

Human Ethology Bulletin

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The 2006 Biennial Conference of the International Society for Human Ethology (ISHE06)

30 July – 3 August 2006

Detroit, Michigan U.S.A.

The 2006 biennial ISHE conference (ISHE06) will be held at Wayne State University in the McGregor Memorial Conference Center. The program will feature four invited speakers, poster presentations, a variety of thematic sessions (symposia), and other talks. Various special events, including a banquet dinner, a jazz reception, and several optional outings will be offered. This issue contains a Registration Form, housing information and a housing reservation form, and updates concerning a variety of conference matters. Forms and conference information also can be found in the March 2006 issue and on the ISHE web site.

REMINDER. There's a new, easy-to-remember ISHE web address:

www.ishe.org

Please keep checking this site for
the latest ISHE06 updates

Bulletin Staff

EDITOR

Thomas R. Alley

Department of Psychology
Clemson University
418 Brackett Hall
Clemson, SC 29634-1355 USA
tel. 1-864-656-4974
Fax 1-864-656-0358
E-mail: Alley@Clemson.edu

ASSOCIATE EDITOR

Maryanne Fisher

Department of Psychology
St. Mary's University
923 Robie Street
Halifax, Nova Scotia, B3H 3C3 Canada
E-mail: MLFisher@HUSKY1.SMU.CA

CURRENT LITERATURE EDITOR

Johan van der Dennen

Dept. of Legal Theory, Faculty of Law
University of Groningen
Oude Kijk in 't Jatstraat 5/9
9712 EA Groningen, The Netherlands
tel. 31-50-3635649
fax: 31-50-3635635
E-mail: J.M.G.van.der.dennen@rechten.rug.nl

ADDRESS CHANGES: Members wishing to make address changes or other changes in their membership information should send their requests to the ISHE Membership Chair, Astrid Juette, at: astrid.juette@kli.ac.at

Bulletin Policies

Submissions: All items of interest to ISHE members are welcome. These include information on Society matters, including news about ISHE members; articles (Brief Communications); replies to articles; announcements of meetings, journals or professional societies; etc. These sorts of submission should be sent to the Editor. Book reviews and review inquiries may be sent to an Associate Editor. Guidelines for book reviews are available from any staff member and on the ISHE web site.

All submissions must be in English, and sent to the appropriate editor via email, preferably as an attachment. If email is impossible, hard copies will be accepted, as long as they are accompanied by the same text on diskette or CD-R (preferably in Microsoft Word format). Submissions are usually reviewed only by members of the editorial staff, although outside reviewers are used occasionally. Some submissions are rejected, but political censorship is avoided so as to foster free and creative exchange of ideas among scholars.

Disclaimer: The opinions expressed in the *Human Ethology Bulletin*, and any policy implications that might be inferred from them, do not necessarily reflect those of the editorial staff or ISHE. Informed responses offering alternative views are welcome and can be sent directly to the Editor.

Reproduction: *Bulletin* content may be reproduced without limit for scholarly purposes, but **not** for commercial activities. That is, no one may be charged for receiving the content, unless prior permission is obtained from the Editor or the ISHE President.

ISHE06 Updates

Readers are reminded that they can obtain conference information and register for the conference electronically by visiting ISHE's website: www.ISHE.org and selecting the CONFERENCE tab. If you plan to attend the 2006 biennial ISHE conference in Detroit July 30th through August 3rd, please take care of the following as soon as possible.

- 1) Register for the conference, using the form in this issue, or by doing so online.
[Wayne State and University of Detroit - Mercy students and faculty may attend sessions at no charge (space permitting) with valid identification, since those universities have made substantial donations to the congress.]
- 2) Book your lodging accommodations by either contacting the Inn on Ferry Street (fax is 1-313-871-1473) or by reserving a room at the Towers Dormitory using the form in this issue and faxing it to Carol Weisfeld at 1-313-578-0507.

If possible, plan to arrive on Sunday July 30th in time for registration, which will be open from 3-7 p.m. in the WSU Towers lobby. At the least, try to arrive in time for the jazz reception at 7 p.m. on Sunday at the Inn on Ferry Street. The reception is free and open to all attendees and their spouses or guests. Registration will continue Monday all day at the McGregor Conference Center.

STUDENTS: If you have had a paper or poster accepted you will need show your student identification in order to have your fees at registration, including your housing fees at the Towers dorm, waived.

Presenters. If you have a poster accepted, you will be provided with a foam core base on a tripod on which to mount your poster. The boards

will accommodate poster up to 4 x 6 feet (120 x 182 cm). Tacks, tape and glue will be provided.

For those with papers accepted, the conference room used for paper presentations will be equipped with a screen, microphone, slide projector, overhead projector, video/DVD player, LCD projector, and laptop with CD drive and floppy drive. If you have more detailed questions about equipment, please fax your questions to Phil Malczynski at 1-313-577-7770.

Other Reminders. Any guest who wishes to cross over to Canada on this trip is advised to bring a passport; Canadians are advised to bring passports as well. Anyone who has a book to be displayed at the conference is asked to contact LssBookExhibits@cs.com.

Keynote Speakers. ISHE06 will feature four keynote speakers, one on each morning of the conference. Biographical information on each speaker is available in the March 2006 issue and on the ISHE website. The speakers are:

Karl Grammer – presenting *“Embodied communication systems: An evolutionary perspective”*

Randolph Nesse – a pioneer in the field of Darwinian medicine, presenting *“Selection, idiographic motivations and mood”*

Ullica Segerstråle – speaking on William Hamilton, the subject of a biography currently in progress.

Stephen J. Suomi – Chief of the Laboratory of Comparative Ethology at the National Institute of Child Health and Human Development; speaking on *“How gene X environment interactions can shape behavioral and biological development in rhesus monkeys, humans, and other primates”* (tentative title)

ATTENTION MEMBERS

There will be an important general membership meeting at ISHE06 on Thursday after the last papers (at approximately 11:30 a.m.). **All members** attending ISHE06 are urged to attend this General Assembly.

If there are any matters you would like included in the General Assembly or addressed at the meeting please bring these to the attention of ISHE President Glenn Weisfeld at weisfeld@sun.science.wayne.edu or ISHE Secretary Frank Salter at FSSalter@aol.com. However, time may not allow all suggested items to be included.

2:30 p.m. – paper session
 3:30 p.m. – afternoon break
 3:45 p.m. – LMA paper session
 5:15 p.m. – Poster Session #1 - atrium

Wednesday – 2 August

9:30 a.m. `Keynote speaker: Stephen J. Suomi
 10:30 a.m.-1 p.m. – paper session(s)
 11:00 a.m. – mid-morning coffee break (15 min.)
 1:00 p.m. – lunch (posters on display for Poster Session #2)
 2:30 p.m. – paper session
 3:00 p.m. – afternoon break
 3:15 p.m. -- paper session
 4:15 p.m.-6:15 – Poster Session #2 - atrium
 7 p.m. – ISHE banquet

Thursday – 3 August

9:00 a.m. – Keynote speaker: Karl Grammer
 10:00 a.m. – paper session
 11:00 a.m. – mid-morning coffee break (15 min.)
 11:20 a.m. – General Assembly business meeting
 circa 12:30 p.m. – closing remarks; ISHE06 ends

DRAFT ISHE06 Schedule

(all times subject to change)

Sunday – 30 July

10:30 a.m. – ISHE officers meeting at the Inn on Ferry Street
 3 p.m. – Registration opens in the WSU Towers lobby
 7 p.m. – Jazz reception at the Inn on Ferry Street

Monday – 31 July

8:30 a.m. – Registration continues at the McGregor Conference Center
 9:15 a.m. – welcoming addresses
 9:45 a.m. – Keynote speaker: Ullica Segerstrale
 10:50 a.m. – mid-morning coffee break
 11:10 a.m. – paper session
 1:00 p.m. – lunch
 2:30 p.m. – paper session
 3:30 p.m. – afternoon break
 3:45 p.m. -- paper session (ends by 6 p.m.)

Tuesday – 1 August

9:30 a.m. – Keynote speaker: Randy Nesse
 10:30 a.m.-1 p.m. – paper session(s)
 11:00 a.m. – mid-morning coffee break (15 min.)
 1:00 p.m. – lunch (posters on display for Poster Session #1)

Conference Transportation & Lodging

Transportation

Metropolitan Detroit **Airport** is a hub for Northwest Airlines, with daily nonstop flights to worldwide destinations, including Vancouver, Ottawa, Montreal, Toronto, Rome, Osaka, Tokyo, Frankfurt, Amsterdam, Paris, London, and scores of U.S. cities. It is a 25-minute cab ride to the WSU campus from Metro Airport (about US\$40 for a cab).

By Air. There is no easy public transit into the city of Detroit from the **Detroit Metro Airport**. Cars are easily rented at Metro Airport but it is suggested that visitors arriving by plane consider NOT renting a car. You will not need one at the conference, as everything is within walking distance of everything else. (There is free parking for guests of the Inn on Ferry Street, but otherwise

one must pay for parking at Wayne State University.) The Inn on Ferry Street offers a free shuttle service to nearby restaurants and destinations. Instead of renting a car to get from Metro Airport to Detroit, we advise you to take a **taxi** (not a limousine or what are called Metro cars here). Taxis in the taxi line at the airport will cost about \$40 plus tip for the trip into the city, so you may want to share a taxicab with other ISHE attendees. Give the taxi driver the address of your destination:

Inn on Ferry Street is 84 East Ferry Street

WSU Towers is 655 West Kirby
(at the corner of Anthony Wayne Drive)

By Rail. Amtrak has several **trains** daily between Chicago and Detroit (Ann Arbor is en route). The Amtrak station is a 5-minute ride from the WSU campus (about \$6 for a cab). Canadian VIA rail comes into Windsor from Toronto and points north; a cab ride to the WSU campus costs about US\$20.

By Car [Detroit is just northwest of Windsor, Ontario]. From **Canada** there are two border crossing points: the Detroit-Windsor Tunnel and the Ambassador Bridge. From the tunnel take I-375 north, or from the bridge take I-75 north (toward Flint) to the Warren exit. Take Warren 5 blocks west to Woodward, Woodward north 3 blocks to Ferry Street to the Inn on Ferry Street. Or take Warren west 6 blocks to Cass, and take Cass north 2 blocks to the McGregor Conference Center on the WSU campus. Or take Warren west 7 blocks to Anthony Wayne Drive, and take Anthony Wayne 2 blocks north to the Towers Residence. **From the west** (including Metro Airport), take I-94 to the Woodward Avenue exit in Detroit, and take Woodward south a few blocks to Ferry Street or Warren. Follow directions above to McGregor, the Inn on Ferry Street, or the WSU Towers. Approaching Detroit **from the south or east**, you will likely connect with I-75 near Toledo. Continue on I-75 north to the Warren exit in Detroit. Exit at Warren Avenue and go four blocks west to Woodward Avenue. Go three blocks and turn right onto Ferry; the Inn is on the right side in the first block. Directions

on WSU's excellent website (see link on ISHE's website) will take you to Parking Structure #6, 3 blocks from McGregor.

Conference Lodging

There are two primary housing options arranged for ISHE 2006, both within a few minutes' walk of the McGregor Memorial Conference Center.

(1) **The Inn on Ferry Street** offers 40 quiet rooms with breakfast included for US\$120 per room per night (a special conference rate). These are unique and luxurious rooms located inside four restored Victorian homes and two carriage houses. Every room is non-smoking has a TV, AC, private bath, hairdryer, phone with data port, and free on-site parking. The Inn is WiFi enabled. Please make reservations directly by e-mail (www.theinnonferrystreet.com), phone (1-313-871-6000), or fax (1-313-871-1473).



The Inn on Ferry Street

(2) Very economical housing is available at the **WSU Towers Residence**. This is normally graduate student housing. Rooms are non-smoking and air-conditioned. All ISHE06 registrants staying at the Towers will be sharing suites with up to 3 other conference attendees. The bedrooms are single- or double-occupancy rooms (all beds are single size). All rooms are part of suites consisting of 4 single bedrooms (Type D) or 2 singles plus 1 double bedroom (Type C). The diagrams provided in the March 2006 issue show the two types of suite layout. The charge per person is \$30 for D or C-1, which would be your own room, and \$25 per person for

a bed in a shared room [C-2]. Everyone in a suite will share a common living area and the toilet and shower rooms. Maid service and meals are not included. Paid parking is available nearby.

If you wish to stay at the Towers, you must register for these dormitory rooms through ISHE – a Revised Reservation Form for ISHE06 Lodging at the WSU Towers is printed in this issue and contains additional information. Guests are to pay ISHE at the conference for the reserved room(s).

Other hotels within a few kilometers of WSU include the Hilton Garden Inn (1-313-967-0900).

Special Events and Outings

Please indicate which special events you wish to participate in on your registration form.

➤ **Sunday 30 July. Urban art bus tour** – “Gritty City” – a guide will take guests on a 3-hour tour of the Heidelberg Project, street murals, the United Artists Building, and graffiti row in the new DeQuindre Cut urban greenway in the Mies van der Rohe Historic District downtown. Charge is \$15.

➤ **Monday 31 July. Boat tour of the Detroit River** aboard the Diamond Jack. This is a narrated tour along both the American and Canadian sides of the mile-wide river. A simple dinner will be served on board. Drinks and bathrooms available on board. Cost is \$25.



➤ **Wednesday 2 August. The traditional ISHE conference Banquet** will be held Wednesday evening at a museum near the WSU campus. Cost is \$50 with registration.

➤ **Thursday 3 August. Trip to the Henry Ford Museum** of American technology and culture, Greenfield Village of historic America, and Rouge automobile factory. After the conference ends, a bus will transport guests to this amazing complex in Dearborn for the remainder of the day. Cost is \$30 (food may be purchased there).

➤ **Friday 4 August. Post-conference night baseball game** featuring the Detroit Tigers versus the Cleveland Indians at Comerica Park. Cost is \$25 (but perhaps less with a group discount) – buy your own food and beer!



Comerica Park

Additional information on Detroit and vicinity may be obtained at www.visitdetroit.com or www.travel.michigan.org/city/?city=G2974&m=0 or <http://www.modeldmedia.com>.

Questions about the conference? ... visit www.ISHE.org or contact the hosts Carol Weisfeld at weisfecc@udmercy.edu or Glenn Weisfeld at weisfeld@sun.science.wayne.edu.

See you in Detroit!

Registration Form

XVIII Biennial Conference of the International Society for Human Ethology

Detroit, Michigan, USA -- July 30 to August 3, 2006

Name (last, first)

.....

Organization

.....

Postal address

.....

.....

.....

E-mail address:

.....

Payment by credit card (VISA or Eurocard or Mastercard) is preferred:

Type of credit card:

Credit card number:

.....

Expiration date:

Amount (U.S.) \$

Signature:

If you prefer to pay by check, please make your check out to ISHE and send it together with a completed Registration Form to Dori LeCroy at the address below.

Registration fees:

- Member** \$290 US
- Non-member** \$325 US (includes 1-yr. membership)
- Student/Retiree** \$190 US

Important note to students: Part of ISHE's mandate is to enhance educational opportunities. For 2006, any student who is first or second author on a paper or poster accepted for the conference will have the fees for registration, Towers housing, and the banquet waived or refunded.

Fees: The registration fee includes all conference presentations, jazz reception and buffet dinner on Sunday July 30th, morning and afternoon coffee breaks Monday-Wednesday, and the break on Thursday morning. Registration fees shown below are in effect until **14 June**, 2006, after which date fees are raised \$25 in each category.

ISHE members for whom the Registration Fee represents a financial problem may request a reduced fee (Student/Retiree level or lower). Such requests should precede or accompany the completed Registration Form.

Registration fee:

Optional Fees:

- Banquet (2 August: \$50)
- Gritty City Bus Tour on Sunday 30 July (\$15)
- Detroit River Dinner Boat Tour Mon., 31 July (\$25)
- Trip to the Henry Ford/Rouge Factory Thursday (\$30)
- Detroit Tigers baseball game (p.m.; 4 August (\$25)

Total amount due

Send payment and completed form to:

Dori LeCroy, ISHE Treasurer,
175 King Street,
Charleston, SC 29401 USA
Fax: (1) 843-577-9645

[Revised] Reservation Form for ISHE06 Lodging at the WSU Towers

All ISHE06 registrants staying at the Towers will be sharing suites with up to 3 other conferences attendees. The bedrooms are single-occupancy or double-occupancy rooms (all beds are single size) in a dormitory for Wayne State University graduate students. Rooms are non-smoking and air-conditioned. Linens will be provided for an additional charge of \$10 per person. Guest are to pay ISHE at the conference for these rooms. Parking is available for \$3.50/day across the street.

The diagrams provided above will clarify the layout of the rooms. In Type C, there is one bedroom (C-2) with 2 single beds, plus 2 rooms with one bed in each. In Type D, there are 4 private rooms with one bed in each. The charge per person for a single bedroom, D or C-1, is \$30. The charge per person is \$25 for a bed in C-2, a shared room. Everyone will share a common living area, and the toilet and shower rooms with the other suite guests. If you wish to stay at the Towers, please use the form below and fax it as shown. We will try to accommodate your preferences.

Name

Address
.....
.....
.....

E-mail address Fax

Expected arrival date Expected departure

_____ I wish one single-occupancy room described above as C-1 or D-1 in the WSU Towers at the special ISHE rate of \$30 US per person per night. I would prefer that the other occupants of the suite be (please list below by name):

_____ I wish to share a room described above as C-2 in the WSU Towers at the special ISHE rate of \$25 US per person per night. I wish to share C-2 with (please list below by name):

If no suite-mates are identified, would you prefer ___ male or ___ female suite-mates?

Please fax a completed copy of this form to Carol Weisfeld at 1-313-578-0507.

BOOK REVIEWS

Unravelling the Evolution of Language

By **Rudolph P. Botha**

Amsterdam: Elsevier, 2003, 244 pp.; ISBN 0-08-044318-4 [Hdbk. US\$90]

Reviewed by **D. Kimbrough Oller**

School of Audiology and Speech-Language Pathology, University of Memphis, Memphis, TN 38105, USA E-mail: koller@memphis.edu

After a long history of disrepute, the evolution of language has been revived as a topic of interest in many circles during the past twenty years. Rudolph Botha provides a detailed critique of the recent literature from a few of those circles. He does not attempt to address all the domains of inquiry that pertain to the topic, but focuses instead almost exclusively upon commentaries that have recently been engendered from within the fields of linguistics and psycholinguistics. His critique of the product from these fields is severe. Botha leaves the impression that, in spite of an enormous amount of publication, little has been accomplished to date because the literature has failed to address sufficiently the most fundamental issues of definition. The literature has failed, in his words, to provide "restrictive theory," (a term introduced in the Preamble, p. 7., and utilized throughout the volume) which is to say that terms such as "language" are utilized in ways that are not "appropriately discriminating" (p. 9) among a wide variety of options. Thus, "language" is used ambiguously throughout the literature to refer to structures

of syntax, the capability to learn language, the neurological underpinnings of language use, the collection of possible languages, selected properties of language, and so on. Because arguments about evolution may play out differently with regard to each of these possible references to the term "language," the literature is replete with ambiguity and senseless arguments between individuals who have not even agreed upon a common, well-defined terminology.

But the problem is even worse according to Botha's portrayal. His claim is that not only is there disagreement about terminology, but also that no one has yet provided a "restrictive theory" for the evolution of language. As a result, it would appear, according to the conclusions of his exploration, that there is very little about the claims of the literature that is scientifically testable. He asserts that a lack of appropriate theory, not a lack of empirical information, is the most significant problem in the attempt to illuminate evolutionary processes in human communication. After the overwhelming criticism by Botha, the reader reaches the end of the book hoping for the author to suggest a solution to the problems of theory that are so thoroughly explored, but no solution is offered, not even an outline of one. The author's opinion appears thus to be that no significant progress in unravelling the evolution of language is possible at present, precisely because no one (not even Botha himself) appears to have established the required theoretical foundations.

Botha focuses this negative view on efforts primarily from two camps. One camp, based primarily on work by Pinker and Bloom (1990), proposes that language evolved through natural selection, and that there must have been steps of adaptation where characteristics of language came to be established due to their survival value across deep evolutionary time. The other camp, based on a Chomskyan

paradigm (e.g., Chomsky, 1991), is associated with a contentious dismissal of the natural selection proposal of Pinker and Bloom (see e.g., Piattelli-Palmarini, 1990). It proposes that language may have arisen non-adaptively, rather instantaneously, and quite recently in evolutionary time as a "spandrel" (Gould, 1991). In this latter view, language is thought of as a by-product of the evolution of a large brain. The literature in question critiqued by Botha is primarily from writings of the cited authors and from commentaries on them, along with a few additional articles and commentaries from Behavioral and Brain Sciences (e.g., Wilkins & Wakefield, 1995), and from significant conferences on the evolution of language from the 1990's (see e.g., Hurford, Studdert-Kennedy, & Knight, 1998). Rather than becoming embroiled in the details of Botha's critique, it seems sufficient for the present review to note that he appears to take both of these proposals (i.e., the natural selection proposal and the spandrel proposal) seriously at some level, but that no one associated with either viewpoint escapes his condemnation on the issue of restrictive theory. In a nutshell, he concludes we have no way of selecting between these proposals because, given the definitional inadequacies of their presentation in the literature, we have no way of telling with any precision what either one of them is about.

It seems unlikely that Botha would be more enthusiastic about other research literature related to the evolution of language that he does not critique directly. There are many such gaps in his critique. For example, he does not address the established and rapidly developing comparative enterprises directed at the topic of language evolution through communication research in primates, avians, cetaceans, pinnipeds, land carnivores, and a variety of other species including some invertebrates (see e.g., Hauser, 1996). Given the emphasis in recent evolutionary theory on the importance of development and the corresponding emergence

of the "evo-devo" focus in biology, wherein evolution and development are seen as inherently intertwined (see e.g., Callebaut & Rasskin-Gutman, 2005; Hall, 1992), it is notable that Botha does not consider human development, especially in the first two years of life, as a potential source of inspiration regarding possible evolutionary steps toward language (see e.g., Oller, 2000). Further, he does not appear to take seriously the potential importance of sexual selection in hominid history (see e.g., Miller, 2000), especially with regard to evolution of language. In fact, terms such as "primate," "development," "acquisition," and "sexual selection" do not appear in the volume's index. These are just a few examples of possibly important gaps in Botha's critique for those of a biological orientation (they certainly are important gaps for this reviewer). It is fair to conclude that this volume will be unlikely to be very satisfying to an audience with an orientation toward human ethology, biology proper or evolutionary biology in general. The critique by Botha seems to be confined to too tight a circle, one that includes opinions of linguists, but largely excludes opinions and research from many others.

But to give the author credit where it is due, a well-defined terminology and the restrictive theoretical structure that should be implied by it are crucial characteristics of success in any enterprise seeking to illuminate evolutionary processes. Botha's critique of the linguistics literature addressing the evolution of language would transfer with little adjustment to much of the more biologically-oriented literature as well. The biologically-oriented fields are also struggling with the intended references of terms related to "language," terms such as "signal," "cue," and "communication" (see a recent attempt to resolve such matters in Maynard Smith & Harper, 2003). Language and its related functions appear to present a particularly difficult topic to address with restrictive theory. Communication has so many

facets that we seem to need a whole cadre of restrictive theories with specialized empirical and interpretive efforts for each. Linguists would appear to be in a better position to manage this multi-faceted definitional problem for language than biologists. So, this book may rankle evolutionary theorists and biologists for its narrow focus on linguists' speculations and its failure to address other issues that are clearly important, but the volume's basic point of thrust has undeniable merit. We need restrictive theory if we are to proceed productively in the study of the evolution of language.

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D. Kimbrough Oller is a Professor and Plough Chair of Excellence in the School of Audiology and Speech-Language Pathology at The University of Memphis in Tennessee, and a member of the Konrad Lorenz Institute for Evolution and Cognition Research, Altenberg, Austria. His areas of research interest include infant vocal development, child phonology, evolution of language, and multilingualism.

The Birth of the Mind: How a Tiny Number of Genes Creates the Complexity of Human Thought

By **Gary Marcus**

Basic Books (387 Park Ave South, New York, NY), 2004, 269pp. ISBN 0-465-04405-0 [Pbk, US\$14.95].

Reviewed by **Rachelle M. Smith & Peter LaFreniere**

Dept. of Psychology, University of Maine, Orono, ME 04469 USA
[E-mail: Rachelle.Smith@umit.maine.edu; peterlaf@maine.edu]

In the tradition of his mentor, Steven Pinker, Gary Marcus combines up-to-date scientific knowledge with accessible analogies, metaphors, and examples in his entertaining new classic, *Birth of the Mind: How a Tiny Number of Genes Creates the Complexity of Human Thought* (hereafter, *BOTM*). His goal is “not to try to prove that genes make a difference... but to describe how they work and to explain, for the first time, what that means for the mind” (p.5). This description is presented in nine imaginatively titled chapters, rounded out with an appendix titled, ‘Methods for Reading the Genome.’

Marcus begins by discarding the view of the genome as a blueprint. He lists five well-supported reasons to illustrate that the genome does not specify a final product in intricate detail (p. 5). Next he dismisses the exhausted nature versus nurture debate and asks instead, *how* do nature and nurture work together rather than *which* is more important. Then, using illustrations ranging from twin studies to the unequal gender opportunities of becoming a Jedi Knight, Marcus provides the novice with a basic vocabulary lesson (e.g., heritability,

attribution, and causation), quickly establishing a foundation for the remainder of the text. Marcus then introduces the “Two Paradoxes” that need to be addressed in his gene-centric theory of brain development: “How can the mind be at once so richly structured and so flexible?” and, “How can the complexity of the brain emerge from a relatively small genome, 20 billion neurons versus just 30,000 genes?” (p. 12).

The remainder of *BOTM* can be divided into two main sections. The first section deals with the structure and development of the brain. Marcus’ main thesis is that the brain is organized at birth, but it is organized in such a way to allow it to make the most of environmental stimuli. In other words, the brain is prewired, but not hardwired, and the initial organization is highly susceptible to fine-tuning. He contends that, “nativists are right that significant parts of the brain are organized even without experience, and their opponents are right to emphasize that the structure of the brain is exquisitely sensitive to experience” (p.45). Though the main focus of the book is on human development Marcus does not restrict himself to human data. A motley crew of 3-eyed frogs, tool adept monkeys, blind ferrets, and talented birds and bees are intricately interwoven to grab the reader’s attention and illustrate by cross-species comparison. Marcus also examines human development pre- and postnatally and provides a slew of well-chosen examples to convey a comprehensive picture of normal and abnormal development.

Subsequently, *BOTM* delves into nitty-gritty functioning of genes and proteins. Here Marcus takes a step beyond the extant literature by providing a detailed, process-level description of the role that genes play in forming the neural substrates of the brain. He leads the reader step by step, methodically clarifying the processes by which genes accomplish their goals rather than just casually referencing them as is frequently done by

evolutionary psychology writers who have less background in neuroanatomy and its epigenesis. (For a critique of evolutionary psychology, see Panksepp & Panksepp, 2000.) First, Marcus puts the development of the human brain into the context of molecular biology by reminding us that, if we were to “puree either [a bicep or a brain] in a Cuisinart, [we] will wind up with more or less the same soup” (p. 68). Though neuroscientists do not understand all of the intricacies of brain functioning, it is important to recognize that brain functions are still bound by biological laws and must be tied to evolved organic structures in the brain.

Next, Marcus elaborates on the unique properties of the brain and how genes and the environment are intricately involved in the process of wiring the mind. He likens the brain to a Radio Shack, do-it-yourself electronics kit in which one uses the same basic components to build a wide variety of finished products. While the components are essential, they would remain useless without the functional organization of the connections between them (p.89). Wiring the mind is a demanding and specialized task and genes have evolved to read internal as well as external signals indiscriminately to guide its development. By guiding the development of the brain using both genetic and environmental signals, which are relative rather than absolute, plasticity emerges as an inherent part of nature's design.

Marcus then situates the organic brain within an evolutionary context by exploring how the genes that build the brain may have evolved. Primarily, he identifies the process of gene *duplication* as a key catalyst for evolutionary innovation. A second copy of an existing gene, perhaps one that is already optimized to a vital function, can diverge at some future point without any loss in the original function, thereby providing the tinkering, blind hand of evolution with an opportunity to invent a new function. Such an apparently minor process

may give rise to wonderfully complex products, such as color vision, which appears to have been constructed via two such duplications. Marcus provides a detailed account of how the coordinated processes of duplication and divergence have continually shaped the evolution of the brain. He cautions against the dismissal of mental modules and instead advises thinking about them in the light of evolution. Mental modules are proposed to be specific areas of cortex specialized for distinct neural functions, such as a language area or a facial recognition center. The current lack of evidence of such discrete modules may spell the end of the modularity hypothesis. However, Marcus suggests that such modules may be disguised in the ragtag world of recycled and elaborated neocortex, rather than evident to the anatomist's eye like the discretely packaged and organized structures of the limbic system.

In an attempt to address the two paradoxes, flexibility of the mind and its emergence from a small number of genes, Marcus embraces embryology. He cites the prolongation of developmental flexibility and regulative development as the key that allows innateness and flexibility to co-exist. He also addresses development as an epigenetic process that serves to specify methods of constructions rather than a finished product. Reasoning that genes work in combination rather than in isolation of one another, he describes how the genome reuses the same master instructions over and over, allowing genes to be expressed to different extents in different locations. These are precisely the processes that would allow a tiny number of genes to create the myriad and complex potentials of the human mind. “A brain built by pure blueprint would be at a loss if the slightest thing went wrong; a brain that is built by individual cells following self-regulating recipes has the freedom to adapt” (p. 158).

Marcus concludes with a call for collaboration among disciplines. Though he is successful at coordinating a vast amount of information in this one text, he rightly asserts that “to unravel the complex interaction between behavior, brain, and genome, there can be no substitute: Geneticists, molecular biologists, neuroscientists, psychologists, linguists, and even chemists and physicists, will all need to work together” (p. 189). We would add that attempting to understand the evolution of the brain in the absence of ontogenetic processes, will yield incomplete, if not faulty, constructions of this most complex of nature’s designs.

We strongly recommend this inter-disciplinary text to faculty and graduate students in any of the fields mentioned above. From the beginning, readers are well informed about what they are getting into, and those who choose to continue will find themselves more enlightened in the end. Readers are forewarned, however, to stay sharp. Nestled in among the alluring and engaging examples lies analysis of a host of complex biological processes. A casual reader with only cursory knowledge of the subject matter may be enthralled with the more casual chapters yet may struggle with the more technical concepts of gene evolution and the wiring of the mind. For the attentive reader, Marcus succeeds in giving a comprehensive explanation of the role that genes play in the development of the human brain and the intricate relationship that exists between genes and their surrounding environment. He eloquently presents a vast array of detailed and technical information in a clear-cut fashion that makes it clear and interesting for anyone desiring a wider knowledge base of the role of genes on development, evolution, and mental processes.

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Rachelle M. Smith is currently enrolled in the Ph.D. program in Developmental Psychology at the University of Maine. She completed her undergraduate studies in Psychology at the University of Maine in 1999 and subsequently worked as a neurocognitive testing assistant at a traumatic brain injury center.

Peter LaFreniere is Professor of Psychology at the University of Maine. He completed his Ph.D. at the University of Minnesota’s Institute of Child Development in 1982. He is the author of *Emotional Development: A Biosocial Perspective* (2000), and the forthcoming *Adaptive Origins: Human Evolution and Development* (LEA).

The Origin of Mind: Evolution of Brain, Cognition, and General Intelligence

By **David Geary**

American Psychological Association
(<http://www.apa.org/books>), 2005, xii +
459pp.; ISBN 1-59147-181-8 [Hdbk US\$59.95].

Reviewed by

Kevin MacDonald and Dan Chiappe

Dept. of Psychology, California State
University – Long Beach, Long Beach, CA
90840-0901. [E-mail: Kmacd@cox.net]

The view that the human mind is “massively modular” has become canonical in the field of evolutionary psychology. This perspective, which is most closely associated with Leda Cosmides and John Tooby, proposes that the human brain and mind were fundamentally

constructed to deal with environmental invariances; that responding to recurring environments is the only way in which complex adaptations can arise. The resulting view is that the brain and mind are composed of modular systems with a high degree of inherent constraint. An unfortunate side effect of this perspective is that huge swaths of contemporary psychology are simply beyond the purview of the standard version of evolutionary psychology.

Geary's *The Origin of Mind* should change all that. This is a work of massive and wide ranging scholarship by someone at the cutting edge of research in cognitive psychology and general intelligence, with highly informed and detailed forays into wide areas of social psychology. Among Geary's many strengths is his ability to systematize large amounts of data in a wide variety of domains. The following can only hint at the richness of the discussion and literature reviews contained in this ground breaking effort.

Geary begins with the proposition that the human mind evolved to control resources that covaried with survival and reproduction. These include physical resources, biological resources, and other people and social relationships. What people want to control is defined by two types of fundamentally different mechanisms that lie at the heart of human psychology: the modular mechanisms of folk psychology, folk biology, and folk physics whose workings are unconscious responses to the invariant features of past environments, and the non-modular, explicitly conscious processes centered around the executive processes of working memory that are able to define resources and develop strategies to achieve goals in rapidly changing environments whose contours are relatively variable and unpredictable. Geary's book is a masterful and authoritative account of these two types of mechanisms.

Evolutionary psychologists are, of course, well aware of modular mechanisms. Geary's contribution is to classify and enumerate these mechanisms, and to review what we know about their neurobiology, genetics (e.g., genes often control similar brain regions in different species), and evolutionary functions. Additionally, he addresses the issue of how to conceptualize modular responses to environmental variation (termed "soft modularity" by Geary). Soft modularity refers to three different forms of plasticity: mechanisms for allocating brain resources depending on current needs; mechanisms for the creation of new categories (e.g., monkeys are able to form categories of cats and dogs despite never having been exposed to these species); and, perhaps most importantly, modules with an invariant range of domain-specific information (e.g., human speech sounds falling within a pre-specified acoustic bandwidth, or the face recognition module which is sensitive to individual variation around a mean). A major story of child development, then, is that early interactions with the environment provide the raw material for infants' fleshing out their evolved modules as the modules become adapted to within-category variation in the particular types of stimulation that the modules are designed to process.

Modular mechanisms work automatically and implicitly, below the level of conscious awareness, and include a great many mechanisms that are uniquely human and make possible our everyday life including virtually everything apart from controlled problem solving. And they operate in parallel, processing massive amounts of information in a variety of relatively independent circuits at the same time. When we converse with people in garden-variety social contexts, we implicitly process their facial expressions, age and gender-related cues, vocal intonation, posture, and language. We use a variety of rules of thumb (folk heuristics) to make decisions

intuitively. These inferences often violate the laws of probability, but are nevertheless good enough to provide an adequate assessment of risk in typical natural settings.

Implicit mechanisms also enable us navigate typical social exchanges, but Geary makes the important point that there is a delicate dance between these implicit, modular mechanisms and the explicit, controlled problem solving of the rational processor. When there are departures from expectations derived from the invariant regularities of life — a facial expression that conflicts with vocal intonation — explicit processing involving the executive processes of working memory kicks in, as we take a closer look to check for, say, deception. There can also be conflict between implicit processing and explicit processing. For example, conflict occurs in an ultimatum game in which one person, the proposer, makes an offer which the other person, the responder, can either accept or reject. When another person (but not a computer) offers a ridiculously unfair split, there is a conflict between emotional parts of the brain signaling personal threat and other negative emotional states, versus the rational parts of the brain underlying explicit processing. (It's rational to accept any offer).

So, the human brain is designed to run on autopilot and perform the mundane activities of life effortlessly and unconsciously. Indeed, even when the heuristics are not innate but are learned via conscious problem solving and the executive processes of working memory (or even simple domain general learning mechanisms), they quickly become automatized and implicit. (E.g., schoolchildren laboriously learn to calculate the basic arithmetic sums and products, but by the fourth grade or so they are able to do it without conscious effort, and even the complicated motor routines involved in driving a car or playing tennis gradually become implicit.)

But the rational processor sits like a doubtful ruler with limited powers, monitoring the output of the large set of automatic processors, and attending to and amplifying the output of the processors by focusing attention on their outputs. It is called into action when there are departures from the usual, and it attempts, with uncertain success, to evaluate and motivate behavior in ways that often conflict with the heuristics and with the powerful, emotionally charged prepotencies that have repeatedly proved their worth, either over evolutionary time or in the lives of individuals. Indeed, a powerful correlate of general intelligence—the centerpiece of the rational processor—is the ability to inhibit the operation of heuristic-based responses, as if to audaciously assert “the usual response has served the species well over the millennia (or in my life up to now), but I’m going to try to come up with something better.” The rational processor is also called on when problems cannot be solved using heuristics, in making plans and, in general, in closing the gap between reality and ideal, imagined states of affairs. Without it, the modern world is inconceivable.

The rational processor and its controlled processing are everything the modules are not: explicitly conscious, effortful, and domain general. Whereas the modules are relatively independent processors operating in parallel, the rational processor operates on very limited bits of information in a sequential manner. It aims to strip situations away from their usual, typically social, contexts that have been shaped by the regularities of life over evolutionary time or the life of the individual. Its products are prototypically abstract representations: logical syllogisms whose truth is independent of the truth of their premises versus the social context where human actors have needed to be keenly attuned to the truth of premises; academic physics with its frictionless surfaces and mathematical precision versus the folk physics

embedded in our brains as a result of eons of experience with three dimensional objects whose behavior is affected by the peculiarities of Earth's atmosphere and gravitation. Geary also argues that an important component of the rational processor is auto-noetic awareness, "the ability to consciously consider the self across time, that is, to recall personal experiences, relate these experiences to current situations, and project oneself into the future" in order to achieve personally relevant goals (p. 210). The auto-noetic ability is critical to Geary's proposed evolved motivation to control in that people achieve control over their environments partly by being able to imagine future states and modify them in pursuit of their perceived interests.

Because of its importance in the modern world, life becomes a struggle for people with poorly operating rational processors or, what amounts to pretty much the same thing, for people unable to inhibit their evolved prepotencies. Geary reviews the vast literature on general intelligence, which he considers "one of the most successful long-term research endeavors in the field of psychology" (p. 253), focusing particularly on the brain mechanisms underlying individual differences – working memory, attentional control, speed of processing – and the behavior genetic literature on the origins of individual differences. In general, there is a good fit between research on these brain mechanisms and the cognitive mechanisms discovered in research on controlled problem solving, particularly working memory and its "ability to explicitly and consciously represent information patterns, manipulate these patterns in a controlled fashion, and draw inferences about relations among the patterns" (p. 276).

Geary also reviews the correlations between general intelligence and the markers of success in modern societies—education, effective job performance, social status and income. From his theoretical perspective, these correlations

are an indication of the critical importance of general intelligence and its underlying processes as components of the motive to control. Some evolutionists may be concerned that motive to control, which is at the heart of his theory, seems a bit too general-purpose to pass muster as a real focus of natural selection. However, Geary defines it as "a nexus of affective, conscious-psychological (e.g., mental models), cognitive (e.g., working memory) and modular systems, as well as supporting brain regions" (p. 309). Geary's argument for the importance of auto-noetic ability and the goal-seeking properties of the rational processor are certainly an important adjunct for an evolutionary theory of human motivation. Moreover, although it is not a major focus of the book, Geary does sketch some of the important modular motivational systems, such as ingroup/outgroup psychology and kin recognition. Indeed, the interplay between the rational processor and its ability to envision long term goals, including goals that are "socially constructed" and have not been the focus of natural selection, versus the typically short term time scale of our more basic urges which predate the evolution of the rational processor is without doubt one of the major stories of human psychology, and one whose details remain to be fleshed out.

An important question is whether the rational processor is in fact well-equipped to pursue biological fitness in the modern world. Geary argues that the underlying dynamics of contemporary human relationships between parents and children, males and females, and even symbolic resources like money remain the same in the modern world as they have always been (pp. 309–310). This contention is certainly true, but the rational processor does add some new wrinkles in addition, as Geary notes, to recognizing the importance of money for achieving evolutionary ends. For example, people's ideal worlds are created not only by the input from modules, but also from media images which reflect a complex competing set

of interests, or in Geary's terms, other people's motives to control.

It is an old story that media images (e.g., sexy models) may appeal to our modular psychology, but media messages may also be directed at the rational processor. These complexities are demonstrated by a recent study that found that attaching the label "African-American" to experimental subjects viewing photographs of African Americans suppressed the amygdalar fear response those images evoked in both white and African American subjects in the absence of the label (Lieberman et al., 2005). This response was mediated by the ventrolateral prefrontal cortex, an area closely associated with the explicitly conscious rational processor. These findings suggest that the verbal mechanisms of the rational processor are able to inhibit heuristic-based, unconscious processing resulting from stereotypes. In turn the stereotypes may be influenced by an *availability heuristic* which results in distorted perceptions of the probability of events because of modern media exposure, as noted by Geary (p. 177). As we have seen, the inhibition of heuristic processing is a hallmark of the rational processor.

The Origin of Mind will be of fundamental importance for developing an evolutionary psychology that integrates all of contemporary behavioral science. Geary has made a groundbreaking contribution that should once and for all free the field from its single-minded concentration on the massively modular aspects of the human mind.

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Kevin MacDonald is Professor of Psychology at California State University–Long Beach. He completed his Ph.D. in Biobehavioral Sciences at the University of Connecticut in 1981 and writes in the areas of evolutionary personality psychology, evolutionary developmental psychology, and strategizing human groups.

Dan Chiappe is Associate Professor of Psychology at California State University--Long Beach. He completed his Ph.D. in experimental psychology at the University of Toronto in 1997 and writes in the areas of evolutionary cognitive psychology, figurative language comprehension, and working memory.

NEW BOOKS

Any qualified individual interested in writing a review of one of the following books, or any other recent and relevant book, should contact the Editor. Publishers, authors, and others may call attention to recently published or forthcoming books by sending information to the Editor.

Barber, N. Kindness in a Cruel World: The Evolution of Altruism. Prometheus Books, 2004, 416pp. ISBN: 1591022282

Butovskaya, M. L. (ed.). Aggression and Peaceful Coexistence: General mechanisms controlling social tension in humans. Nauchny Mir (Scientific World), 2006, 275pp.

Canli, T. (ed.) Biology of Personality and Individual Differences. Psychology Press, 2006, 462pp. ISBN: 1-59385-252-5

Dennett, D. C. Breaking the Spell: Religion as a Natural Phenomenon. Viking Books, 2006, 464pp. ISBN: 067003472X

Wasserman, E. A., & Zentall, T. R. (eds.) Comparative Cognition: Experimental exploration of animal intelligence. Oxford University Press, 2006, 864pp. ISBN: 019-516765-1

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Linda Mealey Award for Young Investigators

The International Society for Human Ethology has established a fund to maintain the **Linda Mealey Award for Young Investigators** in perpetuity. This award honors Linda, a past president and *HEB* book review editor, for her tireless work for ISHE, her outstanding scholarship, and her devoted mentoring of students. The Society seeded the fund with \$40,000 and Linda's father, George Mealey, matched that amount. The award is given to outstanding researchers at the graduate school level in Linda's field, human ethology. Awards will be provided by fund earnings over the two year period between conventions; these should cover some of the recipients' travel expenses to the subsequent congress, and an additional cash award may also be possible. Further details are available on the ISHE web site.

ISHE is soliciting additional contributions to the fund to make the award more substantial and thereby further encourage and reward young researchers in human ethology. Mr. Mealey has kindly offered to match additional contributions by individuals, up to \$10,000, and has already matched over \$1000. Donations should be sent to ISHE treasurer, Dori LeCroy (see back cover for her address and payment information), made out to ISHE but designated for the Linda Mealey Fund.

Winners of the 2006 competition will be announced at ISHE06 in Detroit and in the next issue.

The **Evolution and Sociology Section of the American Sociological Association** needs members now! Rosemary Hopcroft, the editor of the Evolution and Social Behavior newsletter, reports that: "We have until the end of 2006 to obtain 300 members – we currently have over half that signed up. When we obtain 300 members, the section will be permanent. The creation of this section is important for sociology as a discipline, as it is an institutionalized means for sociology to become reconnected to the life sciences. Thus, supporting the section means supporting a biologically-grounded, scientific sociology – a great development for the 21st century."

You must be a member of the American Sociological Association to join the section, which then costs only \$5. Student memberships in the association cost only \$17, to join the Evolution and Sociology section an additional \$5. Interested readers may contact Rosemary Hopcroft at: rlhopcro@email.uncc.edu.

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The *Bulletin* is seeking two qualified individuals to serve as **Associate Editors**. Associate editors assist with the management of book reviews, including some reviewing and editing of submitted reviews. Other duties may include occasional reviews of other submissions to the *Human Ethology Bulletin*, and assembling the list of new books that are announced in each issue. Applicants must have access to a computer with internet connections, and good command of written English.

Interested individuals should send inquiries, or letters of application with some indication of relevant experience, to the *Bulletin* Editor at: Alley@clemson.edu. ISHE members may also nominate another member for this appointed position.

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Upcoming Conferences

North American Meeting of the International Society for Ecological Psychology Cincinnati, Ohio — 22-24 June 2006

North American Meeting of the International Society for Ecological Psychology will take place at the Kingsgate Conference Center on the University of Cincinnati campus June 22-24, 2006. The conference will feature presentations on theory and research from ecological and dynamical approaches to perception, action, and cognition.

Conference information: <http://www.conferencing.uc.edu/Details.asp?ConferenceID=233>

18th biennial conference of the International Society for Human Ethology (ISHE06) Detroit, Michigan — 30 July - 3 August 2006

Wayne State University (see details in the March 2006 issue or at www.ISHE.org)

International Conference on Theoretical and Methodological Issues in Evolutionary Archaeology: Toward a Unified Darwinian Paradigm Lisbon — 4 -9 September, 2006

Website: <http://ica-uba.tripod.com/evolutionaryarchaeologyinternationalmeeting/index.html>

Forthcoming

- A review of *The Murderer Next Door: Why the Mind is Designed to Kill* by David M. Buss (Penguin Press, 2005) – reviewed by Johan M.G. van der Dennen
 - Brief Communication – *Limits of the Primate Homologue: A Suggested Employment of a Canid Analogue* by Wade Mackey
 - Photo essay on ISHE06
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CURRENT LITERATURE

Compiled by Johan van der Dennen

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Ludwig-Boltzmann-Institute for Urban
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Althanstrasse 14, A-1090 Vienna, Austria
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E-mail: karl.grammer@univie.ac.at

Information Officer

Hiram Caton

26 Noreen St., Chapel Hill 4069, Australia
Fax: 61-7-3878-3607
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From: Thomas R. Alley, Editor
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Clemson University
Clemson, SC 29634-1355 USA