

Human Ethology Newsletter

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The newsletter is published quarterly and has several regular features, such as book reviews and forum discussions. Announcements of future meetings, notices of graduate programs, job announcements, etc. will be included to the extent that space allows. The subscription price is \$3.00 and includes membership in the International Society for Human Ethology. Subscriptions are valid on a January to January basis. Please send checks payable to the Human Ethology Newsletter, % Cheryl Travis, Dept. of Psychology, University of Tennessee, Knoxville, TN 37916, USA. Your subscription should include a clear and readily discernable mailing address. Foreign subscribers should make checks or money orders payable in U.S. dollars; the time and charges necessary to credit foreign currencies is prohibitive.

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SUMMER FORUM

Midge Elias will co-ordinate and edit a forum on E. O. Wilson's new book, On Human Nature. A review of the book, written by Gail Zivin, will be included in the book review section of the newsletter. The forum papers should address themselves to the issues raised in the book and to evaluations of the conclusions reached in the book. Send your comments to Midge Elias, Psychiatric Research, The Children's Hospital Medical Center, 300 Longwood Avenue, Boston, Mass. 02115.

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JOURNALS

Behavioral and Brain Sciences

The Behavioral and Brain Sciences is a new journal modelled upon Current Anthropology. The impact of CA has been due to its CA Treatment feature, which has been adapted by BBS under the name of Open Peer Commentary. The Behavioral and Brain Sciences is now calling for papers (as well as for recommendations of topics and already published articles or books) for Commentary. Respondents are requested to provide an explicit rationale for seeking or recommending Commentary, including possible commentators.

We are also accepting nominations for Corresponding Associate Commentators (who perform open peer commentary on accepted articles) and for members of the Board of Editorial Commentators (who referee submitted manuscripts in addition to performing open peer commentary).

All correspondence and manuscripts should be sent to the Editor, Stevan Harnad, Behavioral and Brain Sciences, P.O. Box 777, Princeton, NJ 08540.

The Behavioral and Brain Sciences is published quarterly (first issue 1978). Subscription information is available from the publisher, Cambridge University Press, 32 East 57th Street, New York, NY 10022 or 200 Euston Road, London NW1 2DB, England.

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ANNUAL MEETING

The International Society for Human Ethology will hold its annual meeting in conjunction with the Animal Behavior Society this year. All members of ISHE are encouraged to attend, whether you intend to present a paper or not. There will be a society business meeting one evening. In addition to a number of interesting paper sessions and poster sessions, three symposia will be presented: Decapod Crustacean Behavior, Heredity and Behavior--Possibilities of Behavior Genetics as an Approach to Ethology, and Parental Care in Mammals. Some of the essential information about the conference is listed below. A registration form follows.

Location: The host institution, Tulane University, is situated in the uptown residential area of New Orleans.

Pre-Registration: You are urged to pre-register by completing the form in this Newsletter. Make check payable to Tulane University and remit by 15 May 1979. No refunds are available after 3 June. Pre-registrants will receive confirmation.

Transportation: An ABS desk at the Delta baggage area in the New Orleans International Airport will be manned during peak arrival hours on Sunday 10 June through Tuesday 12 June to help with transportation. Shuttle buses will run to Tulane about every 30 minutes: fare is \$4 one way. Please indicate arrival and departure times on the Registration Form to facilitate efficient service.

Registration: The Registration Desk will be located in the lower lounge of Tulane University Center (UC), from 12 PM to 9 PM on Sunday, 10 June, from 9 AM to 6 PM on Monday, 11 June, and in the Monroe Residency Hall at other times.

Meals: Meals will be served in the UC cafeteria. Two-and-three meal ticket plans are available: Breakfast/lunch \$4.50/day or breakfast/lunch/dinner \$7.50/day. This is a board plan so the menu will be somewhat restrictive. Information on New Orleans dining will be available at registration.

Banquet: A Wednesday evening banquet will feature traditional and local cuisine. Tickets are available at registration for \$8.50. Please indicate on the Registration Form the number of banquet tickets you wish.

Make check payable to Tulane University. Mail the completed form with check for registration, so that payment is received by 15 May 1979 to: Dr. Terry Christenson, Dept. of Psychology, Tulane Univ., New Orleans, Louisiana 70118.

REGISTRATION FORM
ANIMAL BEHAVIOR SOCIETY ANNUAL MEETING
TULANE UNIVERSITY, NEW ORLEANS
10-15 JUNE 1979

NAME _____ AFFILIATION _____

ADDRESS _____

___ Enclosed is \$18.00 Registration Fee for Full Member.

___ Enclosed is \$12.00 Registration Fee for Student Member.

CHECK WHICH HOUSING YOU PREFER:

___ Monroe single ___ Monroe double (Sharing room with _____)

___ Monroe family suite ___ More information on hotels/motels

CHECK PREFERRED MEAL PLAN:

___ Breakfast/lunch ___ Breakfast/lunch/dinner ___ Banquet ticket desired

FORUM"On the Relevance of Recent Hunter-Gatherers to Studies of Paleolithic Human Behavior and Human Behavioral Evolution"

Participants in this Forum are Drs. Irenaus Eibl-Eibesfeldt, Carmel Schrire, V. Geist and Glenn E. King (editor). Eibl-Eibesfeldt is head of the Research Unit for Human Ethology at the Max-Planck Institute for Behavioral Physiology in West Germany. Schrire is an anthropologist in the Department of Human Ecology and Social Science at Cook College, Rutgers University, in New Jersey. Her main interests are human ecology, prehistory, and hunter-gatherers in several geographic areas. Geist is on the faculty of environmental design at the Univ. of Calgary, Calgary, Alberta, Canada. He has written a book on mountain sheep and early man. King, in the anthropology program of Monmouth College, New Jersey, is primarily interested in the evolution of human behavior, particularly as approached through comparative study of primates, carnivores and human hunter-gatherers.

Since the so-called "Bushmen" of South Africa figure prominently in the essays to follow, it is appropriate to note that "African scholars have complained that 'Bushmen' is a term of derogation with racist overtones and have suggested that 'San' be adopted as a more dignified and respectful term of reference" (Lee, 1976). San means "settlers proper."

The applicability of modern hunter-gatherer studies to inferences and interpretations about prehistoric human behaviour and evolution

Carmel Schrire
Rutgers University

The notion that living hunter-gatherers reflect the lifestyle and behaviour of our prehistoric forebears is firmly embedded in the anthropological literature of at least the past century. It emerges in Darwin's account of the natives of Tierra del Fuego, and Sollas' views about Tasmanians. It is clear in the writing of Tylor, Boyd-Dawkins and Lubbock, to name but a few nineteenth century authors, and it is echoed in most anthropological textbooks today and explicated in seminal volumes such as Man the Hunter and Kalahari Hunter-Gatherers. The concept underlies a great deal of ethno-archaeological research, (e.g., Gould, 1978) especially in those areas where aboriginals still live in small and somewhat isolated groups, such as Southern Africa and Australia. Its central theme is that modern hunter-gatherers exist because of isolation from herders, farmers and city dwellers. Cut off from outside influences they continue to practise their ancient lifestyles (until the 19th century at least) in distant continents like Australia, islands like Tasmania, continental extremities such as Tierra del Fuego, and the Arctic circle, and deserts like the Kalahari. Until quite recently, these small groups were unaware of the larger world. Stuck, embalmed as it were, in the amber of time, they waited until travellers and ethnographers chanced upon them and revealed a lifestyle that had not been seen in Europe at least, since the Pleistocene. It seems therefore, that detailed studies of these living primitives might help us to flesh out the bones of our prehistoric past, and enable us to discover quite how far we have come since then.

I spell out a theoretical rationalisation that is generally alluded to quite briefly in order to dissect it more succinctly. My position may be succinctly stated: living hunter-gatherers are biologically speaking as "advanced" as we are, since they have had as long to change or to remain the same, as we have. Their peculiar life-

style informs us about the nature of life in small groups, of how people possessed of a limited technology get their food, organise their lives, raise their kids and cope with problems. But it does not tell us any more about human evolution and life in the Pleistocene than do carefully controlled and intelligently planned studies of any human groups alive today.

Consider, for example, one of the key discoveries about how living Bushmen behave, which is that they organise their lives in relation to fluctuations of their water supplies (Lee, 1972). This is also true of all humans. The thing that is unusual is the particular way in which the Bushmen cope, but whilst this may resemble the way in which prehistoric Kalaharians coped, it tells us very little about how prehistoric Europeans or North Americans living in different environments dealt with their need for water. In another case, a link has been inferred between seasonal dietary changes and fertility rates among hunter-gatherers (Wilmsen, 1978). It is important to realise that this situation was recognised earlier as a result of an urban study, (Frisch and McArthur, 1974), and that both findings tell us something about human physiology that is scarcely limited to modern or ancient hunter-gatherers. Finally, there is an analysis of the famous proposition that living hunter-gatherers controlled their numbers like our prehistoric forebears, by systematic female infanticide. A computer simulation based on universal human fertility rates suggests that this would have been genocidal because now as ever, females, not males, bear children (Schrire and Steiger, 1974).

On a more materialistic level, the matter of whether hunter-gatherers have changed very much over time can be investigated using archaeological and ethno-historical data. Although the archaeological view is biased in the direction of changes in diet, movements and technology, it invariably reflects changing habits and preferences over time. The most isolated of all living hunter-gatherers of the last century, the Tasmanians, show this very clearly. They were part of the greater Australian population until the rising post-glacial sea cut off their access to the mainland 10,000 years ago. They remained in their island fastness isolated from the rest of the world until the 17th century travellers sailed by. The 19th century European settlers regarded them as one of the last examples of prehistoric men, but had only a short time to observe the details of their lives, since the last full-blood Tasmanian died in 1876. But isolated, "primitive," hostile or wild as they may have been, their archaeological remains attest to considerable changes in their behaviour over time. They followed the glacial shoreline as the seas rose, camping for millenia at the modern shore when the sea level stabilised 8,000 years ago. They ate fish then and abandoned this practise with an apparent rigidity some 3,500 years ago, never to eat this food again. They widened their foraging range through the judicious burning of impenetrable rain forest 2,500 years ago, and re-colonised or re-used small offshore islands around the same time. Modest through these changes may seem to Western eyes, they show that people who should have been the most embalmed of all living hunter-gatherers had a dynamic past before the strain of contact wiped them off the face of the earth (Jones, 1978; Bowdler, 1979).

Ethno-historical evidence points in the same way to the changing nature of modern hunter-gatherer life. For example, a detailed analysis of historic sources suggests that the indigenous Khoisan people hunted and herded for a living, and furthermore, that they plugged into one or both of these lifestyles depending on a number of factors. In drought years herders might be forced to eat their stock and revert to hunting and gathering their food, whilst hunters might steal enough sheep or cattle from a pastoralist to set up shop as herders. Such behaviour is documented again and again over the past three hundred years, suggesting very strongly that the sharp categories of "Bushman hunter" and "Hottentot herder" are artefacts of ethnographers, reflecting their stereotypes, rather than statements of reality (Schrire, 1979). In point of fact, studies of modern San echo this finding by noting that they interact with neighbouring pastoralists to some extent and that they herd and even plant for themselves when circumstances allow (Lee, 1976; Heinz, 1972).

To conclude: studies of modern hunter-gatherers have their own intrinsic validity, reflecting the behaviour of small and sometimes remote groups. Their applicability to our grasp of human evolution and prehistory is overrated by a simplistic belief in the unchanging nature of these preliterate people. They provide one of many ways to study living people, and contribute towards the wider issue of the nature of man.

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A Note on Hunters & Gatherers

I. Eibl-Eibesfeldt

Hunters and gatherers certainly represent models from which we can reconstruct aspects of life of palaeolithic man. Those interested in questions as to the "Nature" of man have therefore turned their interest to the few remaining hunting and gathering societies. If man has a nature at all, it was argued, then it should be in adaptation to a way of life which he lead through most of his history. Horticulture and agriculture are after all fairly new inventions. In arguing this way we have, however, to be aware that even the now existing hunters and gatherers are modern men. Zoologists have long been aware that there are no living primitive organisms. There are, however, organisms which show primitive characteristics which means that specific morphological or behavioral characteristics remained fairly conservative and experienced little or no apparent change during the course of evolution. This can for example be derived from the fact that ancestral forms already exhibit the characteristic. Concerning the hunters and gatherers we have to keep in mind furthermore, that they reflect an adaptive radiation. They developed very different cultural strategies of survival. Eskimos, Pygmies, Andamese and Kalahari Bushmen live a different way of life indeed. But they also share a number of features, for example all live in individualized comparatively small groups. During the last decade numerous statements were published which for the history of science are interesting indeed, because they illustrate nicely how a bias blinds even serious researchers. Amongst others, hunters and gatherers were depicted as living in open fluid communities of changing composition, of being non-territorial and particularly peaceful. The idea

is summarized for example in a statement of DeVore: "The bushmen and the hunter-gatherers generally have what in the modern idiom might be called the 'flower child solution.' You put your goods on your back and you go. You do not have to stay and defend any piece of territory or defend fixed assets" (DeVore 1971, p. 310). Based upon my own extensive documentation among the G/wi and !Ko Bushmen as well as on data from other researchers working on bushmen and other hunters and gatherers as well, I was able to show that the allegedly peacefulness and non-territoriality are a friendly myth¹. Interesting enough, this was just recently confirmed in a paper by Ember². She writes: "The data presented here suggest that some current views about hunter-gatherers may need to be revised. Specifically, the data suggest that, contrary to current opinion, recent hunter-gatherers are typically patrilocal, typically have men contributing relatively more to subsistence than women, and typically have had fairly frequent warfare." (Summary) Certainly, the exploration of the few remaining hunters and gatherers is part of an urgent ethology-anthropology program. From the study we can indeed learn much about human nature, but we need to take a sober look.

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- 2) Ember, C.R. (1978): Myths About Hunter-Gatherers. Ethnology, 439-448.

Hunter-Gatherer Societies & Human Evolution
 Glenn E. King

Generally speaking, I am in accord with Eibl-Eibesfeldt's views. There is certainly a great deal of validity in Schrire's criticisms; however, I see them as cautions and qualifications rather than as arguments against inference from recent to prehistoric hunter-gatherers.

One cannot quarrel with Schrire's assertion that hunter-gatherers display traits and limitations that characterize the entire human species. However, this does not mean that there is nothing peculiar to the hunting-gathering adaptation. To take Schrire's example, it may well be that systematic female infanticide is not a viable adaptation for any human population. This would tell us that Paleolithic peoples did not engage in such a practice. But were those prehistoric populations regulated by indiscriminate or systematic male infanticide? The practices of recent hunter-gatherers can suggest an answer. Furthermore, it seems to me that the answer can be suggested only by the specific of hunter gatherer demography and not by any pan-human traits. It is an anthropological commonplace, for instance, that very young children are an economic liability for hunter-gatherers while they are an asset for most horticulturalists.

Schrire is again on solid ground when she calls attention to the purely local significance of San water-use patterns and to the Tasmanians' temporally restricted flirtation with fishing. However, variation and fluctuation in some traits do not preclude regularity and persistence in others. As Eibl-Eibesfeldt notes, hunter-gatherers have "developed very different cultural strategies of survival...but they also share a number of features." Murdock (1968a) has remarked on the distinctiveness of the nuclear family and division of labor among hunter-gatherers in general. Similarly, as Eibl-Eibesfeldt indicates, it may be possible to generalize about socioterritorial organization (cf. King 1975, 1976) and postmarital residence rules.

With respect to the generalizability of hunter-gatherer behavior, as well as its relevance to the Paleolithic, an important source of confusion has been the lumping of several distinct adaptations to subsistence on wild foods (King 1971; Service 1966). Mounted hunters, who ride horses or camels in pursuit of game, probably tell us little or nothing about prehistoric hunter-gatherers. Exemplified by the Plains Indians, such peoples are comparable to pastoral nomads in many respects (Murdock 1968b). Sedentary fishers, such as the Indians of the Northwest Coast of North America, resemble highly organized farming peoples in many ways. At the extreme, they may inform us about Mesolithic or perhaps Upper Paleolithic adaptations (Washburn and Lancaster 1968). For the previous million years, inferences should be drawn from those peoples that, for want of a better term, I call generalized hunter-gatherers. These are populations whose behavior is not extensively influenced by one particular subsistence specialization, such as the use of riding animals or an elaborate fishing technology. Eibl-Eibesfeldt has named some of the best known representatives of this category in his essay. There are also lesser known peoples who can broaden the base for generalization. Murdock (1968b), for example, mentions 27 populations of generalized hunter-gatherers that are known to ethnography.

If some recent hunter-gatherers are indeed relevant to the reconstruction of prehistoric behavior, what is the precise nature of the connection? Schrire criticizes what I have called the "historical" rationale for comparison of recent and prehistoric hunter-gatherers (King 1971). This is the view that ancient behavior patterns have persisted as a result of isolation and conservatism. I agree with Schrire that this rationale is widespread and that it is dubious. In any event it is, from the viewpoint of human ethology, the weakest possible rationale for comparison of recent and prehistoric hunter-gatherers. It implies that the connection between them is entirely a matter of social rather than evolutionary processes.

Two alternative rationales are manifested in these classic statements:

Hunting is the master behavior pattern of the human species. It is the organizing activity which integrated the morphological, physiological, genetic and intellectual aspects...Hunting is a way of life...(Laughlin 1968: 304).

When anthropologists speak of the unity of mankind, they are stating that the selection pressures of the hunting and gathering way of life were so similar and the result so successful that populations of Homo sapiens are still fundamentally the same everywhere. (Washburn and Lancaster 1968: 293).

These statements contain the essence of the interrelated comparative rationales that I would term "functional analogy" and "ethological continuity" (cf. King 1971). The functional analogy viewpoint postulates that the hunting-gathering way of life presents certain basic problems in adaptation that tend to elicit similar solutions. Or, in a slightly different interpretation, those solutions that survive are usually approximations to a single optimal adaptive pattern. Either way, the implication is that the fundamentals of prehistoric adaptation can be reconstructed through features shared by recent hunter-gatherers. Rather than tenuous survivals, dependent on isolation and conservatism, these common features are viewed as the essentials of a successful hunting-gathering adaptation in any time or place.

In this context the ecological, historical, and cultural diversity of recent hunter-gatherers becomes an asset rather than a problem. Wide distribution of a behavior pattern amidst this diversity is a strong indication that the pattern is basic to the hunting-gathering way of life. The probability that the pattern also occurred in prehistoric hunter-gatherers is thereby strengthened.

If, as functional analogy implies, some human behavior patterns were increasingly successful for a million years or more, it is possible that a genetic basis for such patterns has evolved. That is, functional constraints may have selected for ethological mechanisms that tended to ensure adaptive behavior by individuals. It is, of course, a common premise in human ethology that such mechanisms could have survived the mere 10,000 years of food producing and cultural diversification that separate the modern world from its hunting-gathering antecedents; hence the concept of "ethological continuity" (cf. Eibl-Eibesfeldt's essay). However, pan-human ethological mechanisms are likely to be masked by the diversity of food producing cultures. On the other hand, ethological continuities will be expressed most clearly in recent hunter-gatherers, people living the way of life in which those mechanisms originally evolved. The adaptations of recent hunter-gatherers are of evolutionary significance, not because they are "primitive," but because they represent the way of life that made all of us human.

To compare recent hunter-gatherers to our prehistoric ancestors in terms of ethological continuity implies a step beyond functional analogy, a step that is rarely taken. This approach requires an attempt to identify the ethological mechanisms that predispose individuals to participate in functional (adaptive) behavior patterns. From a strictly ethological point of view, it is not enough to say that hunter-gatherer societies tend to be territorial. What do the participants perceive and feel? Are they protecting their boundaries, their land, or particular resources (cf. King 1975, 1976)? Or are they simply xenophobic (cf. Southwick 1974)? Ethological interpretation is important to generalization about hunter-gatherers because the same ethological mechanism could produce somewhat different socioecological patterns. Suppose, for example, that "territoriality" is rooted in an ease-of-learning mechanism that tends to produce an emotional commitment to resources perceived as vital (the evaluation may come from the culture). Such an adaptation to the hunting-gathering way of life could be the basis for defense of deer and fish by the Washo Indians of North America (Downs 1966) and for battles over water in the Australian desert (Meggitt 1962). Thus two apparently distinct local adaptations could be reflections of a single ethological mechanism that originated with the evolution of a hunting-gathering way of life in our prehistoric ancestors. Eibl-Eibesfeldt (1974) has done some ethological research on motor patterns and emotional/motivational states related to aggression among the San. Some other pertinent work has been done by Konner, Blurton Jones, and a few others. However, the ethological continuity approach remains largely unimplemented.

To conclude, I reiterate my agreement with Eibl-Eibesfeldt that recent hunter-gatherers provide a model for reconstruction of some aspects of human behavioral evolution. However, as he goes on to say, "we need to take a sober look." In unraveling the complexities, we must heed warnings provided by Schrire and others. However, it does seem to me that recent hunter-gatherers display some characteristics that distinguish a hunting-gathering way of life from pan-human traits, on the one hand, and from localized hunter-gatherer adaptations on the other. In connecting this model of the hunter-gatherer way of life with the evolution of human behavior, I feel that we must discard the historical rationale in favor of a more broadly functional and more explicitly and precisely ethological approach.

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Behavioural Research on Modern Hunter Gatherers Relevant?
V. Geist

I shall play the devil's advocate. A study of modern hunter gatherers, irrespective of methodology or the intrinsic values of such a study, is not terribly relevant to reconstructing the behavioural evolution of our species. There are a number of reasons for this.

(1) The assumption is often made that because hunter gatherers live in a more or less natural environment, they also live in an evolutionary environment. This is a confounding of concepts. Evolutionary environments are such in which genetic change is taking place, in which some environmental stressors are so great as to override epigenetic (in the broadest sense) mechanisms of adjustment, and expose the genetic competence of individuals to deal with the stressor. If individuals exhibiting lesser competence also suffer a reduction in reproductive fitness, then clearly they live in an evolutionary environment. If, however, the cultural, behavioural, physiological and morphological mechanisms of adjustment suffice in dealing with environmental problems, no genetic change of consequence can be expected in the population (except random changes). If so, the behaviour exhibited by individuals within the population is not indicative of activities that have led to genetic change in the past. That is, except in the evolutionary environment, when mechanisms of adjustment fail individuals, there is no link between behaviour and genes!

(2) A common assumption of anthropology is that man, including modern man, evolved in Africa as a hunter-gatherer and, therefore, the study of hunter-gatherers is likely to reveal the processes that shaped man. What if this assumption fails? It certainly does not square with the evolution of other mammalian genera. Moreover, if we use large mammal evolution as a model, we find that the genus Homo acted for all but the terminal portion of its existence like a good large mammal. That is, its evolutionary radiation led from relatively warm, moist, subtropical regions to increasingly colder, drier and less stable climates to culminate in the periglacial zones, and in historic times only in the high arctic. Following advancement, humans flooded back repeatedly to benign climates, which would make today's hunter gatherers not primarily but secondarily primitive. What if not Africa, but the periglacial environments with their abundant, diverse megafauna and their harsh, irregular climates shaped the features that now characterize us?

(3) In speaking of human evolution, presumably we are speaking of that of the Genus Homo. The technologies of hunter-gatherers have varied greatly over the span of the genus, implying different ways of making a living at various times in various places. We only have lithic remnants (mostly) of their technologies and do not know very much about the relevant behaviours. Clearly a study of modern hunter-gatherers using tools different from those used in the past cannot tell us too much of how the past hunter-gatherers acted.

(4) In speaking of the evolution of human behaviour, what are we talking of? Are we talking about such remarkable behaviours of humans as vocal mimicry, making music, dancing, humour, visual mimicry, bodily and manual dexterity, laughter, crying, participating in sport activities? If not, why not? For such features to evolve, each and every one must be so significant towards maximizing reproductive fitness that individuals a little less capable of humour, laughter, crying, dancing, game playing, etc. were selected against! How are hunter-gatherers of the present to help us clarify how such features, vital features of being human arose?

To understand human evolution or how the behaviour of this remarkable creature arose, requires far more than research on modern hunter-gatherers, in particular, research that begins with most questionable assumptions.

Reply to Geist by Glenn King

I will take up Geist's points in the order in which he makes them:

1) Geist seems to identify genetic change with natural selection. I believe this confounds the concepts of directional and stabilizing selection. Stability does not indicate a lack of evolutionary significance. If "no genetic change of consequence" is taking place, it is probably because stabilizing selection is removing deviant individuals from an adapted population. Under these circumstances population traits will change little over the period of equilibrium and the present makeup of a population will represent the past much more accurately than if the contemporary population is undergoing directional selection. The hominid hunting-gathering adaptation was probably well established by 3 million years ago and the economy of 1 million years ago was broadly similar to that of recent hunter-gatherers. Thus the operation of stabilizing selection on certain aspects of hunter-gatherer behavior in recent times may serve to represent a situation that was relatively stable over the last million years as well as illuminating the processes of the preceding 2 million years that produced the adaptation.

2) In anthropology it is a common inference from the fossil record (not merely an assumption) that Australopithecus and early Homo evolved in Africa. It is also well known, from the same source, that Homo erectus expanded into the colder, drier, and less stable habitats to which Geist alludes. There is no doubt that such environments played an important role in human evolution. This does not in any way obviate the use of recent hunter-gatherers for the purpose of reconstruction. We have abundant data on hunter-gatherers in the Basin, Sub-Arctic and Arctic regions of North America as well as information on populations in Siberia and the southern tip of South America. Comparison of these with tropical hunter-gatherers can help us to understand the evolutionary trends that characterized expansion into higher latitudes. Finally, particular habitats may have little relevance for some topics in behavioral reconstruction. As noted in my earlier comments, Washburn, Laughlin and others have argued that hunting-and-gathering is a way of life rather than an adaptation to some particular environment. Empirical studies show that hunter-gatherers in diverse environments are very similar in some respects.

3) I believe that Geist overemphasizes the significance of variation in the simple tools used by most hunter-gatherers. Variations of detail in spear, digging stick, or stone axe have no great functional importance. Real oddities such as the boomerang or Solutrean laurel-leaf are rare. In any case it is not at all clear that social and other behavioral adaptations are closely tied to technology. Recent hunter-gatherers,

from the Arctic to Australia, display great similarity in many behavior patterns, even though they differ in technology. Finally, the fact that "lithic remnants" constitute most of our evidence for prehistoric peoples is hardly an argument against the comparative use of recent hunter-gatherers. This is precisely why we need to make the best possible use of living populations in attempting to reconstruct non-technological behavior.

4) In speaking of the evolution of human behavior, each of us devotes the most attention to those topics that he or she is interested in investigating. Geist's topics are excellent choices, as are many others. How do recent hunter-gatherers help clarify the evolution of such human features? In the same way they have helped to illuminate the origins of other behavior patterns, e.g. socioterritorial organization. Recent hunter-gatherers display these patterns in a context similar to the one in which they arose. The possibilities for such interpretation seem obvious with respect to topics such as visual and vocal mimicry and bodily and manual dexterity. As far as humor, crying and other expressive behaviors are concerned, Eibl-Eibesfeldt, Konner, and Blurton Jones have made a start with their studies of the San (Bushmen).

It is certainly true that an understanding of human behavioral evolution "requires far more than research on modern hunter-gatherers." It would be foolish to claim anything else. But this does not mean that hunter-gatherer studies cannot make an important contribution.

BOOK REVIEWS

The following review is a condensation of a review which appeared in the Journal of Nervous and Mental Diseases in the issue of January, 1979 entitled, "Ethology and Psychiatry". We would like to thank Williams & Wilkins Co., the publishers, and Jerome H. Barkow, the author, for permission to condense and reprint the review.

MFE, Book Review Editor

ETHOLOGICAL PSYCHIATRY: PSYCHOPATHOLOGY IN THE CONTEXT OF EVOLUTIONARY BIOLOGY. Michael T. McGuire and Lynn A. Fairbanks, Editors. *Seminars in Psychiatry*: Milton Greenblatt, Series Editor. New York: Grune & Stratton, 1978 \$15.

Is psychiatry rooted in the biological sciences rather than in, say, philosophy? If so, this book is important.

The editors' initial and concluding chapters brilliantly synthesize the intervening eight, giving cohesion to the book. They begin by discussing the nature and history of ethology. They then dispose of some of the dated and naive misconceptions which still bedevil the field, e.g. the idea that evolved behavior must be rigid and "instinctive" instead of being represented by "learning to deal with particular situations" (p. 8). Hinde's chapter on the relevance of animal studies to human neurotic disorders will be of interest chiefly to readers who still require an introduction to such ideas as imprinting and experimentally induced "neurosis" in dogs. Morrison and McKinney are concerned with demonstrating the utility of primate models of psychopathology at a rather basic level. They emphasize the complexity of the systems under consideration and reject single-factor explanations. Co-editor Fairbanks contributes a solid chapter reviewing the application of animal behavior studies to humans, in particular the mother-infant bond and other social bonds in primates. She concludes that "biological selection provides multiple points at which relationships between individuals come into conflict... These points can be seen to be highly vulnerable for the onset of psychiatric problems" (p. 104). Esser and Deutsch approach behavior in psychiatric wards from the point of view of theories of dominance and territorial behavior. They attempt to condense a book's worth of ideas into a single chapter, making for slow but rewarding reading. In a chapter also dealing with institutionalized patients, Cole analyzes the

effects on social behavior of the spatial and social conditions in psychiatric wards. He uses a recording system developed for the study of vervet monkeys. Chance's chapter elaborates his theory of the bimodal structure of attention and relates it to psychopathology and therapy. In a powerful chapter on agonistic behavior, Scott makes the point that psychiatrists assume that violence comes from disorganization at an individual level, but the disorganization may instead be between the individual and society or at the level of society itself.

McGuire's and Fairbanks' succinct tenth chapter summarizes some of the main points made in the book. We are reminded that behavior is caused by several systems operating together and that to expect any one-to-one relationship between "cause" and "symptom" is unrealistic. Behavior is pre-structured by evolution and is normally adaptive or "functional" and data about behavior should stem from careful and systematic observation. The authors conclude by assuring us that the integration of the various contributions comprising their book stems from the nature of the "biological world."

Reading this volume as an anthropologist, I was startled to discover that a book could deal with human behavior and evolutionary biology but not at all with the evolution of human behavior. Fairbanks does remark that behavior does not fossilize and therefore we can only understand human evolution by comparison with that of the other primates, but this generalization slights the considerable, and controversial, literature which does attempt to reconstruct human behavioral evolution.

Jerome H. Barkow

Sociology and Social Anthropology

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FACE-TO-FACE INTERACTION: RESEARCH, METHODS AND THEORY by Starkey Duncan and Donald W. Fiske. Hillsdale, New Jersey: Lawrence Erlbaum, 1977. OBSERVING BEHAVIOR, VOLUME I: THEORY AND APPLICATIONS IN MENTAL RETARDATION, VOLUME II: DATA COLLECTION AND ANALYSIS METHODS, edited by Gene P. Sackett. New York: University Park Press, 1978.

Reviewed by Alan Fogel, Department of Child Development and Family Studies, Purdue University, West Lafayette, Indiana.

Duncan and Fiske set out the details of a method for the study of human face-to-face interaction which is based on the following principles: to address the full "complexity of natural social systems," to look at interactions in natural settings with a minimum of intervention or interference, to focus on "social action" as the unit of analysis -- behavioral categories such as smile, head raise, look away or finger point which are rated by observers with a minimum of inferential judgement about motivation, internal state or goal -- and to a research program which recognizes the value of research on group differences ("external-variable" approach) and also of research on the intrinsic organization of behavioral interaction which is primarily inductive or hypothesis-finding in nature ("internal-variable" approach). This book presents in detail examples of both kinds of research done by the authors and contains a concluding section on the metatheory of the study of face-to-face interaction. The authors provide the reader with detailed accounts of their research methods and findings, such as the observations of sex differences in greeting behavior, or the study of non-verbal signals which serve to regulate the exchange of speaking turns in conversations. Their metatheory provides a framework for understanding the complexity of human interaction (unlike many authors who promise to tackle this complexity, Duncan and Fiske have done this in a serious and innovative manner), a framework which proposes the existence of certain entities -- conventions, signals, cues, strategies, and situational parameters -- which help to organize and regulate the flow of interactive behavior. They have explicitly avoided proposing a theory of interaction, or even trying to evaluate their work in terms of existing theories. The framework "will not hypothesize specific relationships between, say, sex of participants and amount of gazing, or between a given signal activation and subsequent action by the partner." As such, ethologists may find that

the book does not contribute to theoretical understanding of adaptive behavior. As a whole the book rests more on the approach of anthropologists and ethnographers, than it does on ethology. Nevertheless we are fast approaching a period in which all behavioral disciplines are beginning to merge into the common path of understanding behavior in natural settings for its own sake. The contribution of the Duncan and Fiske book rests in its attempt to promote the validity and promise of systematic research based on induction and discovery, as opposed to the deductive, hypothesis testing models prominent in psychology and sociology.

The two volumes edited by Sackett are the result of a conference on the study of mental retardation which was funded by NICHD. The first volume is a set of reports of research studies on both normal and retarded infants and children in a number of different settings. It provides the reader with a good overview of the current work in the field. Ethologists will want to pay particular attention to sections on the study of parent-infant interaction, of group processes, and of behavior in community settings. There is also an introductory chapter by W. R. Charlesworth on the use of ethology in observational studies of human adaptation which this reviewer found enlightening. Volume II is even better. It contains concise and detailed summaries of most of the current methods used in the observational study of behavior: L.A. Rosenblum on creating behavioral taxonomies, Sackett on measurement techniques, J.M. Gottman on non-sequential data analysis (which provides one of the few discussions I've seen on the use of discriminant analysis in multivariate studies), R. Bakeman on sequential analysis, A.R. Hollenbeck on reliability and R.A. Holm on recording techniques. Volume II would make an excellent reference book: it contains the aforementioned up-to-date discussions of methods and also a large bibliography of related works. Volume I has value for human ethologists since it illustrates in a convincing manner how ethology might be applied to "practical" problems of behavior, in this case, for the benefit of the mentally retarded. These two books go beyond giving us methods for the study of human behavior in natural settings, but they also attempt to tie their observations into an evolutionary framework. They raise issues such as the adaptive success of handicapped individuals in existing social and physical environments, and the implications for the species of differential reproductive rates of normal vs. handicapped individuals. I would have liked to have seen more in this direction. These books avoided the thorny theoretical, ethical and intervention issues which might be raised by a more complete examination of population genetics and the possible adaptive significance of retarded individuals in human society.

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AFRICAN ANIMAL BEHAVIOR

Summer Study Program
Kenya, East Africa

Applications are now being accepted for the summer program African Animal Behavior. This course of study includes travel to Kenya's major national parks, lectures from leading East African scientists and conservationists, and opportunities to observe the behavior of wildlife such as baboons, elephants, impala, giraffe, ostrich, and the reef fish of the Kenya coast. The period of study is six weeks, departing from Atlanta on 15 July 1979 and returning 28 August. Eight hours of academic credit are granted from the Georgia Institute of Technology upon completion of the course requirements. Only fifteen places are available at a cost of \$2,000 per student, round-trip airfare included. Interested students should contact the instructor for more details as soon as possible: Dr. Terry L. Maple, School of Psychology, Georgia Institute of Technology, Atlanta, Georgia 30332, (404) 894-4264; 894-2683.

BOOKS

CANNIBALS AND KINGS: THE ORIGINS OF CULTURES. By Marvin Harris. New York: Vantage, 1978. 352 pp. \$2.95.

CLIMATE AND HUMAN VARIABILITY. By D. F. Roberts. Menlo Park: Cummings Publishing Company, 1978. 123 pp. \$4.95.

THE BIOLOGY OF PEACE AND WAR. Eibl-Eibesfeldt. This will be an english version of a previously published work. It should appear in spring of 1979, available through Viking Penguin Press, New York.

"Biological and Cultural Contributions to Body and Facial Movement," by Paul Ekman. In John Blacking (ed.) THE ANTHROPOLOGY OF THE BODY, Academic Press, London 1977.

"Facial Signs: Facts, Fantasies and Possibilities," by Paul Ekman. In T. Sebeok (ed.) SIGHT, SOUND AND SENSE, Indiana University Press, 1978. (Discusses some 18 different facial signal systems.)

"Facial Behavior in Child Development" by Harriet Oster and Paul Ekman. In W. Andrew Collins (ed.) MINNESOTA SYMPOSIA ON CHILD PSYCHOLOGY, VOL. II, Lawrence Erlbaum Associates, Hillsdale, New Jersey, 1978.

LIFE STRATEGIES, HUMAN EVOLUTION, ENVIRONMENTAL DESIGN TOWARD A BIOLOGICAL THEORY OF HEALTH. By V. Geist, New York: Spinger-Verlag, New York, Inc. 1978. approx 512 p. approx. 16 illus. cloth \$32.80. This book aims at laying the foundation for a universal theory of health applicable to humans and other organisms, and deriving a preliminary sketch of the lifestyles that maximize reproductive fitness and general health. In fulfilling these goals, the author traces human evolution using new insights into the life strategies of large mammals and, in particular, analyzes previously unexplained features of humans and the evolution process itself.

Contents:

Organism Theory: The Dictates of Genes, the Meanings of Environment
Cognition-Predictability
Communication
Aggression
Dominance Displays: The Biology of Art, Pride and Materialism
How Genes Communicate with the Environment -- The Biology of Inequality
Mammalian Systems
Life Forms and Extinction
The Ice Ages
Prehumans
The Homo Erectus Stage
The First Advance to the Glaciers
On the Evolution of Modern Man
From Periglacial to Artificial Environments
Health, Professionals and Creature Comforts
References

MEMBERSHIP SURVEY

Each year at the annual meeting of the Animal Behavior Society, members of the Society for Human Ethology hold a business meeting. One topic that is discussed with regularity is the location of our meeting. Over the past five years ABS has kindly allowed us to append our meetings with their annual meeting. This means that the officers of ABS contact universities, arrange for housing, meal plans, meeting rooms, and development of the program. Our society has benefited from this arrangement in a number of ways. However, the question always remains as to whether we should occasionally append our meetings to the conferences of other societies, or whether we should perhaps establish a conference of our own. We experience a lot of cross pollination when meeting with other societies, but we remain somewhat invisible as an independent organization. The following questions are posed for your consideration and thoughtful reply.

1. Would you like us to have our own annual meeting? yes no
2. Would you be willing to pay a registration fee for this meeting, all funds from which would be used to publicize the meeting? yes no
3. Do you have any preference, in terms of the widest possible number of registrants, for the U.S. region for our meeting?
4. If the new format for our annual meeting is widely supported, would you be willing to help prepare a mailing list for your local area? (i.e., for publicity and registration information)
5. Additional comments?

Please send all replies to: Dr. Stephen Thayer
Psychology Dept.
CCNY, 139th St.
New York City, NY 10031

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NEWSLETTERS

A German newsletter entitled "Video-Informationen" has recently been instituted. The newsletter intends to inform researchers and practitioners on methods, technology and ethical problems related to behavioral observation and analysis aided by video techniques. The newsletter is printed in German. The co-editors are Heiner Ellgring and Harald Wallbott. For more information contact:

Dr. Heiner Ellgring
Max-Planck-Institut fur Psychiatrie
Kraepelinstrasse 10
8000 Munchen

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HUMAN ETHOLOGY BUSINESS MEETING

There will be two business meetings with human ethologists at the Animal Behavior Society meetings in New Orleans. The first will be Tues. June 12, 4-6 pm. The second will be Wed. June 13, 4-6 pm. If you have an agenda item you would like to have discussed or if you have some specific action proposal please notify Cheryl Travis. Briefly indicate the topic, whether you wish to make a statement or if you merely wish the group to discuss the topic, and also indicate the amount of time you think appropriate to schedule. This is the time for you to have serious input in your own society. Send your requests for time so that they arrive by the first of June.

Dr. Cheryl Travis
Psychology Department
University of Tennessee
Knoxville, TN 37916