favored', to 'give insights into current theories, empirical findings and new ideas on the diverse relationships in everyday life' and to 'consider changes in interpersonal relationships across the lifespan' (pp. 1-3). These aims are generally well fulfilled.

The book is divided into five sections: Foundations, Relationships within the family, Partnerships, Private nonkin relationships, Relationships at work, and Epilogue. It is clear that relationships are covered here that are not usually covered in texts on relationships. There is less emphasis on family relationships and more on nonkin relationships.

The section on foundations contains three chapters. The first is a chapter by Robert Hinde outlining the various dimensions on which relationships can differ. This chapter is basically an update of his 1979 book and has appeared in various forms in various locations.

Lothar Krappmann, in a chapter on the diverse relationships in the social world of children is very critical of what he calls the one-track model of development. He argues that earlier types of relationships are not abandoned as the child ages, but develop as social competencies increase. Krappmann also presents a useful developmental model of relationship types, based on Erikson's (1956) model of development.

The chapter by Maria von Salisch on relationships between children focuses on symmetry and asymmetry in children's relationships with peers, friends and siblings. Comparisons between sibling and peer relationships are made both at the level of face-to-face interactions, and at the level of relationships.

The section on relationships within the family goes beyond relationships between parents and children, to look at relationships between adult children and their parents, the relationships of adult siblings, and relationships in the extended family and in nontraditional family forms. Interestingly, the marital relationship is not included here, but more on that later!

Kurt Kreppner in his chapter on parent-child relationships concentrates on childhood and adolescence, with an emphasis on how the parent-child relationship, although having unique characteristics is embedded within the whole family. He also emphasizes that the family should be considered as a 'dynamic context' or an 'arena of dyadic relationships' not as a static relationship structure.

Yvonne Schutz, explores the advantages and disadvantages of different ways of coping with intergenerational issues in the family. She argues that the segregation of adult children from their elderly parents is no longer functional for the society. She also looks at the implications of earlier parent-child and parent-adolescent relationships for later elderly parent-adult child relationships, particularly where elderly parents require care.



Victoria Bedford looks at relationships between adult siblings. She links adult sibling relationships to childhood experiences in the family, arguing that the sibling relationship is a peer-like relationship with shared parents. She also discusses the effects of gender and the life course on sibling relationships.

Peter Kaiser's chapter on the extended family focuses on relationships between family members not directly related to each other, as well as grandparents and grandchildren, and more distant family members. The chapter includes a complex discussion on the nature of family relationships, and on the characteristics of well-functioning families. He makes quite strongly the point that even though the members of the extended family do not generally live in the same house, relatives are still the primary support system in most families, for example, in times of illness or other types of crises. This chapter provides a useful review of the literature on topics hardly treated by other textbooks on the family, but the sections are generally brief and the material can only be dealt with in a relatively superficial way.

The section on partnerships contains two chapters: one on heterosexual partnerships by Hans Bierhof, and one on same-sex partnerships by Virginia Rutter and Pepper Schwartz. The most surprising thing about the chapter on heterosexual partnerships is that marriage is never mentioned. Although marriage is not as popular as it used to be, in many western cultures most people still marry, many of them several times. The results of ignoring the distinctions between dating, cohabitation and marriage are, I believe, problematic. First, the author does not make clear which findings are related to which type of couple. In addition, these different groups of couples are never compared, even though there are studies that find clear differences between them. According to the index, marriage is discussed in three other chapters in the book, including the chapter on same-sex partnerships.

In this chapter on heterosexual partnerships, the emphasis is on the three stages of relationships: initiation, maintenance and disengagement, and the author rightly comments on the lack of focus, in much relationship literature, on the maintenance of relationships. There is a strong emphasis on attachment theory, styles of loving, the course of love relationships, and on investment theory. I had some problems with the structure of this chapter.

The chapter on same-sex partnerships by Rutter and Schwartz takes up some interesting issues, including the similarities between homosexual men and women and their heterosexual counterparts, heterosexual men, the development of homosexual culture with its consequent effects on behavior and lifestyle, and the issue of whether gender or power has the strongest effect on behavior. Another fascinating part of the chapter was the discussion of the power of ideology (e.g., the importance of equality as an ideal) on homosexual relationships, as well as the effects of heterosexual norms (or the avoidance of such) on behavior in homosexual relationships. Interestingly, the authors also discuss the benefits missed by homosexuals in not being able to marry. Ironic isn't it, when more heterosexuals than in the past are avoiding marriage relationships, homosexuals feel disadvantaged by not having this possibility.

The section on private nonkin relationships includes chapters on adult friendship, neighbours and acquaintances, relationships between colleagues and occupation-determined role relationships. Although adult friendships are often included in books on relationships, the other relationships included here generally receive little attention.

Auhagen's chapter on adult friendship points out problems with conceptualizing friendship, 'it possesses so few, truly clear, unequivocal characteristics' (p. 229). The author also presents interesting data about the rules, values, etc. that affect friendships. Christian Melbeck's chapter on neighbours and acquaintances emphasizes the effects of structural phenomena (such as size and density of living space) on the likelihood of relationships developing between neighbours. Structural factors (of the workplace) are also likely to affect relationships between colleagues, as Oswald Neuberger points out. He notes that people's actions are made possible, constrained or channeled by this structuring' (p. 272).

The focus of Gaska and Frey's chapter on occupation-determined role relationships is on the links between the person and the role, as well as on the significance of the occupational role to individuals, along with the effect of that role on activities and relationships outside work. The doctor-patient relationship is discussed as an example of this type of relationship. Gerold Mikula's epilogue encourages an interdisciplinary



approach to relationship research, and the integration of insights from different areas.

Overall, this is a useful book which would be quite suitable for a course on relationships. Because it was first published in 1993, however, it does not take account of the large amount of work on relationships published since then. It has both author and subjects indexes, which makes it relatively easy for use by undergraduates, as well as by graduates, academics or professionals.

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***Virtual Individuals,  
Virtual Groups:  
Human Dimensions of Groupware  
and Computer Networking.***

By Jo Ann Oravec., Cambridge University Press, 40 West 20<sup>th</sup> Street, New York, NY 10011-4211, 1996. \$49.95 (hdbk.).

***Cognition and Communication  
at Work.***

Edited by Yrjö Engeström and David Middleton. Cambridge University Press, 40 West 20<sup>th</sup> Street, New York, NY 10011-4211, 1996. \$54.95 (hdbk.), \$21.95 (sftbk.).

Reviewed by Lisa Dal Santo, School of Psychology, University of Queensland, Brisbane, Australia 4072.

The number of things we can do with computers and associated technology is rapidly increasing. Similarly, the knowledge that most of us have about computer use is also increasing. However, the rates of increase in computer technology and in the computer knowledge of the general public are not equal, with the former being much greater than the latter. This inequality has many implications for the use of computer applications within organizations, and brings to the fore conflicts between organizational goals and individual rights.

*Virtual Individuals, Virtual Groups* describes the social and ethical implications of applying the use of computers to the area of group interaction. Types of applications that fall under the heading of computer-supported cooperative work (CSCW) include computer monitoring and

group meeting support amongst others. Although the purpose of these applications is to enhance human interaction in group settings, the practical use of the applications has many important ramifications such that a number of issues must be taken into account when designing and using such software.

This book is organized into an introduction and seven chapters. Chapter 1 introduces the concept of a "genre" and discusses computer applications as genres, as well as the evolution of computers and computer software genres. It also provides a history of groupware and background on CSCW. Chapter 2 introduces the concepts of a virtual individual and a virtual group (referring to those linkages to ourselves such as credit card and educational records), and discusses the way we use groupware in creating, distributing, and manipulating these virtual entities. It also provides different philosophical perspectives on ways of thinking about the self and group. Chapter 3 documents the history of the concept of importance of the individual, as well as discussing issues of collaboration and cooperation in work, education, and research contexts (including types of groups and pathologies of group work). Chapter 4 discusses the concept of 'efficiency' and how being efficient in organizational settings often requires the exclusion of personality. This chapter also provides a history of filing and indexing systems and an analysis of office artifacts (e.g. video, whiteboards, desks, etc), as well as discussing electronic meeting rooms, resource sharing, and how to engineer educational and work settings in particular ways to manipulate group interaction. Chapters 5 and 6 introduce and discuss the cultural objects of dependence on technology, intellectual autonomy, intellectual augmentation, privacy, anonymity, and agency/surrogacy, all in relation to the use of computer applications. Finally, the last chapter introduces an approach for the "genre-responsive design" of network-based computer systems, providing suggestions to designers of such programs.

The content of this book comes from many areas including philosophy, drama, computers, psychology, and organizational theory. The book contains a great deal of historical information (e.g. the concepts of self and genre, the term 'groupware', the development of the computer, the evolution of the scientific journal) as well as lengthy analogies. I would have preferred to see more on CSCW applications along with

situational examples of their use, and less history. The issues the author brings up could have been easily illustrated by the use of such examples, and this would have made for easier and more interesting reading. There are no superfluous words here; each sentence is crowded with information, making for tedious and difficult reading. I would not recommend this book as light or entertaining reading. However, those who might be interested in attempting it would be people interested in group interaction, computer support of group work, or issues relating to the implications of technology on privacy and control of individuals.

*Cognition and Communication at Work* is an edited book in which work activity is investigated as ethnography. With the exception of a few theoretical chapters in the book, each chapter analyzes the everyday actions and interactions of people doing work. The settings investigated vary widely and include courts of law, computer software design, scientific laboratories, advanced manufacturing systems, airplanes, air traffic control, baggage handling, and underground railway systems. The basic idea is that local interaction and talk at work determine the context and structure of work (this is referred to as a "microsociological" approach).

The ethnographic method, which is discussed in great detail in the final chapter of the book (oddly enough), is quite the opposite of the typical experimental psychology methodology. Rather than defining and measuring variables, ethnographers use qualitative methods such as conversations and interviews; rather than performing statistical analyses, ethnographers perform detailed analyses of documents and dialogue transcripts; rather than trying to obtain a random sample, ethnographers seek out cases that vary widely. Raithel, in the last chapter of the book, summarizes the ethnographic approach to work research, which begins by viewing each work group or organization as "a culturally alien community whose world-model and practices we must reconstruct from the utterances and situated actions of the working persons" (p.320).

The first chapter of the book (Engeström & Middleton) provides a very brief introduction to the ethnographic methodology and is followed by a description of what is to follow in the remaining chapters. I will briefly try to describe the focus of these thirteen chapters. Chapter 2

(Hutchins & Klausen) focuses on distributed cognition and asserts that we should be interested not in how well a particular individual is performing but in the performance of the system comprising the individuals and the technology. Chapter 3 (Suchman) analyzes shared workspaces and describes how workers become engaged in situations through "partial, continuously changing awareness." Chapter 4 (Goodwin & Goodwin) focuses on the perception of relevant objects at work; the act is not the simple perception of an object but is relative to the course of activity that the worker is engaged in at the moment. Chapter 5 (Heath & Luff) analyzes body position and communication, and asserts that people organize their behavior so that while they are engaged in one activity, they are monitoring or participating in the activity of others. Chapter 6 (Bødker & Grønboek) analyzes the activity of cooperative prototyping where users are actively involved in the design of computer applications that they might use in the future. Chapter 7 (Norros) describes the ways in which operators handle disturbances resulting from the implementation of new technologies in manufacturing. Chapter 8 (Laufer & Glick) and 9 (Engeström) investigate expertise. Chapter 10 (Middleton) examines the construction of teamwork that occurs through spontaneous and informal conversations. Chapter 11 (Mukerji) is a theoretical paper on scientific genius and the culture of science. Chapter 12 (Shaiken) describes a long-term study on the nature of skill in the automobile industry. Chapter 13 (Star) is another theoretical chapter which aims to integrate insights from a number of different perspectives. Finally, Chapter 14 (Raithel) is probably the best chapter in the book in explaining the ethnographic methodology and its implications.

Although, of the two books, this one is more relevant to the interests of human ethologists, I was not very impressed with its organization or the seemingly incomplete job of the editors. [For example, I recommend readers begin with the last chapter and then read the first chapter (the supposed introduction), followed by the other chapters in any order]. In addition, some of the sentences were poorly structured and incomplete. What I did find interesting were the transcripts of the conversations from such settings as the airplane cockpit and the law courts. Those who would be interested in this book are people interested in applying ethology to the study of work. Individual chapters may be useful to people

interested in work in a particular setting. There are also sections within some chapters which analyze language and body language, and these may be of interest to communication researchers.

In sum, both of these books are highly specialized and will have narrow, albeit well-targeted appeal. Perhaps they should be recommended for your local library rather than as a personal purchase.

## CURRENT LITERATURE

June 1999

Compiled by Johan van der Dennen

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