

Human Ethology Newsletter

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Newsletter Submissions

Anything which might be of interest to ISHE members is welcome: society matters, suggestions for Forum topics, Growing Points, Mini Communications, Current literature and films, and material for the Bulletin Board such as announcements of meetings, sabbatical opportunities, employment opportunities, etc., should be sent to the Editor.

Suggestions for books to review, or reviews, should be sent to the nearest Book Review Editor dealing with the language concerned. A list of the book review editors is printed in the column inside the backpage.

Submissions in any legible format are acceptable as long as these are in English. Floppy disks containing Wordperfect files produced on an IBM-PC (compatible), or ASCII files can be processed as well and are in fact preferred, because they lower the production costs.

Submission deadlines are as follows: the material should have reached the editor in Amsterdam before February 15, May 15, August 15, or November 15 for inclusion in the next issue of March, June, September, or December, respectively.

Publishing Policy

No material in the Newsletter is selected by critical peer review and thus material is printed only to foster free and creative exchange of (even outrageous) ideas between researchers. The fact that material appears in the Newsletter never implies the truth of those ideas, ISHE's support of them, nor any support for any policy implications that one might be able to draw from them.

SOCIETY MATTERS

11th International Congress of Human Ethology

The 11th International Congress of Human Ethology will be held in Amsterdam, The Netherlands, between July 25 and August 2, 1992. A circular with the exact dates will be sent out soon. If you plan to attend the congress, please block your agenda for week 31 of 1992. The dates will be chosen in such a way that people who wish to do so can also attend the 25th International Congress of Psychology in Brussels, Belgium, July 19-24.

Questionnaire New Membership Directory

Enclosed in this newsletter you will find a questionnaire. Please, fill it out and return it NOW. It takes very little of your time. This questionnaire has three purposes: 1) Make an impeccable new membership directory; 2) Add invaluable new information to the directory that was unavailable so far, such as electronic mail address, fax number, phone number, discipline, field of interests; 3) Ask each and every member permission to store their data on computer disk (this is obligatory under the new privacy laws). Also, every member is asked whether s/he does object to providing her/his address to publishers, conference organizers and the like who want to use it for advertisement purposes.

Entitlement to New Membership Directory

The new membership directory will be mailed in the beginning of 1991 to all members who have paid their dues for 1991 or beyond. So now is the moment to grab your check-book and make sure your payment is up to date. The last year you paid your dues shows on the address label in the upper right corner. If it says 1990 or less, it is time to pay NOW.

MINI COMMUNICATIONS

The objective of this section is short empirical or theoretical papers which inform and would benefit from the input of peers. If readers wish to comment, write directly to the author(s).

Natural Selection and the Tragedy of Human Ideals

A Naturalistic Justification and Critique of Ethical Notions (A synopsis)

by Pouwel Slurink, Faculteit der Wijsbegeerte, University of Nijmegen, Thomas van Aquinostraat 3, Nijmegen, The Netherlands.

Traditional ethical concepts are often intimately connected with a certain kind of world view, which for the naturalist is no longer tenable in this scientific age. For the naturalistic philosopher, therefore, these concepts must be reevaluated and rethought within the framework of sound scientific theory. At the beginning of this study, the question is posed, "How is morality possible, if it is possible, in our world as it is understood by modern science?" For the naturalist, who does not believe in transcendental research on the foundations of possibility, this question is identical to the question, "Are traditional ethical concepts compatible with scientific theory?" For the naturalistic philosopher, philosophical questions do not refer to a special realm of reality, and so they have to be answered in concert with the puzzle-solving activities of scientists. To the naturalist, the task of philosophy is not so much to build another world view as it is to extend the results of scientific puzzle-solving to puzzling questions about human life. Traditional philosophic questions have to be posed against the new background created by science.

In the *first* chapter, the traditional concept of morality, by no means uniform, is explored. A moral being, envisioned by traditional ethics, is found to be (1) a being with purpose and possibilities (2) who can and must live choosing (3) in social surroundings. Furthermore, (4) its decisions are somehow "free" and (5) its purpose — the "good" — is not arbitrary but (6) somehow refers to the "meaning" of its life. The question, "How is morality possible?" is reformulated as the question, "Can such a creature, in our world view, exist?" or, "How could such a being arise?" The possibility is left open that tradition has misunderstood and misrepresented morality, so that traditional ethical notions not only can be justified but also must be criticized within the naturalistic framework.

Chapter *two* deals with the possibility of the existence of natural objects that have a *purpose* (1) according to the scientific account of the world. It is admitted that so-called *natural* science has long opposed the use of teleological terminology with good reason. But Darwinism is interpreted as creating the possibility of a scientific — not an anthropomorphic — teleology. Darwin and Wallace discovered "natural selection," the process in which reproductive beings, which are efficiently programmed to reproduce themselves, propagate this "purposefulness" via their differential reproductive success. Characteristics that contribute to reproductive success are "automat-

ically" accumulated in successive generations, and natural selection can be compared to a continual process of subtraction in which purposelessness is "subtracted" during each generation. Genes might be interpreted as self-replicating structures that replicate themselves via the behaviour and reproduction of living beings, in which beings those genes "automatically" accumulate, that stimulate reproduction and thus their own self-replication. So the purposefulness of living beings must not be misunderstood as the product of the deliberate intentions of some sort of evolutionary designer but, rather, as simply the result of selection working on slightly varying self-replicating structures. To distinguish it from the teleology of conscious, deliberating organisms, the purposefulness that is characteristic of *all* living beings is called *teleonomy*.

In chapter *three*, the emergence of *choice* (2) is analyzed. Living beings are described as the survival machines of "their" genes (Dawkins) and animals, as parasites on other animals and — ultimately — on plants. Animal mobility is interpreted as an optimal strategy that allows animals to collect more "fuel" without being collected as "fuel." Animal mobility created the need for guidance by the means of stimuli and information, which eventually resulted in the brain as the central, information-digesting and decision-making system, governing the behaviour of "choosing" survival machines.

The brain is thus shown to be another device that is built up according to a genetic programme that replicates itself via the devices it is building up. Animal choosing has only to promote survival, and thus the underlying orientation needs only to be "adequate for survival" (*überlegungsadäquat*, Vollmer). This means that animal intelligence has not been designed to penetrate the ultimate plans of the universe or to contribute to the self-knowledge of the *Weltgeist*, but only to ensure survival in a dangerous world. This helps us to understand why all knowledge arises from evaluative perspectives or from subjects, who select world signals like sieves and transform them according to the meaning they have been regarding the subjects' interests. The animal needs only to know its own part of the universe, and its knowledge must direct its behaviour: So everything the animal meets must be *valued* from the viewpoint of its survival interest.

This analysis throws considerable new light on the emotions and on consciousness. *Pugh* claims that emotions can be compared to the values that govern decisions in the so-called "value driven decision system." Emotions are interpreted as the "*innate structures of experiencing*," which provide for the evolutionary stable mediation between information and teleonomic decisions. Emotions define a framework in which the survival machine weighs its choices. It is argued that consciousness would not have evolved if it were not functional — indeed, our awareness of different "possible worlds" often seems to be restricted and to direct our attention especially to "possible worlds," which are particularly relevant for the survival of our genes. So it might be said that our genes are gambling via our emotion-guided choices to ensure their immortality. A living being certainly makes choices, but its choices are essentially moves in the survival game of evolution, in which good and bad choices are weighed by their survival consequences.

Chapter *four* explores the possibility of the existence of *social* beings (3) in light of our current knowledge of evolution,

particularly our knowledge that is shaped by the theories of *sociobiology*. According to that theory, neither animals nor plants always have to live as enemies, especially not when they share genes or goals. Altruism between relatives can be understood when we understand relatives as survival machines of shared “selfish” genes (Hamilton/Dawkins). Altruism between nonrelatives can emerge only when common goals yield an exchange of benefits through which both parties gain more than they lose. The so-called “repeated prisoners dilemma” throws light on this kind of “reciprocal” altruism (Trivers). It appears that in situations in which two parties can benefit by cooperating, but in which there also exists an even bigger temptation to benefit at the cost of the other party — with the possible result, however, that both parties will abuse each other and lose everything — cooperation can arise when both parties interact repeatedly and are able to react to the behavior of their opponents by stopping, restarting, or continuing cooperation. A computer tournament organized by Axelrod in 1981 showed that the best strategy is to react immediately when the other party stops or restarts cooperation by doing exactly the same (this strategy was called TIT FOR TAT) and, thus, to be severe and forgiving at the same time.

Various examples are given of situations in nature that can be analyzed with this model, situations in which mutualism, or cooperation, did indeed evolve. (Something also is said regarding the conditions in which abuse and even spite are more profitable.) It is argued that during the long hunter-gatherer stage of human evolution, the strong mutual dependence of individuals created a selection bonus for the ability to cooperate. Man's soul evolved in an environment of “culture cooperation,” and only in this environment does its interesting mixture of virtue and hypocrisy become understandable. The whole “parliament of social emotions,” including trust and friendship, indignation and gratitude, obligation and guilt, is analyzed as a complex device that enables human individuals to benefit by cooperating and to protect themselves against abuse.

Trivers analyzes the effects of collectivity and says the multiple, reciprocal altruistic relationships between individuals and the group result in an increasing standardization of social exchanges, which results in “official” systems of reward and punishment and in the regulation of a multitude of social obligations and rights. It is important to remember, however, that all cultural institutions designed to promote cooperation remain based on certain innate characteristics of the human soul. If those characteristics disappeared, the whole fabric of human society would collapse.

So — in spite of Kant — reason alone appears to be insufficient to support cooperation. In contrast to Kant's argument, the sense of duty is analyzed as a product of evolution — a virtue that is selected because it makes its possessors indispensable and valuable to the culture cooperation and rewards them with esteem and dominance. The Kantian conflict between “duty” and “inclination” is thus no longer analyzed as a conflict between “reason” and “nature” but appears instead to be more adequately interpreted as the conflict between two kinds of investment, the one directed more toward biological urgencies, the other more toward long-term interests. Evolution has programmed our soul to experience a tense struggle between these kinds of investment and forces us to consider both

our short-term and long-term interests and reach sensible and reasonable decisions.

When reason alone is insufficient to support cooperation, at least one of the functions of religion becomes more understandable. Religious cultism appeals to the whole range of human social and nonsocial emotions, reinforcing the inclination to cooperate and impressing one special set of moral commandments into the human soul as if it is the only one that is possible. Armed with batteries of fascinating and terrifying fantasies about omniscient and exacting dominances, religious leaders move their followers to support cooperation and to do by preference exactly what the leaders want them to do. The theme of cooperation between man and the gods can be infinitely varied, and the fear of the Lord (who in his infinite wisdom remains ever faithful to TIT FOR TAT) can be mobilized to stimulate all sorts of actions.

In chapter *five*, we address further the more risky philosophical claims, and we investigate in particular the possibility of a being in possession of *free will* (4). First, the compatibility of freedom and causality is proved, and Peirce's “hypothesis of chance creativity” and its modern versions, often based on an incorrect interpretation of Heisenberg's “uncertainty principle,” are rejected, because they mix up causality with compulsion and freedom with arbitrariness. Freedom, it is concluded, cannot be a “causeless cause” that somehow “transcends” natural necessity, but must be an “emergent” characteristic of a complex system. Then, the compatibility of (freedom or) autonomy and teleonomy is investigated, and the alternatives of a biological theory of freedom — autocreationism and environmentalism — are rejected, because they lead to absurdities. Within the framework of the sociobiological theory of “gene/culture coevolution” (Lumsden & Wilson), the evolution of a capacity that at least resembles traditional “free will” is made plausible. The human “self” is discovered to be neither the sum of the instincts and motives of an individual nor an entity that floats above them, but rather a process in which the individual constantly is looking for an identity that adapts his or her different teleonomic “drives” to the surrounding culture. Free will is the capacity to unify contradictory impulses in an *Entwurf*, or life programme, and to correct this self-created identity continuously. People appear to be adapted to culture, and their renowned “free will” translates their individual teleonomic missions into tasks, jobs, and vocations in their surrounding cultures (Alexander). So freedom is shown to mediate between culture and individual teleonomy and between insight and a collection of “open” instincts. It is a highly functional capacity, because each individual has a unique set of genes and therefore a unique teleonomic mission, which the individual has to carry out in a unique succession of surroundings.

However, in the context of culture cooperation, the freedom of the other individual is always suspect and dangerous. He or she can take subtle advantage of the cooperation and become a parasite on one's good intentions. Therefore, the freedom of the other party is always taken as *responsibility*: This way, his or her abuse can be punished with righteous indignation, and he or she can be expelled from cooperation or be forced to correct him- or herself. Nevertheless, the interpretation of guilt as “could-have-done-otherwise” is shown to be an unnecessary surrealistic, metaphysical exaggeration of moralistic aggression

into realms of causality, realms that are unknown to science. When the concept of causality makes any sense, a criminal could *not* have done otherwise, but that detracts nothing from the value of his or her repentance, which is at least a virtual correction of the past and the revelation of new intentions that incline more toward cooperation.

Chapter seven concentrates on the dimension of the "Ought" (5). The evolution of our sense of responsibility is traced "down" to the watchful attitude of dominant apes, who, via their commitment to the good of the group, seem to cultivate a fertile garden where they can foster their genes. Human culture cooperation appears to create the possibility of a diffusion of responsibilities and the origin of a tyrannical group moralism, of which a modest metaphysical, surrealist by-product is cultivated by one race of philosophers as *Das Sollen*, or the "Ought."

Originally, religion played an essential role in the reinforcement of this group moralism. Religious leaders could present their intuitive sense of the good of the group as a privileged knowledge of the demands of the gods. But when religions clashed and succumbed in the fast-changing world of higher civilizations, where the interests of groups and individuals diverged farther and farther, there was felt a new need to give moral judgments authority. In this gap arose philosophical ethics, which again and again tried to show that moral and rational behaviour are the same.

It is claimed, however, that the dimension of the "Ought" is created only through the collective pressure of many individual "culture cooperators," who are all concerned that the others remain faithful to the cooperation, because they all are completely dependent on it, and who themselves often are tempted to hide their selfish behaviour and offer the impression that they themselves are completely loyal. So the mutual dependence of culture cooperators creates the possibility of referring to a "good" that not only is subjective but that also approaches a true "good of the group," or cooperation, as the shared teleonomy of the whole group. The "rationality" of moral language is thus founded on the shared purposes of individual and group. Because actual moralizing organisms never share all of their purposes with the group and the many individual teleonomies often exclude one another, the organisms always remain, in part, hypocrites; they have to weigh their investment in cooperation and compare it with the profit they gain by cooperating. They will often have to stimulate the others to invest a lot in cooperation by giving the impression that they themselves cooperate (remember TIT FOR TAT).

Chapter eight explores the possibility of a "meaning of life" (6), which according to many traditional philosophers is revealed through the moral life. It is claimed that we humans have some difficulty in accepting the subjectivity and contingency of our fundamental values and are inclined, therefore, to sanctify them religiously (Murphy). Religion often presents a very idiosyncratic set of beliefs and values as a privileged revelation, which makes these beliefs and values seemingly inevitable and self-evident. In this way, religion combats the self-alienating potential of reflection, which could show us the arbitrariness of our subjective experience of things and could demoralize our teleonomic endeavors.

The conflict between our "innate structures of expectation" and the scientific model of the world is then further analyzed,

and the reasons why scientific progress often causes convulsions of the soul are shown. Our reasons for making objective the meaning of life that we desire are explained. Teleonomic beings that we are, the world of our experience has to have meaning, because it has to inform us about what we have to do. Our experience that has meaning, then, is the experience that we, via our life programme, are adjusted to and have merged with the world that surrounds us — that we do "right" things. This experience, however, is completely tied to our teleonomic perspective of experience, and cannot claim to be objective. The sense that our desire to find a meaning can never be completely and definitively fulfilled, because it clashes with a world that always surprises and shakes our limited teleonomic expectations, is called the *tragedy of desire*.

Chapter nine is an attempt to strike a balance. Traditional ethical concepts emerge from a naive understanding of an involvement with the game of culture cooperation; in this game, all participants are ensnared by their evolved set of emotions, which makes them cooperate on the one hand and enables them to profit by cooperation on the other. The language of morals can be understood as the product of a group moralism, in which all parties concerned try to promote cooperation, which is "good," and try to destroy parasitic tendencies (particularly in others), which are stigmatized and exorcised as being "bad." Morality, then, is a conspiracy of culture cooperators against the virus of abuse. Because we have evolved as culture cooperators, we have innate "moral faculties" (Darwin) and feelings that oblige us to cooperate and warn us against abuse, particularly in others.

However, morality often claims to transcend biology and to be objective (Ruse). It is claimed that we "ought" to use our "free will" to "transcend" our inclinations. But we cannot transcend our teleonomy, without which we would not even have a sense of morality. And there is no objective morality, because each ethical code reflects only the concerns of a particular teleonomic viewpoint. Different projections of meaning necessarily conflict when the underlying teleonomic purposes conflict. And the universe itself, *Das Ding an sich*, is entirely neutral regarding our whole search for meaning.

Ultimately, our morality has to serve the cause of our genes. Each *ethos* that is not an *evolutionary stable strategy* (Maynard Smith) at the same time will cause its own extinction. Evolution judges the success of our moral endeavors only by measuring reproductive success. Man cannot transcend his teleonomy, which demands that his morality always be a limited one, a "field" of concern.

Many ideals touted by traditional ethics are revealed, therefore, to be only reified *fata morganas* — at best, they give direction, but there are no termini, and they only have to be adequate for survival. Like the hero of a tragedy, man has to discover what he truly is and what purposes his endeavors really serve. All his projections of meaning are ultimately idiosyncratic and teleonomic and are tied to a limited viewpoint. Because the biosphere of this planet is the object of many different competitive projections of meaning, every choice remains a choice between at least two kinds of evil.

References:

Slurink, P. (1989). *Natuurlijke selectie en de tragiek van de*

menselijke idealen. Een naturalistische rechtvaardiging en kritiek van ethische noties. Delft, The Netherlands: Eburon. ISBN 90-5166-086-3.

A Heart for Nurses?

by A. Fürtlinger, Isbarygasse 13, A-1140 Vienna, Austria.

Most biologists, at least ethologists, are familiar with K. Lorenz's famous "Kindchenschema." Among other functions, it protects small, helpless children from aggressive acts of their caretakers who may be tired and nervous from endless carrying, feeding, cleaning, listening, watching, and so forth.

A second group of people is similarly vulnerable: the elderly, or very old people, who indicate helplessness, e.g., by using a stick (as a third leg, according to the riddle of Oedipus). They exhibit distinct features, variable in grade and combination, yet representing a definite "life-phase phenotype" (see Appendix). Can they also expect by their habitus alone to elicit a smile, to facilitate body contact and caressing behaviour? Or does the hypothesis apply that the (very) aged do not enjoy such a "sympathy guarantor" because their appearance in our phylogeny is so recent?

Data from paleoanthropology and prehistory seem to indicate that individual life spans seldom exceeded 30 years. Historians describe an almost exponential increase in longevity over the past century. Biology adds that individuals, having contributed their share to rearing offspring (including grandchildren?), may even reduce resources for their progeny by "going on" beyond this 30-year period.

Thus, if old age was not selected for by evolution and its phenotype therefore remains "unknown," natural proneness to help beyond familiarity (read "kin") will be improbable. Even worse, do not certain features of otherwise healthy elderly individuals (e.g., spotted skin, sensory weakening) happen to overlap symptoms of disease or dysfunction? This might further promote distance-keeping behaviour by others.

Now my reasons for addressing the HEN Forum: I did my physician's residency training in a hospital where in April 1989 three nurses admitted to having killed more than 40 patients by the misuse of care (drowning by "oral rinsing," overdosing with hypnotics or insulin). Murder — yes — and the Austrian mass media made it the issue of the month; yet, the following circumstances are cause for reflection:

- the average age of the victims exceeded 80 years;
- the nurses, who lacked diplomas, worked at the hospital for years, at low wages;
- for the most part, the patients who were killed were "troublemakers" during the night.

Now, what is really known about attitudes toward the elderly during nonkin, nonfriend, professionally dictated, cumulative, prolonged, mostly unidirectional interactions? Four biological grandparents are the greatest number an individual can have, but rarely are they together in one place, and virtually never do they all rely exclusively on that individual's presence, company, help. . . .

Appendix: Outline of an "old-age scheme" (incomplete)

1. Morphology

- the face (*most important landscape of human life, first object, permanent stage for personal encounters*)
skull visible as a result of fat reduction
eyes sunken in sockets
hair: increased and bristly (nose, eyebrows, ears) or reduced (head)
disproportion: ear and nose cartilage continues to grow during life
- hands: bony; conspicuous joints, veins, and nails;
- skin: dry, scaly, slack, spots (some growing, becoming elevated, multiplying; these "signs of age" are so typical, that my first title for the paper was "growing points in gerontology"), blotches, warts, wrinkles, furrows
- arms and legs: thin with conspicuous joints; muscles flabby
- erect posture (*symbol of humankind*)
height reduction, exaggerated spinal curvatures
disproportion: torso shortened, limbs retain their length

2. Behaviour (*everyday activities, expression of will and emotion*)

- in general, slowed; rigid or shaky (tremor, insecurity, loss of power)
- eyes: tendency to become fixed or furtive
- arms and legs: mobility impaired (hip, knee, shoulder stiffness)
- gait: inelastic, unvarying, "heavy"; walking aids
- reaching: tremor of arms, but firm grip, clenching
- eating: bowed sitting, shaky hold on utensils, impaired chewing
- urinating, defecation: troublesome

3. Communication (*speech as carrier for intellect, personality, social exchange*)

- rhythm: slow, pausing, repetitious, monotonous
- topic selectivity
food, intestines, faeces
family, neighbors, doctors
materialism (accommodations, money, jewels)
- orientation difficulties
time, place, people,
memory and sensory impairment
- emotion: propensity toward high pitch, loudness, imperiousness, aggressiveness, intolerance or defensiveness, lamentation, whimpering
detachedness: humming, "whistling"

Of Sex and Clothing

by: David Alan Munro, 802 Bluebird Cn Dr, Laguna Beach, CA 92651, U.S.A.

Surely Prof. Chiarelli of the institute of Anthropology — writing here of "The Origin of Decency and Vanity" (HEN, June 1990) — must have read his Darwin, read it and forgotten it — for Darwin, though battling the Victorian hypocrisy of his day, nevertheless devoted two-thirds of *The Descent of Man* (1871) to the section called "Sexual Selection." That gave us our

walking papers. Two-thirds of what we are, he said by implication, we evolved by sexual selection.

This is main-stream stuff. And powerful. It speaks to the power involved in the unprecedented speed of man's acquisition of a master brain: timing which we have since documented but which Darwin could only have suspected. Sexual selection, according to Darwin, was for beauty as perceived by the sex-partner. It was spurred in humans by a continuous estrus which heightened the initiative and transferred it largely to the male. It eliminated fur: "the skin you love to touch" says an ad a million years after the event. And in tribal wars women were booty and men the aggrandizers for enough formative millennia to make us what we are, for better or worse (see Robert Bigelow, *The Dawn Warriors*).

And, in becoming very sexy animals, we developed early-on a dozen or so striking physiological dimorphisms. Furthermore, not content with the sex differences nature provides us, we've added cultural dimorphisms: we wear sex-typed clothes, cut our hair and paint our faces in sex-typed ways, walk, run, sit and stand appropriately, etc. Our dimorphisms are a part of us, physiologically and psychologically.

This includes, of course, the peek-aboo possibilities of clothing. But Prof. Chiarelli's speculation that modesty — what a peek-aboo word that is! — may have begun with a "convenient small fly-flap girdle" trivializes the entire historical process which made us. Helen of Troy and millions of other women were fought for, and the bloody cauldron produced the brave and the beautiful, the tender and thoughtful, as well as the smart and ruthless. Us.

And incidentally women do not have to "adopt a bent or seated position to urinate," as the professor says. In Africa they piss standing, legs apart.

BOOK REVIEWS

The Politics of Women's Biology

New Brunswick, New Jersey: Rutgers University Press, 1990. ISBN 0-8135-1489-4. Pp.ix+229. By Ruth Hubbard.

Reviewed by Monica Moore.

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For anyone teaching about issues related to the politics of science or women's health, Hubbard's most recent contribution is a wide-ranging, but concise and admirably clear text that must be included in a discussion of either topic. In the introduction to *The Politics of Women's Biology*, Ruth Hubbard expresses her aim to describe her "journey from observing nature to observing science, from doing science to studying it." She points out that it seems contradictory to her that as political awareness has risen many feminist scientists have left the doing of research behind to provide a feminist criticism of science. Hubbard believes this is necessary if we are to improve the discipline by bringing into focus the implicit assumptions that underlie scientific descriptions and interpretations. The book is divided into three parts: "How do we know?" "What do we

know?" "How do we use it?" The first part is concerned primarily with feminist issues in science, the second part with feminist critiques of the subject matter of science, and the third with the current status of procreative technologies and their relationship to the politics of biological science.

The central thesis of the book is that women's biology is a political enterprise which has the capacity to harm women and culture through methodologies and technologies which are inherently sexist. In Part One, Hubbard provides a useful and stimulating overview of the misrepresentation of the role played by science in formulating our view of nature. She cautions the reader against overestimating the usefulness of science as a way to know, so that we undervalue other forms of knowing. Hubbard does this through pointing out the limits of science in terms of objectivity and reductionism. In an elegant synthesis, Hubbard gives a compelling demonstration of how women have been excluded from the academy and science. She ends this section of the book with a detailed look at how the double-helical model of DNA came into being, as a vehicle for demonstrating how the treatment of Rosalind Franklin mimics the sexism women experience in scientific descriptions of their anatomy.

In Part Two, Hubbard provides examples of the way our ideological commitments cloud our understanding of genetics, evolution, women's biology, sex differences, and sexuality. Here she provides a thoughtful and fairly comprehensive expose of the errors into which human sociobiologists readily fall. This is one section which everyone concerned with evolutionary approaches must read with care and be ready to learn from. Her aim is to show that the peculiar complexities of our own species demand quite a different level of caution and attention to detail than that typically shown by sociobiologists. She ends this part by exploring the current status of research on sex differences and by positing a nondeterministic model of sexuality. With regard to the former, Hubbard rehashes the nature-nurture controversy, again asserting that it is impossible to separate the effects of biology and society. There is nothing particularly new here for anyone who has kept up with the literature, but because Hubbard has directed her book toward the nonacademic audience, this section may be a good review of the status of research on gender differences. With regard to sexuality, Hubbard argues that "there is no 'natural' human sexuality." She reviews current theories of sexual development and discussed individual sexual scripts. Hubbard proposes that we work toward a society in which human diversity, flexibility, and the ability to change is part of our perspective on sexuality.

In Part Three, Hubbard explores the ideology of procreative choice in our society to show how biological science is applied. She shows how contraception and abortion have been employed to enable us to plan our families in the same way we plan the rest of our life. Furthermore, we have come to expect a healthy child. Obviously, these expectations are a reflection of the affluent, white, American, middle-class, individualistic orientation. Yet, at the same time poor women are limited in their choices by a culture which is not responsive to their needs including those for adequate housing, food, healthcare, jobs, and childcare. Hubbard points out both the legal and medical risks involved in pregnancy interventions. She argues that the "choices" provided by the new fetal technologies may in the

end limit options as parents are held accountable for making the "wrong" choice.

The exposition of the book's main ideas is lucid. The descriptions are vivid and augmented by examples, primarily from Hubbard's career. The text is carefully written, with terms explicitly defined, but the excellent style is also delightfully entertaining. There are fascinating anecdotes throughout and the prose frequently draws gasps of astonishment; as, for example, when Hubbard describes the role of Rosalind Franklin in the breaking of the DNA code. But therein lie two of the dangers of the book. Because Hubbard is such a wonderful writer it is easy to be seduced by her arguments, which in many cases are not backed by anything more than anecdotal evidence. One case in point is when she discusses energy investments in pregnancy. Hubbard neglects recent work on the metabolic drain of pregnancy to point out that pregnant women have been known to compete in Olympic events. Secondly, the relatively superficial analyses here are vulnerable because her book is not visibly free from errors of overinterpretation and bias. Indeed, the theses presented in the book rely on sophisticated argumentation. It is tempting to attempt refutations in this review. But such a task would be a boring distraction. Suffice to say that this reader is not ready to throw out the baby, biological science, with the bathwater. Nevertheless, Hubbard's call for an alternative to the science she describes and criticizes is timely.

To this reader, one of the most useful contributions is the discussion of possible repercussions if we do not consider the effects of our procreative technology. Hubbard provides an excellent critical demolition of the assumption that one deserves a perfect child. Her review of the eugenics movement in Great Britain and the United States and its subsequent effect on the policy of racial hygiene in Germany is frightening. She reveals how the academic infrastructure needed by Hitler was already in place when he came to power. Certainly, most of us are aware of the role of medical research in the Holocaust, but Hubbard's analysis reminds us of the danger of allowing science to reign, free from ethical constraints. Now, when almost daily one can read of the ethical dilemmas created by new medical technologies, Hubbard's history lesson may be particularly crucial.

I recommend the volume to those in women's studies and biology. The price is reasonable and the content intellectually stimulating. Hubbard has also done a good job of writing for a nonacademic audience. She takes the reader through complicated medical and scientific issues, always being careful to define terms and explain procedures. The book should be taken as a serious challenge to biological science, a challenge that may very well result in a reconceptualization of the place of science in culture. It is not the last word on the politics of science, but in certainly is thought provoking.

CURRENT LITERATURE

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BULLETIN BOARD

Announcements

Workshop on "Youth and Social Change" at the Pennsylvania State University, June 24-30, 1991.

The Center for the Study of Child and Adolescent Development of the College of Health and Human Development, The Pennsylvania State University, and the International Society for the Study of Behavioral Development are sponsoring a workshop/conference on "Youth and Social Change" to be held June 24-30, 1991. The focus of the workshop is on the biological, psychological, and sociological study of relationships between adolescent development and sociocultural institutions and changes. Participating Senior Scholars include: Dr. Jeanne Brooks-Gunn (Educational Testing Service, USA); Dr. August Flammer (University of Bern, Switzerland); Dr. Klaus Hurrelman (University of Bielefeld, West Germany); Dr. David Magnusson (University of Stockholm, Sweden); Dr. Kenneth Rubin (University of Waterloo, Canada); and Dr. Roberta Simmons (University of Pittsburgh, USA). This workshop is supported by funds from the Jacobs Suchard Foundation, the College of Health and Human Development of The Pennsylvania State University, and the International Society for the Study of Behavioral Development, and will take place at The Pennsylvania State University (University Park, PA, USA).

Workshop fellowships are available to young scientists (up to 7 years post-Ph.D. or equivalent) interested in adolescent development. A travel stipend, a meal stipend, and lodging will be provided.

Send complete applications no later than *December 15, 1990* to: PSU/ISSBD Workshop on Youth and Social Change, c/o Richard M. Lerner, 101 Myra Dock House, The Pennsylvania State University, University Park, PA 16802, USA. Applications should include the following: (1) a cover letter stating the rationale for wanting to attend the workshop; (2) a brief curriculum vitae including relevant scientific work; and (3) a letter from a sponsor, if appropriate. Announcements about workshop fellowships will be made in early 1991.

The goal is to allocate the available 15-20 workshop fellowships to a group of young European and North American scholars interested in the study of the relations between adolescent development and contextual change. Further information

about the conference program and an application form is available at the address given above or by phone (814-863-0530 or 814-865-7141).

The 22nd International Ethological Conference will be held at the Otani University, Kyoto, Japan, 22-29 August, 1991. The local Organizing Committee will place emphasis on the encouragement of young ethologists, on natural history which is always the motive force of ethology, and on providing enough time for free discussions by not setting a fixed program in the evening. Deadlines: for submitting Abstract: February 28, 1991; for early registration: February 28, 1991; Hotel accommodation and tours: June 30, 1991.

Correspondence for Registration and Abstract: 22nd IEC Conference Secretariat, c/o Simul International, Inc., International Conference Department, Kowa Building No. 9, 1-8-10 Akasaka, Minato-ku, Tokyo, 107 Japan. Tel.: +81-3-586-8691. Fax: +81-3-583-8336. Telex: 2423958 SIMUL J.

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Cognitive Development or Developmental Psychobiology: The Department of Psychology at the University of Tennessee — Knoxville, the flagship campus of the University of Tennessee system, is seeking to fill a tenure track position at the Assistant Professor level beginning Fall 1991 in any area of Developmental Psychology. Ph.D. in psychology required. Preference is for candidates with a specialization in either a) cognitive development (including those with an interest in language) or b) developmental psychobiology (including those with an interest in comparative/ethological approaches). Responsibilities will include maintaining an active program of research as well as graduate and undergraduate teaching and advising. The Department has 25 full time faculty, doctoral programs in clinical and experimental psychology, approximately 130 graduate students and about 625 undergraduate majors. New faculty are provided startup funds and reduced teaching assignments. Women and minorities are especially urged to apply. The search committee will begin reviewing applications January 15, 1991. Send a letter of interest, a vita, representative reprints, and arrange for three letters of reference to be sent to Dr. Cheryl Travis, Chair, Search Committee, Department of Psychology, University of Tennessee, Knoxville, TN 37996-0900. UTK is an EEO/AA/Title IX/Section 504 Employer.

New Series Announcement

The Praeger publishers imprint of the Greenwood Publishing Group is pleased to announce a new series of books under the title "Human Evolution, Behavior, and Intelligence." It will be under the general editorship of Professor Seymour W. Itzkoff of Smith College, Northampton, Massachusetts. The first books in this series are expected to be published in 1991. Further information may be obtained by writing to the General Editor at Wright Hall 119, Northampton, Massachusetts 01063, U.S.A.

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If the date on your mailing label is earlier than the current year, it is time to renew your membership. Renewal notices are not sent for economic reasons. No more than two warnings are given on the mailing label. Thereafter you are removed from the membership list.

Membership dues are U.S. \$20.00 (f40,00 guilders) per year (students U.S. \$10.00) and U.S. \$50.00 (f100,00 guilders) per 3 years. The library rate is twice these amounts.

Directions for payment are given on the last page of this newsletter. Payment reaching the treasurer before February 1, May 1, August 1 or November 1, will be processed in time for indication on the mailing label of the next newsletter issue.

Please, report any errors, changes of address, etc. to the editor.

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