

ASCAP

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"The new findings show that about 70 percent of the thousands of human genes identified so far can be found in identical or very similar form in the [*Caenorhabditis elegans*] worm — testimony to nature's conservative penchant for using and reusing whatever works."

Rick Weiss, *Washington Post* reporter, December 11, 1998¹

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**Across-Species Comparisons and
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ASCAP Society Mission Statement:

The ASCAP Society represents a group of people who view forms of psychopathology in the context of evolutionary biology and who wish to mobilize the resources of various disciplines and individuals potentially involved so as to enhance the further investigation and study of the conceptual and research questions involved.

This scientific society is concerned with the basic plans of behavior that have evolved over millions of years and that have resulted in psychopathologically related states. We are interested in the integration of various methods of study ranging from cellular processes to individuals in groups.

The ASCAP Newsletter Aims:

- ◆ A free exchange of letters, notes, articles, essays or ideas in brief format.
- ◆ Elaboration of others' ideas.
- ◆ Keeping up with productions, events, and other news.
- ◆ Proposals for new initiatives, joint research endeavors, etc.

The ASCAP Newsletter is a function of the ASCAP Society.

Editor-in-Chief: Russell Gardner, Jr.
Dept. of Psychiatry & Behavioral Sciences
Room 4.450, Marvin Graves Building, D-28
University of Texas Medical Branch
Gaiveston TX 77555-0428
Tel: (409)772-7029
Fax: (409)772-6771
E-Mail: rgardner@utmb.edu

European Editor: John S. Price
Odintune Place, Plumpton East
Sussex BN7 3AN, ENGLAND
(01144)1273-890362
Fax: (01144)1273-890614
E-Mail: john.price@lycosmail.com

Managing Editor: Frank Carrel
Dept. of Psychiatry & Behavioral Sciences
Room 1.103, Marvin Graves Building, D-28
University of Texas Medical Branch
Gaiveston TX 77555-0428
Tel: (409) 772-3475
Fax: (409) 772-4288
E-Mail: ascap@utmb.edu

Previous volumes are available. For details, contact Frank Carrel, the Managing Editor of *The ASCAP Newsletter*, at the address above.



World Psychiatric Association

<http://www.wpanet.org>

The World Psychiatric Association is an organization of psychiatric societies aimed at advancing psychiatric and mental health education, research, clinical care and public policy.

The basic members of the WPA are 110 national psychiatric societies, representing more than 140,000 psychiatrists worldwide.



The ASCAP Newsletter is the official newsletter of the *Psychotherapy Section* of the *World Psychiatric Association*.

ADDRESSED TO & FROM ...

Revised WPA News

Here is further information about the meeting in Hamburg, Germany, from 6-12 August 1999. The two discussants at the first symposium of the Psychotherapy Section will be the current President of the ASCAP Society, Mark Erickson, and the immediate past chairman of the Psychotherapy Section of the WPA, Ferdo Knobloch (Professor of Psychiatry Emeritus at The University of British Columbia, in Vancouver, Canada, and author of *Integrated Psychotherapy*).

The immediate past President of the ASCAP Society, Dan Wilson, has also been invited to join the panel, but is uncertain whether he will be able to attend: The two discussants at the second symposium (on mood disorders) will be Hagop Akiskal, Professor of Psychiatry in San Diego, and Jeremy Holmes, chair of the Faculty of Psychotherapy of the Royal College of Psychiatrists, and recently co-editor of the psychotherapy section of *Current Opinion in Psychiatry* (now the official journal of the WPA). Unfortunately, we do not yet know the dates of the symposia, but will pass this information on as soon as we get it.

John S. Price
jsprice@compuserve.com

SPECIAL ISSUE OF THE BRITISH JOURNAL OF MEDICAL PSYCHOLOGY (BJMP)

Volume 71, Part 4
December 1998

Special issue: Evolutionary
Approaches to Psychopathology

Guest edited by Paul Gilbert

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DNA Community

Verena Winiwarter wrote:

Molecular evidence suggests that humans are 98.4% identical to BOTH chimpanzees and bonobos.

Peter Frost wrote:

I hope it doesn't [imply assumptions of 98.4% identity]. This [may be] a classic case of people reading more into the data than what the data actually say. It is true that 98.4% of human and chimp DNA sequences are

identical. This is not the same as saying that 98.4% of human and chimp genes are identical. In theory, all human genes could be 1.6% different from all chimp genes. And a single nucleotide substitution can greatly alter how a gene functions.

Undoubtedly a large number of human and chimp genes are identical, although the proportion is probably much less than 98.4%. There is, however, another unstated and questionable assumption: a gene that differs between two species is, on average, equal in functional significance to a gene that does not differ between two species.

Clearly, not all genes are of equal value. A single regulatory gene can control the output of thousands of other genes. In contrast, a single structural gene codes for a single protein. Which kind of gene is more likely to vary among individuals adapting to common ecological and social conditions? Which kind of gene is more likely to vary across species boundaries?

Some regulatory genes might vary within the same population, if their effects are not too radically different. Otherwise, they will be eliminated by stabilizing selection. Or else they will spread through the population and displace any competing alleles if they prove better than them. As a rule of thumb, genetic variability within a population adapting to common circumstances tends to reflect

genes of low functional significance. Genetic variability between populations adapting to different circumstances tends to reflect genes of high functional significance.

Peter Frost
(pfrost@globetrotter.qc.ca)
<http://www.globetrotter.net/gt/usagers/pfrost>

Paul Rubin wrote:

Chimpanzee Petition

This raises a question I have asked before, but with no answer. How close are genes of humans with a random mammalian species — say, horses? The answer would enable us to put the 98.4% figure in perspective; otherwise, it is meaningless.

Paul Rubin
prubin@emory.edu

More DNA Discussion

This is the way I see it:

A man is composed of flesh, bone, tooth and sinew. He must have DNA capable of creating these materials. He has a skeleton with a particular configuration, a circulatory system, lungs, liver, two eyes, a brain. A donkey is the same in all these respects. A man is a donkey, only a slightly different shape, and with various refinements to digestion, and instinct. I would expect that the DNA

which codes for a donkey to be mostly the same as that which codes for a man.

Further, given that donkeys and men share ancestry, I would also expect that a lot of the DNA would be shared, but much also would be irrelevant. Imagine that an ancestor of both donkeys and man had some organ which neither donkeys nor men need, feathers perhaps. The DNA which coded for the feathers would still be passed on, but not activated. Once the feathers were no longer made, there would be no selective pressure to copy accurately the sequence which coded for an organ which was no longer grown because those genes were not switched on. Over time, this sequence of DNA would change to gobbledygook, and this gobbledygook would account for a significant proportion of the difference between the DNA sequences of donkeys and men.

Also, since DNA sequences are a sort of language, the amount of difference between one sequence and another is a bad way to measure the actual difference.

Take these two sentences:

Thou shalt never commit adultery.

Thou shalt often commit adultery.

These sentences both involve 33 characters, of which all but four are the same characters and in the same position. Are then these two sentences near enough the same? Measured in terms of the character

sequence, they are nearly the same. Measured in terms of meaning, they are opposites. The DNA sequence for a part of a donkey may be similarly near identical, but in effect so very different that the similarity of the sequences is near enough an irrelevance.

Just my tuppence worth.

Nikolas Lloyd
nikolas.lloyd@ncl.ac.uk

BOOK ANNOUNCEMENT

This is to announce the publication *The Culture of Critique: An Evolutionary Analysis of Jewish Involvement Twentieth-century Intellectual and Political Movements*. This book is the 3rd and final volume developing an evolutionary perspective on Judaism. The 1st book, *A People That Shall Dwell Alone: Judaism as a Group Evolutionary Strategy*. (Westport, Connecticut: Praeger, 1994) presented a theory of Judaism within an evolutionary framework, and the 2nd book, *Separation and its Discontents: Toward an Evolutionary Theory of Anti-Semitism*. (Westport, Connecticut: Praeger, 1998) presented an evolutionary theory of anti-Semitism.

These books are in the *Evolution, Behavior, and Intelligence* series edited by Seymour W. Itzkoff and published by Praeger Publishers, an imprint of the

Greenwood Publishing Group. Further information on these books may be obtained by clicking on my webpage which is in the signature block at the end of this announcement. The following is from the Preface:

Ethnic conflict is a recurrent theme throughout the first two volumes, and that theme again takes center stage in *The Culture of Critique*. However, whereas in the previous works ethnic conflict consisted mainly of recounting the oftentimes bloody dynamics of Jewish-Gentile conflict over the broad expanse of historical time, the focus here is much more narrow. The emphasis shifts to a single century and to several very influential intellectual and political movements that have been spearheaded by people who strongly identified as Jews and who viewed their involvement in these movements as serving Jewish interests.

Particular attention will be paid to the Boasian School of Anthropology, psychoanalysis, leftist political ideology and behavior, the Frankfurt School of Social Research, and the New York Intellectuals. In addition, I will describe Jewish efforts to shape U.S. Immigration policy in a manner that serves their perceived ethnic interests.

An important thesis is that all of these movements may be seen as attempts to alter Western societies in a manner that would end anti-Semitism and provide for

Jewish group continuity either in an overt or in a semi-cryptic manner. At a theoretical level, these movements are viewed as the outcome of the fact that Jews and gentiles have different interests in the construction of culture and in various public policy issues (e.g., immigration policy).

Write or contact us at:

Kevin MacDonald Editor,
Population & Environment
Department of Psychology
California State University —
Long Beach Long Beach,
CA 90840-0901

Phone: (562)985-8183

Fax: (562)985-8004

E-mail: kmacd@csulb.edu or
kmacd 1 @ix.netcom.com

My Personal WebPage:

<http://www.csulb.edu/~kmacd>

Books on Religion and Ethnic Relations from An Evolutionary Perspective WebPage:

<http://www.csulb.edu/~kmacd/books.htm>

California State
University — Long
Beach



<http://www.csulb.edu>

Please E-mail any contributions to ascap@utmb.edu, or mail hard copy and 3.5" HD diskette to: Russell Gardner, Jr., c/o Frank Carrel, Department of Psychiatry & Behavioral Sciences, University of Texas Medical Branch, Galveston, Texas 77555-0428, USA. WordPerfect, Microsoft Word or ASCII format preferred. Diskettes will be returned to you. Thank you.

Reprise, Review, Recollection, & Remembrance

This will be the last issue of The ASCAP Newsletter that I will be doing. In the next issue of the newsletter (February 1999), I will be merely assisting Russell Gardner, Jr., our Editor-in-Chief, with operationally putting it together. The March issue will be the first issue that Dr. Gardner will be doing on his own.

I chose the title of this article for a variety of reasons, as the definitions of the words will tell you:

Reprise — from Old French, from *reprendre* to take back; or in the modern: a recurrence, renewal, or resumption of an action.

Review—from Middle French *reveue*, from *revoir* to look over, from *re-* + *voir* to see, or in the modern: a general survey (as of the events of a period); an act or the process of reviewing.

Recollection — the definition for this is: the action or power of recalling to mind; something recalled to the mind, (no etymology available)

Remembrance — the definition for this is: the state of bearing in mind; a memory of a person, thing, or event(s). (no etymology available) (see Memory — to be mindful)

I became the Managing Editor in March 1996, after taking over from Erica Ainsbury who was the previous Managing Editor, who taught me well as to how to do *The ASCAP Newsletter*. Before Erica, there was Dena Stringer, and before Dena, there was Erica again, who had been the first Managing Editor. Before that, Dr. Gardner had handled the Editor-in-Chief job and the Managing Editor job as he plans to do again upon retirement from UTMB.

During my almost 2 years of doing the typesetting, copying and mail-out, subscription, membership, and administration functions of *The ASCAP Newsletter*, I have learned many things about the various topics that are discussed in this newsletter.

Of all of the articles that I read while I did the typesetting, my personal favorite was the article *Population Crises and Population Cycles*, of which the final part, number 13, appears in this issue on page 18. I have long been a student of history, and indeed, have a minor degree in Social Studies, so it was particularly interesting to follow the basic tenets of this article concerning population crises and the population cycles of which the Russells write. (See page 21 in this issue for a complete listing of these articles.)

Also, the way that the Russells weave in the basic tenets/principles of the Malthusian Theory, which appear on page 17, have been interesting as well. It has been a labor or labour of love to do this series, and I am indebted to both Dr. Gardner and the Russells, for allowing me to be a part of it.

There were two other articles that fascinated me as well: the impassioned defense of Paul McLean's *Triune Brain* by Gerald A. Cory, Jr., Ph.D. (Volume 11, No 7 (#128) July 1998), and the article on Gurdijeff by John S. Price, D.M. (*The ASCAP Newsletter*, Volume 11, No 3 (#124) March 1998).

Dr. Cory's article was where he gave "honor to whom honor was due". Too often, mankind waits until after people have passed on, to award them the honor to which they are otherwise due. Dr. Price's article was an interesting insight in the history of Tsarist Russia, a favorite history topic of mine.

In conclusion, I will long remember the experience of having served as Managing Editor of *The ASCAP Newsletter* during this period of time, and my best wishes to Dr. Gardner and Dr. Price as they proceed during this next epoch of being the editors of *The ASCAP Newsletter*, under the auspices of the Neuropsychiatry and Social Brain Institute (NASBI), Incorporated. c8

A Book Review of Jared Diamond's Guns, Germs, and Steel: The Fates of Human Societies

The cover of Diamond's prize-winning *Guns, Germs, and Steel* describes the book as "a short history of everybody for the last 13,000 years." The book is an heroic attempt on a grand scale to answer a question posed in 1972 to the author (a visiting biologist) by Yali, a local New Guinea politician. Yali's question was the perennial: Why have some parts of the world prospered and others remained poor? Many libraries have been filled with books written on this theme, but no consensus has emerged.

Diamond took 25 years to research and publish his answer. The motive was "to understand what happened in history." His conclusion is that the explanation of human history is largely a matter of geography and that his own subject (biology) plays no significant part. Everywhere, people are genetically the same, but some regions are blessed with a potential which the local inhabitants inevitably exploit. The differences between peoples and societies are not due to genes, but are overwhelmingly the result of their place of abode and the ensuing resources.

The book contains copious evidence to support the thesis, a testament to the depth of Diamond's learning. His starting point is the history of Polynesia. The colonization of the Pacific Ocean islands started 3,200 years ago and was completed some 2,200 years later. The island environments were highly diversified. Diamond notes that the resulting societies were equally varied with social systems ranging from large-scale hierarchies to small-scale, egalitarian communities. Moreover, the types of society that developed in Polynesia were essentially the same as elsewhere in the world. Patterns and regularities, the life blood of science, are strikingly identified in the history of Polynesia.

The hypothesis proposed in Diamond's work is tested against the whole sweep of human history. Agriculture is shown to have arisen independently five, or perhaps even nine, times between 10,500 and 4,500 years ago. The causes are surmised as declining yields from gathering and hunting, abundant wild cereal and other potential crops, technological advancement and a feedback effect from increased population.

Geography explains both the location of the first farmers and the subsequent development of their communities. Agriculture was most productive in the regions with the largest number of potential plant and animal domesticates, which, naturally enough, was the largest continuous land mass, Eurasia. For example, peaches and apricots came from China, while cucumber and citrus fruit originated in India.

A comparison of the social and technical development of agricultural societies exemplifies extraordinary similarities, even between communities completely isolated from each other. The history of agriculture in the Fertile Crescent, the Andes and Mesoamerica reveals a common pattern of events occurring in approximately the same sequence; specifically, plant domestication, animal domestication, pottery, villages, chiefdoms, metal tools, states and writing. When the Spanish conquered the Inca Empire, their conclusion was that the devil had created that society in mockery of God, since the fundamental institutions were so much like their own.

The Eurasian farming communities were ravaged by diseases, for example measles, tuberculosis, smallpox and influenza, which transferred from their newly domesticated animals. Eventually, as a result of evolution by natural selection over thousands of years, Eurasians developed some immunity to these scourges. However, when Eurasian

immigrants reached the more isolated parts of the world, their diseases led to a catastrophe in which many millions of the local populace died. The ruinous collapse in numbers of the indigenous peoples contributed materially towards the loss of their hereditary lands to the newcomers. Accordingly, argues Diamond, the imperial successes of European powers can be traced back to their geography.

The history of technology provides another test for the theory. Diamond demonstrates that technological progress is a process of many gradual improvements. Edison did not invent the electric light bulb on the night of 21 October 1879, as legend portrays, but improved on the numerous bulbs patented between 1841 and 1878. Even the most original inventors were heavily indebted to their predecessors. Moreover, for most inventions, the principal uses were not discovered until after the device had been invented. Edison did not guess that the main purpose of the phonograph and its successors would be to record and play music.

The propensity of societies to invent and adopt new technology is argued by Diamond to be a factor of their physical size, both of their productive units and their population, in other words, geography. Size is the key determinant; the larger, the better. Technological dynamism is increased by many competing investors and independent communities. Eurasia, especially Europe (and countries settled by its inhabitants), meets the criteria on all counts and is, therefore, technologically the most advanced.

The existence of innovation, "a central problem" which Diamond admits is unsolved, is identified as a random variable, and, at any particular time, as a matter of fact, some societies would have been innovative. However, Diamond offers few fresh insights into why a handful of countries were able to maintain traditions of freedom, enterprise and innovation, for example Britain, some of its former colonies (for example America, Canada and Australia) and The Netherlands.

The emergence of large, complex states is also tackled by Diamond. Some regions can support large populations, which is the strongest single predictor of complex societies, while the natural tendency for leaders is self-aggrandizement. The inevitable outcome is war, in which the stronger absorb the weaker. Accordingly, the largest and most powerful societies are Eurasian or countries settled by their emigrants. Their military supremacy is dependent upon the superiority of their military-industrial complex, which only their size and resources render possible.

The conclusion is that four factors combined with human inventiveness have shaped the past. These four key influences on human history are the:

1. Species (plant and animal) available for domestication,
2. Rates of diffusion (of ideas and techniques) and migration within continents,
3. Rates of diffusion (of ideas and techniques) and migration between continents, and
4. Area or population size.

The present and historical dominance of Europe and America are a direct result of these causes. However, these general trends were affected by contingencies, the accidents of history, for example, on the large scale, the ecological fragility of the Fertile Crescent and the historical political fragmentation of Europe. However, since these contingencies can be related ultimately to geography, Diamond's thesis remains intact.

One acknowledged difficulty for Diamond is that the importance of geography in human history is sometimes contradicted by the facts. Switzerland is rich, although small and with few natural resources. Russia is poor, although large and with abundant natural resources. The outcome is the complete opposite from that which Diamond's theory would predict. Equally, countries in very similar environments, sometimes with contiguous borders, display marked divergencies. Thus, unlike Belgium, The Netherlands became a great commer-

cial empire, while the industrial revolution occurred in England, not France. These examples seemingly refute Diamond's hypothesis. The theory is saved by a somewhat unsatisfactory ad hoc addition. The otherwise universal geographical pattern can be upset by "cultural idiosyncrasies" or even chance, which are unrelated to the environment, but can have profound long-term effects.

Three powerful moral convictions colour much of Diamond's thought. The first is the essential identity and equality of humankind. Racism is contradicted by the facts. Second, the immorality of human history, the powerful have always either selfishly exploited or ruthlessly eliminated those unable to defend themselves. Finally, conquerors are tainted with insufferable arrogance. Success is always attributed by the victors to their moral superiority and greater intelligence, while the vanquished are deemed to have lost because of their innate inferiority. The ethical lessons of the book are the necessity for humanity, compassion and humility.

Guns, Germs, and Steel, with its all-embracing panorama of human history, offers a unified overview of the past, which reveals the world in a new context. Events are thrown into fresh and thought-provoking perspectives. By these means, the explanation of human social change becomes an attainable goal. However, Diamond's principal concern, timing, is rather narrow. He asks: "*Why were some communities first?*", and his answer is geography.

On occasion, the emphasis in Diamond's work is a little unexpected, especially for a biologist. Thus, the nature of the ancestral human environment (the EEA, the era of evolutionary adaptation) is not closely examined, while little consideration is given to the idea behind the ASCAP mission statement ("the basic plans of behavior that have evolved over millions of years"). Furthermore, the lifestyle of gatherers and hunters does not feature significantly. The impression tends to be that humankind just appeared fully formed. No com-

prehensive, coherent explanation is given of human nature.

The stress in *Guns, Germs, and Steel* on the importance of timing is also slightly surprising. The benefits of being first can hardly be denied. The innovator's reward is often disproportionate. Nevertheless, a more pertinent question may sometimes be: how were the events possible at all? Thus, how can humankind's ability to live in vast agricultural and industrial societies be explained?

Diamond does not explore in detail as to whether a scientific account of human nature is possible. The relevant questions would include: first, what is the evolutionary origin of humankind's flexible behaviour? Why was humankind able to colonize Polynesia? Why did evolution by natural selection favour the appearance of a capacity to cope with diverse environments? Second, why is human behaviour constrained into recognizable patterns? Why did Polynesian societies mirror those of the rest of the world?

The strongly growing consensus, despite Diamond's reservations on the point, is that humankind had an African origin, venturing out of Africa during the last hundred thousand or so years. If Darwin's theory of evolution by natural selection is true, humankind's ability to master environmental variability should be relevant to survival in Africa. The evidence is increasing that an ability to master ecological instability was indispensable to human existence in Africa. Climatologists have discovered in the last few decades that the whole world has been subject to massive climatic instability. The world's climate has flipped from cold to warm and back again in a matter of decades. The African forests and deserts have alternately expanded and contracted over vast areas.

Potts has demonstrated that hominid evolution by natural selection, and that of other species, are consistent with climate variability-driven responses.¹ Davies, et. al., have analysed human social change. Their work shows that the constraints upon human behaviour are indistinguishable

from those behaviour patterns which would have evolved by natural selection to cope with climatic variability.²

The immense value of Diamond's work becomes apparent in this context. *Guns, Germs, and Steel* supplies abundant evidence for the human ability to cope with environmental variability. For this reason, the book is an important contribution to the argument for the fundamental role of climatic variability in shaping human evolution by natural selection and in setting the parameters for human behaviour. Diamond's courage in accepting the daunting challenge of explaining human history has been well rewarded. G3

Guns, Germs, and Steel: The Fates of Human Societies (1997), ISBN 0-224-03809-5, was published in the United Kingdom by Jonathan Cape,

An Ode to Eschel

Her lizard mind on overtime
contemplates the paradigm that man
who climbed out of the slime is no
different than an enzyme

The amygdala's but paraphernalia left
behind by bacteria battalia reminding us
that bacchanalia is essential to the
Lupercalia

If Dr. Seuss had lived til now
I know that he would show us how
the generations we might endow
with compelling forces we could all avow

Lorraine Rice
EuterpeL@AOL.com

Review of *Guns, Germs, and Steel* by Amazon.Com (http://gus82570.hypermart.net/j_diamond.htm)

Life isn't fair — here's why: Since 1500, Europeans have, for better and worse, called the tune that the World has danced to. In *Guns, Germs, and Steel*, Jared Diamond explains the reasons why things worked out that way. It is an elemental question, and Diamond is not nearly the first to ask it. However, he performs a singular service by relying on scientific fact rather than specious theories of European genetic superiority. Diamond, a professor of physiology at UCLA, suggests that the geography of Eurasia was best suited to farming, the domestication of animals, and the free flow of information. The more populous cultures that developed as a result had more complex forms of government and communication—and increased resistance to disease. Finally, fragmented Europe harnessed the power of competitive innovation in ways that China did not. (For example, the Europeans used the Chinese invention of gunpowder to create guns and subjugate the New World.) Diamond's book is complex and a bit overwhelming. But the thesis he methodically puts forth—examining the "positive feedback loop" of farming, then domestication, then population density, then innovation, and on and on—makes sense. Written without favor, *Guns, Germs, and Steel* is good global history.

The price of this Book is: \$19.25.

Science Editor's Recommended Book:

Explaining what William McNeill called The Rise of the West has become the central problem in the study of global history. In *Guns, Germs, and Steel* Jared Diamond presents the biologist's answer: geography, demography, and ecological happenstance. Diamond evenhandedly reviews human history on every continent since the Ice Age at a rate that emphasizes only the broadest movements of peoples and ideas. Yet his survey is binocular: One eye has the rather distant vision of the evolutionary biologist, while the other eye — and his heart — belongs to the people of New Guinea, where he has done field work for more than 30 years.

Hardback Price £18.99.

The Inner Brain and the Outer Brain

Introduction:

I have not contributed to ASCAP since March 1996. I have been busy writing *Relating in Psychotherapy: The Application of a New Theory*, due out in April. As many Ascapians will know, the new theory to which I refer is the theory of relating described in my previous book *How Humans Relate: A New Interpersonal Theory*, published in hardback in September 1993 and in paperback in March 1996.¹ Both books belong to the Praeger series: *Human Evolution, Behavior and Intelligence*, edited by Seymour Itzkoff.

I was prompted to make my present contribution by Gerald Cory's impressive article in the July (1988) *ASCAP Newsletter*, Paul MacLean's *Triune Brain Concept: In Praise and Appraisal*. I have referred to the triune brain in both books, but in the second, I became so confused about which of my proposed functions belonged to which brain, that rather than take further liberties with MacLean's ideas, I decided to simplify matters and refer only to what I shall call the inner brain and the outer brain. This article provides a few thoughts about this distinction, but first I must provide a very brief, and quite inadequate, account of my theory of relating, in order to show how I hit upon the distinction.

Relating Theory:

The theory proposes that the relating behavior of all living things can most usefully be described within the framework of two axes, a horizontal one concerning moving toward versus moving away from others, and a vertical one concerning relating from a position of relative strength versus relating from a position of relative weakness. I call the four poles of these two axes closeness, distance, upperness and lowerness, and I consider that each of them carries advantages for the organism. Elsewhere I

have described what these advantages might be, for both organisms in general and humans in particular.² Because they carry advantages, I call them the relating objectives and I propose that running through the nervous systems of all organisms, including humans, there must be innate dispositions toward them.

Sometimes I call them states of relatedness, and I consider such states to be desirable-and-therefore-pleasurable. This puts them on a par with other desirable-and-therefore-pleasurable states like being the right temperature and being adequately fed. Just as there are neural mechanisms for maintaining temperature within optimal limits and ensuring we have an adequate intake of food, I consider there must be neural mechanisms for ensuring that we attain and maintain adequate amounts of whichever state of relatedness we feel to be appropriate at any particular time. Such mechanisms must recognise our need for a particular state, generate in us a feeling of needfulness, provoke us into searching for it, let us know when it has been attained, generate in us the sensation of satiety, then turn off the feeling of needfulness.

Every living organism, including man, contains organs that do things, like the heart, lungs, stomach, kidneys and limbs, and mechanisms that control the things that they do and when and how they do them. The brain is an organ of control. In mobile organisms, it controls movement. The movement of organisms is not random. It is purposeful. If the brain controls movement it must be aware what that purpose is. There are many kinds of movement serving many kinds of purpose. One such purpose is the need for food. The brain sets off the organism in movements of searching for food, and chasing, catching, killing and storing food. In the brain's memory store there are locations where food may be found, and routes for getting to them.

Another purpose is the attainment of each of the four states of relatedness, and the brain serves this purpose in the same kind of way.

Somewhere along the evolutionary route, the emotions came into being. It is difficult to know which animals have emotions, or whether the emotions of those animals that have them are comparable to our emotions. Emotions seem to have the function of letting us know how we are doing in meeting a particular need or attaining a particular objective, and keeping us on course. The brain emits bursts of anticipatory pleasure when it perceives us as moving toward an objective, and bursts of anxiety when it perceives us as losing sight of, or being in danger of being denied, one. When we attain the objective, the brain emits a flood of (rewarding) pleasure to celebrate our arrival at and, consummation of, it, and if we lose or are denied it, it emits a flood of (punitive) displeasure or depression to mourn our loss of it or failure to attain it. We are inclined to repeat those acts that generate pleasure and avoid those that generate displeasure. These ideas are broadly in line with Nesse's views on the evolutionary significance of the emotions.³

The Inner Brain:

That brain from which the present human brain evolved, worked in much the same way as any other brain. It performed its various evolved functions, in the same automatic way as other organs of control would do. This earlier evolved part of the brain still exists and still functions more or less as it always has done. I call it inner brain, and I assume that it comprises what MacLean called the reptilian brain, concerned with survival mechanisms, like temperature control, hunger and thirst, and the palaeomammalian brain, concerned with motives and emotions.⁴ To appreciate just how like any other organ of control the human brain is, read Pinker's excellent book *How the Mind Works*.⁴ This having been said, I consider that the human inner brain is much more sophisticated than the inner brain of any other animal.

At the head of one edition of ASCAP was a quotation from Agatha Christie's, *The ABC Murders*⁶ It went: " *Your mind gets made up for you sometimes without your knowing how it happened.*" That Agatha Christie made one of her characters (Mary Drawer) say this, reveals that she was aware that mental processes go on inside our brains without our knowing about them. These I would consider to be the mental processes of the inner brain. If you'll pardon the expression, the inner brain appears to have a mind of its own.

By this I mean, it has a set of objectives toward which it is intent upon steering us. Earlier than Agatha Christie, George Groddeck wrote: "*We are animated by some wondrous force that directs both what we do and what happens to us.*"⁷ He called this force the it, and considered that we are lived by the it. This is what it feels like to me too. Earlier still, Henry Maudsley (1867) wrote: '*The most important part of mental action, the essential process on which thinking depends, is unconscious mental activity.*'⁸ I would not call unconscious mental activity thinking, but otherwise, I would agree with this. One day, when one of our children was playing up, my wife shouted at him, "Why did you do that?" I found myself saying, "He doesn't know." The inner brain does not inform us why we do things. We are left to work out why for ourselves.

The Outer Brain:

Obviously MacLean was right to propose that the brain evolved in stages.⁴ To start with there only was that which I have chosen to call the inner brain; but at some stage, another brain came along, which became wrapped around the inner brain, which is the equivalent of MacLean's neomammalian brain, and which I have chosen to call the outer brain.⁴ The outer brain has at least two characteristics that no other organ ever has had — awareness and rational thought. The heart, lungs, liver and kidneys cannot, in any meaningful sense, be said to be aware either of themselves or of each other; and since the inner brain is an organ just like them, it is quite meaningless to write of the inner brain as

having any kind of awareness either of itself or of the outer brain. The outer brain is aware of itself, and by the process of rational thought, it has worked out that other organs exist and what these organs do. My outer brain, has worked out that this other part of the brain, the inner brain, must exist, and what it does and how it does it. It has also worked out what itself must do and how it does it. Other people's outer brains have done something similar.

When, in the previous section, I was writing about "we" and "us" I was referring to the outer brain. By means of the outer brain we are conscious of ourselves as being people, as being selves, or simply: as being. We feel ourselves existing. This enables us to observe ourselves in action, but it does not enable us to know where we are going or what we are doing. Only the inner brain appears to know that. But, you may argue, in presenting my relating theory, I have been telling you these things. This is true, but these things did not come directly into my consciousness. I worked them out, by rational thought, by trying to explain our behavior as I observed it.

The relationship between the inner brain and the outer brain is very strange. I believe that our major decisions are made at the level of the inner brain, and that the inner brain does not, or more correctly, cannot, reveal to us (that is our outer brains) why or how the decisions are made. What we tend to do, as we do when obeying a command implanted in us under hypnosis, is make up an explanation that seems to fit the bill. It is humiliating to have to acknowledge that we are being lived by our inner brains. Yet, since our inner brains make such a good job of it, why should it be? The inner brain behaves as though the outer brain does not exist, and goes on functioning just like it always has.

Yet, strangely enough, not even this is entirely true, for the outer brain seems to have some knowledge of the inner brain's objectives, though it cannot monitor them in the way that the inner brain can. Has it got this knowledge by some kind of internal circuitry, or has it simply acquired it by observing ourselves in action? What it can do, which is of

immense importance, is use rational thought to seek out new ways of attaining these objectives. When we are cold we (the outer brain) feel uncomfortable, and want to do something to relieve it. We cannot (like the inner brain) make us shiver, but we can think up all kinds of other ways of warming us up, like putting on clothes, turning up the central heating, even making clothes and inventing central heating, but it still needs the inner brain to tell us when we are warm enough.

Similarly, when the inner brain makes us feel lonely (starved of closeness) we can think of people to visit or phone, and we know, or have a pretty good idea, that this will make the loneliness go away. But again, the inner brain has to be the final judge of whether we have got the closeness that it has told us that we need, and only it can make that feeling of loneliness go away, and fill us with the warm glow of being in the company of somebody we like.

The situation seems to be that our objectives (both biological and relating) are housed within the inner brain. Since they are common to all organisms, they have to be of a very general nature. The outer brain has the very important function of working out ways of achieving these objectives, as environments and circumstances change. It works out new procedures very slowly, step by step, but at least it works them out, which is more than the inner brain can do. Once it has worked them out, it has a way of handing them over to the inner brain, which can then execute them much more quickly. This frees it up to concentrate on new adaptations.

In this respect, the outer brain is like a computer programmer and the inner brain is like a computer. Take the case of an athlete learning to run a hurdle race. A sequence of actions is worked out over a number of months of training. By the time of the race this has been passed on to the inner brain, and the athlete simply lets the inner brain run the race. The very best athletes run races as though they were in a dream, trying to pay no attention to what they are doing. The inner brain interprets the winning of the race as the achievement of the

objective of uprightness and rewards the outer brain with the emotion of exhilaration.

Automatic Actions:

Over the years the inner brain accumulates large numbers of action sequences like typing, playing an instrument, driving a vehicle, performing mathematical calculations, speaking a language, all of which started as consciously worked out procedures, which later got taken over by it. I walk into a dark room and notice my arm reaching out to the place on the wall where the light switch is. I walk into the kitchen and notice my arm moving to the cupboard where the cans of fruit are kept. I observe it pulling open the drawer where the tin opener is kept. I watch it opening the can, emptying out its contents and tossing it into the bin. If someone had moved the switch or put the cans, the opener or the bin in a different place, it would have been caught out.

Something similar happens in conversations. I listen to the words with which I answer someone's question and am impressed by how appropriate they are. Pinter has said that he watches his plays being written. Matisse and Picasso used to watch their pictures being painted, and the power of their pictures is due to the intuitive capacity of their inner brains.

Intuition:

Claxton, in a fascinating book called *Hare Brain Tortoise Mind*, observes that sometimes we (our outer brains) try too hard to solve a problem and that, if we just wait, we may find that (the inner brain has done it for us) so that the answer just pops into consciousness, sometimes in a flash and sometimes more gradually.⁹ This process he calls intuition. This is a feature of the amazing feats performed by some idiots savants. One thing seems clear, that when the inner brain is trying to solve a problem it does not resort to language. Since the inner brain existed before language, language appears not to be a natural vehicle for it. Language is much more an outer

brain vehicle. Karmiloff-Smith gave the example of rotating the mini-cubes of a Rubik cube to get them to match up.¹⁰ Children appear to be better than adults at doing this, simply because they just play with it, without thinking, and somehow they find they have done it. A useful guide to what is inner brain and what is outer brain is that whereas outer brain activity is that which we consciously *decide* to do, which is done by deliberate and consciously thought out steps, inner brain activity is that which we find has been done, by something inside ourselves, independent of any initiative by us, of which we have no idea how it was done.

The Inner Brain and Memory:

Continuing the analogy of the inner brain as computer, the inner brain appears to have a phenomenal memory store, and it stores its memories without the aid of the outer brain. Almost everything that happens to us gets automatically stacked away as memory. What is equally phenomenal is the inner brain's filing system. It recovers memories entirely unaided by the outer brain. Many times a day, far more times than you would normally notice, the inner brain throws into consciousness items of remembered material. If you try paying attention to this you will be astonished at the number of times per day it happens and by the incredible appropriateness of the memories. If you pay attention (with your outer brain) to it happening you can nearly always work out how the association was made.

Here is an example: I was about to peel an apple with a sharp knife. The phrase, "*Courage is essential.*", came into my head. Then I experienced a flash-back to an evening, 38 years ago, when I was working in the casualty department of a Liverpool hospital. I was about to put some stitches in a woman's hand, when she said it. It is the only time I ever heard it. I was quite taken aback by it. Sometimes a line from a poem comes into consciousness, or most remarkable of all, the words of a popular song. One evening recently, I was walking home from the hospital, and a young woman was approaching in the opposite

direction. The words, "*Are you lonely just like me?*", came into my head. They are from the Roy Orbison song "Pretty Woman." They accurately reflected the way I was feeling.

You will be more familiar with the outer brain "asking" the inner brain to recover a memory. I cannot remember someone's name, so I (the outer brain) give the inner brain such information as I have. For example: American singer; hair transplant. The name Frank Sinatra pops into consciousness. Sometimes, there are not enough clues.

Recently, I read of the death of the American sprinter, who had the nick-name Flo-Jo. I had a flash-back of her crowding a young, South African, bare-footed sprinter off the track, and causing her to fall. What was the South African's name? It would not come to me. A few days later, I was watching a football match on television. The commentator shouted the name Zola (an Italian footballer who plays for Chelsea). It was the extra clue the inner brain had been waiting for. After a brief delay, the name Zola Budd came into consciousness. She was the South African.

More about Emotion:

Because the inner brain operates quite independently of the outer brain, it does not convey to the outer brain why it is causing the person to experience a particular emotion. This is why patients often do not know why they are depressed, and why some clinicians conclude from this that the depression is unrelated to circumstances. The cause can sometimes be found by (the outer brain) identifying the circumstances under which the depression started or by noting what the person is saying when the depression is most intense.

Some years ago, I found myself feeling unexpectedly happy. Then it occurred to me that, ten minutes previously, an attractive young secretary had said something nice to me. Recently, I noticed that every time a patient spoke the name of a particular man she began to smile. It was only

then that the patient and I realised that she was in love with him, a fact that was borne out by subsequent events.

It seems that emotions experienced at the time of an event get remembered along with the event, so that when the event is recalled, the emotion is recalled with it. Sometimes when I recall what seemed like a fairly insignificant event I find myself experiencing a surprisingly strong emotion. I did not realise that the event had meant so much to my inner brain. Presumably it is pleased if it considers that a particular objective has been attained, or displeased if it considers one has been lost.

If I visit a place where something happy happened I find myself feeling happy, and if I visit a place where something sad happened I find myself feeling sad. I am sometimes surprised by the emotion I experience on visiting these places because I did not realise that the events that happened in them had meant that much to my inner brain. If something frightening happened in a particular place I find myself feeling frightened the next time I go there. I have noticed that this happens to dogs too. This can be useful because it reminds me that the frightening thing may happen again, but it will not be useful if the dangerous thing is not there on the subsequent occasion. I had a patient who was raped by a man with a gap between his front teeth. For years afterwards she was frightened of men with gaps between their front teeth. This did her no good at all. From an evolutionary point of view, if the reminder is useful on only a few occasions, it is enough to give us an advantage.

How the Inner Brain can be fooled:

From an evolutionary point of view, the inner brain has not caught up with recent developments. For one thing, it appears not to be able to distinguish between the real and the artificial. It reacts emotionally to artificial flowers or to imitation snakes and spiders as though they were real. It is taken in by breasts that are made large by implants, dyed hair, lips that are made red by lipstick,

and legs that are made brown by tights. Men (their inner brains) are sexually excited by photographs of women in seductive poses, even though they (their outer brains) know that they are not the real thing. These responses form the basis of art. We are affected by paintings, statues, photographs, novels and movies because they are sufficiently like the real thing to evoke responses in the inner brain. Our outer brains know that we are being taken in by these experiences, but mostly they do not mind because they like to feel the emotion that they cause the inner brain to release. Sometimes they do. A young woman told me that when she was reading a Mills and Boon novel she noticed her genitalia becoming wet. She was appalled that her body had responded in this way to such trash, and she shouted at herself: " *What are you doing?*"

How the Outer Brain can correct the Inner Brain's errors:

The outer brain has certain advantages over the inner brain. Sometimes it can tell when the inner brain has got things wrong, and can put it right. When it knows that the frightening place is no longer dangerous it can point this out to the inner brain and stop it being frightened. It can explain to it that not all men with gaps in their teeth are rapists. We are familiar with the feeling of let down when we (the outer brain) realise that the flowers in a vase on the table in a restaurant are not real. We can tell the inner brain they are not worth getting excited about. Once a response, or line of action, is established within the inner brain it may stay there until modified by the outer brain. The outer brain can rewrite the program. The inner brain responds with alarm to all snakes. When the outer brain knows that a particular snake is not venomous it may be able to persuade the inner brain not to be alarmed by it.

The restraining function of the Outer Brain:

Whilst there are times when it is advantageous to give the inner brain its head, there are others when the outer brain's restraint is preferable. Where the inner brain would be inclined to act impulsively, the

outer brain might impose a more carefully thought out strategy. Where the inner brain would be inclined to act for the satisfaction of the moment, the outer brain might propose a longer term policy. (If you eat all the grain now, there will be none left to sow for next year's crop.) The outer brain listens to what the inner brain is about to say and sometimes it can exert control over it. It might interject with *"I wouldn't say that just now."* or *"Perhaps if we put it a different way, it might be better received."*

The outer brain is more open to new ideas and is more capable of adapting to changing circumstances. Compared to the inner brain, the outer brain is shrewd, prudent, tactful, cunning, diplomatic and devious. The fact that prefrontal leucotomy reduces the effectiveness of the outer brain suggests that it is located in the frontal lobes.

Dreams:

The content of dreams is largely dictated by the inner brain. Dreams appear to be constructed around issues with which the inner brain continues to be concerned. Considering that language is not a feature of the inner brain, it is significant that dreams are predominantly visual. Dreams seem to come from various periods of our lives, and, quite often, sections from different periods get integrated into the same dream, presumably because they are linked by the same concept. The inner brain is good at concept formation. Dreams can be a means by which the outer brain can discover those issues with which the inner brain appears to be concerned.

For, we (the outer brain) are spectators in our dreams. This is an important point because, although in dreams we are not conscious, our outer brains are still functioning. Therefore, it is not so much that the inner brain is unconscious and the outer brain is conscious. In dreams, the outer brain can act as a censor, just as it can when we are awake. It is perhaps the outer brain that causes the inner brain to distort and camouflage our dream content.

Conclusion:

Since I have started exposing these ideas to public scrutiny I have met with a variety of responses, some hostile, like: what is wrong with the old terms conscious and unconscious? I hope I have written enough to demonstrate that the inner/outer brain distinction makes more sense in terms of both evolution theory and brain function than the old conscious/unconscious one. A psychologist asked me: "If I suspend an electrode into a brain how will I know when I get to the inner brain?" I said that it is not a matter of location. Another asked, "If you do not know where the inner and the outer brain are, how do you know that exist?" My

answer was that I do not know where they are but I know they must be somewhere. Perhaps they are not places. Perhaps their functions are dispersed throughout the nervous system. Thinking in terms of the inner and the outer brain requires a change of mind set, that many people have difficulty in making. For my own part, concluding that I must have an inner and an outer brain has changed my relationship with myself. I find myself wondering how my inner brain is going to respond to a particular experience, and waiting for its response to come through. Where psychoanalysis perceives the conscious and unconscious as being in conflict, I perceive the inner and the outer brain as working harmoniously together. c8



The International Society of Malthus

<http://www.igc.org/desip/malthus/index.html>

Thomas Robert Malthus — 1766-1834

Rationale and Core Principles

We live in an age which daily and hourly sets historic records for the size of our human population which is expected to surpass 6 billion before the end of the century. Ironically and tragically, the larger we grow our numbers, the harder it seems to be able to gain consensus on the connection between the growth in human population and the destruction of the environment that sustains us.

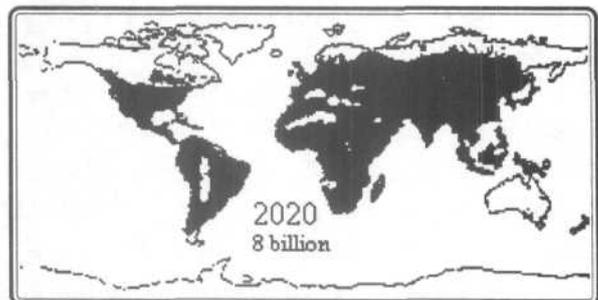
Human civilization has been fortunate to have had in Thomas Robert Malthus (1766-1834) a genius who explained in fundamental and brilliantly simple terms the connection between overpopulation and misery. In order to promote his findings and to explore the lessons that may be derived from his core principles, as well as to provide a forum for discussion, we take the opportunity of the upcoming bi-centennial of the publication of Malthus's *An Essay on the Principle of Population* (1798) to launch the International Society of Malthus (ISM).

The Core Principles of Malthus:

1. Food is necessary for human existence.
2. Human population tends to grow faster than the power in the earth to produce subsistence, and that
3. The effects of these two unequal powers must be kept equal.
4. Since humans tend not to limit their population size voluntarily ("preventive checks" in Malthus's terminology); population reduction tends to be accomplished through the "positive" checks of famine, disease, poverty and war.

Essay on the Principle of Population —
<http://www.trmalthus.com/essay.htm>

World Population Map of the Year 2020 A.D.



Population Crises and Population Cycles 13. The Modern World: Universal Crisis & the Malthusian Solution

(Reproduced with permission from the Galton Institute Newsletter, September 1995.)

The modern population crisis is unique in being universal. In the past, crises and relief periods have been staggered between major regions (**Table 1**), and even within them, as we saw in the sixth paper in the case of Bohemia. This time every country in the world is simultaneously in crisis. The population explosion is not confined to North-Western Europe and its overseas extensions, but has occurred everywhere, producing an unprecedented rise in the world population to nearly 6 billion.

The population explosion has everywhere been made possible, just as in North-Western Europe, by two great increases in food supply, one unrepeatable and the other unsustainable. By the 1960's, virtually every country in the world was importing grain from Canada and the USA, *"the granary of the world"*. (Paddock & Paddock, 1968). But by 1973, the enormous stocks of surplus grain had all been used up, and the Americans began to plough up their reserve cropland. The population continued to rise, however, because H.E.I. (high-energy-input) crop agriculture was diffused to the poorer countries of the world, often with massive irrigation projects.

But, H.E.I. agriculture has reached the point of diminishing returns. Global production of root crops has actually declined since 1984. In a world of recurrent famines, in which at least a billion people must be chronically seriously under-nourished, world food production per head increased by less than 5% between 1989 and 1996. And this small increase was at the cost of all the long-term damage done by H.E.I. agriculture and over-irrigation to the soil and (through pollution by agricultural chemicals) to the supply of drinkable water. A survey in 1990 by the World Health Organization suggested that 25 million agricultural workers are acutely poisoned by pesticides every year, and that 20,000 die as a result, mainly in the poorer countries. This is not counting possible long-term carcinogenic effects.

The world population crisis is showing all the usual economic and social effects. Everywhere there is evidence of inflation, unemployment, gross inequality and desperate poverty. Amnesty International reports violations of human rights in virtually every sizeable nation —152 countries in 1993. The two World Wars and incessant local national and civil wars have been more destructive to civilians (including women and children) than any since the seventeenth-century crisis in North-Western Europe.

Against this background, violent crime has steadily increased, and since the defeat of the Nazis there has been a resurgence of Fascism (totally criminal parties and governments) in many places. Like the Nazis, the pseudo-Islamic states seek to export Fascism: the Saudi and Pakistan governments promoted it in Afghanistan, and the Iranian Ayatollahs support European Fascist gangs. Fascism is a prominent feature of the world population crisis, specially linked to unemployment (**Figure 1**). The number of multiple murders in the United States has increased markedly since the 1950's. These 'private' murders cannot compare in scale with those of multiple murderers in control of criminal governments. In the first three years alone after the Fascist counter-revolution in Iran, the Ayatollah Khomeini murdered 20,000 women and girls.

We saw in the 1st paper that dominance and violence towards females and young are characteristic of both animal and human population crises. While Fascist Iran represents the criminal extreme, there is enough dominance and violence towards women around the world to justify the title of Marilyn French's book on the subject (1993) - *The War against Women*. A recent survey team in the London Borough of Hackney interviewed 129 women in doctors' surgeries. In the past year, 26 had been punched or slapped by their male partners, and 14 'had suffered more serious

physical abuse' (*The Independent*, 24 January, 1998). "In the United States, a man beats a woman every twelve seconds, and every day four of these beatings' are lethal

As for children, the industry catering for paederasts has reached a scale that is probably without precedent. It has been estimated that there are a million child slave prostitutes (both sexes), and that another million are bought or kidnapped for use in pornographic films or videos, in which they may be abused, tortured, and (as some evidence suggests) even killed — the so-called snuff movies. The annual income 'from child trafficking and exploitation' is estimated at five billion dollars. A horrific new crime of the 1990's, of unknown but probably considerable scale, is the purchase or kidnapping of children to supply organ transplants for prolonging the lives of wealthy criminals.

Deterioration of language is yet another effect of the population crisis. "*But if thought corrupts language, language can also corrupt thought.*" (George Orwell, 1961). It is therefore not just a trivial solecism, but a dangerous confusion symptomatic of the crisis, with its reversal of behaviour towards females and young, that the press (in more than one language) habitually refers to paederasty (lust for children) as paedophilia (love of children).

We have seen that the stresses of population crises upset the immune system and cause a high mortality from epidemics in both animals and man; individuals low in the social hierarchies are generally the worst affected. The modern crisis is marked by the appearance of AIDS, specifically a disease of the immune system, and the resurgence of tuberculosis. These two interconnected diseases are specially lethal among 'the socially and economically disadvantaged', who suffer most from stress, malnutrition and generally weakened health (Sabatier, 1988). As a venereal disease, AIDS recalls the syphilis pandemic of the sixteenth century. The two different forms of this disease in the Old and New Worlds were exchanged after Columbus, but as usual the high mortality in Europe was due at least as much to the stresses of the

population crisis as to lack of specific immunity. AIDS and tuberculosis have not yet caused death rates on the scale of previous crisis pandemics, but health authorities are already predicting tens of millions of deaths from the two diseases in a few years' time.

As on Easter Island, the world crisis response has not averted harm to the environment. Besides rapid depletion of minerals and fossil fuels, and pollution of land, air, fresh waters and oceans, there is direct damage to the land environment - deforestation, overgrazing, overcropping, over-irrigation, and the resulting erosion, silting, laterization, waterlogging, salinisation and desertification. As we have seen, these effects have been produced by earlier crises in climatically vulnerable regions. By 1864, when the American diplomat George Perkins Marsh published the first general book on the subject, the whole Earth was beginning to be affected, and by now world environmental damage has attained frightening proportions.

In India, there is serious wind or water erosion on 1.5 million square kilometres of land, and about the same area in China. According to a United Nations report, "*one-third of the world land surface is threatened by desertification*", (Caldwell and Caldwell, 1994). Several estimates agree that about 130,000 square kilometres of forest are lost every year, an area roughly equivalent to that of England or New York State. This amount of forest loss can have serious repercussions on the world water cycle and atmospheric circulation, and the past few years have already seen unusual climate and weather conditions, which have caused, for instance, changes in ocean currents that have ruined a fishery off Peru, and the disastrous spread of deliberately set forest fires in Indonesia.

The remedy for all these horrors was succinctly stated in 1830 by Robert Malthus (1766-1834). He realised that the two crucial measurements of population are those of 'crude' birth rate and death rate, usually reckoned as numbers being born or dying per cent or per thousand of the population per year. If the birth rate exceeds the death rate, the

population grows, in his words, 'in a geometric ratio, that is, by multiplication' - in short by compound interest, because the more people there are the more they can breed. A calculation has been made by P.C. Putnam which shows the fantastic implications of this.

If mankind had sprung from a single couple living about 12,000 years ago, shortly before the coming of agriculture, and if (after the population reached a few hundreds) there had been one more birth than deaths per hundred per year (a modest 1 % annual increase), then today 'the world population would form a sphere of living flesh many thousand light years in diameter, and expanding with a radial velocity ... many times faster than light' (Cipolla, 1962). 'In real life, as opposed to the wonderland of mathematics, nothing of the kind can happen' (Russell and Russell, 1968). So in real life when a population increases even at this apparently modest rate, sooner or later one of two things must happen - either the birth rate comes down or the death rate goes up (the population crisis response), and the increase is checked. This was Malthus' greatest discovery, and he had the supreme genius to realise that unlike animals we can choose which.

The modern methods of birth control provide ample means for exercising the Malthusian choice — that is, for shunting out the population crisis, with all its horrors, by reducing the birth rate instead. Fortunately, birth control campaigns *"pay for themselves almost at once, and very soon begin to increase the prosperity of the region"*, (Russell and Russell, 1980). Teen-age pregnancy 'costs American taxpayers an estimated twenty billion dollars yearly' (Goldfarb, 1997), and a study in Sweden showed that unwanted children cost a society more than wanted ones, more often growing up to be criminal, educationally sub-normal, or in need of psychiatric care.

The ratio of immediate benefit to the cost of a birth control programme has been estimated as five to one in Barbados and ten to one in Britain. A birth-control programme in Mecklenburg County,

North Carolina, saved a quarter of a million dollars within 3 years — 20 times the operating costs of the programme. It would therefore be extremely easy to mount a massive world programme of voluntary birth control, and how welcome this would be is shown by the fact that desperately poor women in Calcutta have been known to spend 10% of their minuscule incomes on contraceptives. We may thus hope to reduce the world population of nearly six billions to the billion or so who could probably live a good life even in our already depleted Earth environment. It may then take time to eliminate the stress culture resulting from past crises, but we could make population crises and population cycles a thing of the past, and usher in a permanent renaissance. OS

Table 1: The Population Cycles of China, Northern India, & North-Western Europe (from Russell and Russell, 1980).

Century	China	North India	Europe
1st	Relief	Crisis	Crisis
2nd	Relief	Crisis	Relief*
3rd	Crisis	Crisis	Crisis
4th	Crisis	Relief	Crisis
5th	Crisis	Relief	Crisis
6th	Crisis	Crisis	Crisis
7th	Relief	Relief	Crisis
8th	Relief	Crisis	Relief
9th	Crisis	Crisis	Crisis
10th	Crisis	Crisis	Crisis
11th	Relief	Crisis	Crisis
12th	Relief	Crisis	Relief
13th	Crisis	Relief	Crisis
14th	Crisis	Relief	Crisis
15th	Relief	Crisis	Relief
16th	Relief	Relief	Crisis
17th	Crisis	Relief	Crisis
18th	Relief	Crisis	Relief
19th	Crisis	Relief	Relieff
20th	Crisis	Crisis	Crisis

* Due largely to importation of resources.

† Due to emigration or people & importation of resources.

The table compares the sequences of crisis

Table 1: The Population Cycles of China, Northern India, & North Western Europe (from Russell and Russell, 1980). (continued)

For the first 4 centuries, much of North-Western Europe was within the Roman Empire and shared its vicissitudes. In the fourth century there was a slight respite from population pressure in this region, but hardly enough to call this a relief period. Centuries are of course arbitrary divisions, so the timing shown in this table is only rough; more precise sequences are given in the 2nd, 5th, 6th and 8th papers. However, the table brings out clearly the staggering of cycles between the 3 regions until the 20th century.



This figure shows the number of unemployed in the Weimar Republic in successive years, compared with the number of seats held by the Nazis in its Parliament, the Reichstag. "Seats in the Reichstag were apportioned according to the number of votes received... Altogether there were 491 seats" in 1928 (Payne, 1975). Even after the Nazis had been swindled into power in 1933, the majority of Germans still voted against them (by this time the Reichstag had 664 seats), but the relationship between Fascism and unemployment is clear. Unemployment in Iran had reached massive proportions in 1979, the year of Khomeini's Fascist counter-revolution.

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Article 12. The Modern World: The Population Explosion in North-Western Europe & for Article 13. The Modern World: Universal Crisis & the Malthusian Solution

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ABSTRACTS & EXTRACTS...

Extract from book review:

Robb J: Chips off the old block. Review of *Lost Civilisations of the Stone Age* by Richard Rudgley, Century, 1998, £17.99 (equivalent to \$26). *Nature* 1998;396:231232.

Extract: *Lost Civilisations of the Stone Age* ... makes a simple argument. Civilization did not arise fully formed with the first literate societies around five thousand years ago. Rather, virtually all of the things that we associate with 'civilization' have precursors, if not direct ancestors, in the recent or distant prehistoric past, in the two million years of the Stone Ages. From this basis flows a series of archaeological vignettes, starting with the relatively recent prehistory of the Neolithic, leaping among the high points of the Upper Palaeolithic, and finishing among Middle and Lower Paleolithic controversies about the very origins of humans and their tools and art.

Writing, surgery, drug use, monument building, detailed environmental knowledge, sophisticated artworks, technologies such as mining and smelting, language, musical instruments, tools fashioned with aesthetic sense as well as utilitarian function — all arose far earlier than either archaeologists have generally acknowledged or the public has imagined. The result is that we cannot consider our history as a simple story of the 'rise' from savage roots to a sophisticated present. Our ancestors, even tens of thousands of years ago, commanded surprising knowledge and expert skills.

[T]he chapter on pyrotechnology rapidly reviews controversies over whether early hominids used fire, sketches the Upper Paleolithic ancestry of lamps and fired-clay technology, and lucidly describes how many ancient people invented the technique of heating flint in fires to make it more supple and easily flaked.

Partridge L & Hurst LD: Sex and Conflict. *Nature*, 1998; 281 (5385):2003 2008

Abstract: Evolutionary conflict occurs when the deterministic spread of an allele lowers the fitness either of its bearer or of other individuals in the population, leading to selection for suppressors. Sex promotes conflict because associations between alleles are temporary. Differing selection on males and females, sexual selection, and differences in transmission patterns between classes of nuclear and cytoplasmic genes can all give rise to conflict. Inert Y chromosomes, uniparental inheritance of cytoplasmic genes, mating strains and sexes, and many features of sexual behavior may have evolved in part as a result of evolutionary conflict. Estimates of its quantitative importance, however, are still needed.

Yeshurun Y & Carrasco M: Attention improves or impairs visual performance by enhancing spatial resolution. *Nature*, 1998;396(6706):72-75.

Abstract: Covert attention, the selective processing of visual information at a given location in the absence of eye movements, improves performance in several tasks, such as visual search and detection of luminance and vernier targets. An important unsettled issue is whether this improvement is due to a reduction in noise (internal or external), a change in decisional criteria, or signal enhancement.

Here we show that attention can affect performance by signal enhancement. For a texture segregation task in which performance is actually diminished when spatial resolution is too high, we observed that attention improved performance at peripheral locations where spatial resolution was too low, but impaired performance at central locations where spatial resolution was too high. The counterintuitive impairment of performance that we found at the

central retinal locations appears to have only one possible explanation: attention enhances spatial resolution.

Kilgard MP & Merzenich MM: Cortical map reorganization enabled by nucleus basalis activity. *Science*, 1998;279(5357):1714-1718.

Abstract: Little is known about the mechanisms that allow the cortex to selectively improve the neural representations of behaviorally important stimuli while ignoring irrelevant stimuli. Diffuse neuromodulatory systems may facilitate cortical plasticity by acting as teachers to mark important stimuli.

This study demonstrates that episodic electrical stimulation of the nucleus basalis, paired with an auditory stimulus, results in a massive progressive reorganization of the primary auditory cortex in the adult rat. Receptive field sizes can be narrowed, broadened, or left unaltered depending on specific parameters of the acoustic stimulus paired with nucleus basalis activation. This differential plasticity parallels the receptive field remodeling that results from different types of behavioral training. This result suggests that input characteristics may be able to drive appropriate alterations of receptive fields independently of explicit knowledge of the task. These findings also suggest that the basal forebrain plays an active instructional role in representational plasticity.

Shima K & Tanji J: Role for cingulate motor area cells in voluntary movement selection based on reward. *Science*, 1998;282(5392):1335-1338.

Abstract: Most natural actions are chosen voluntarily from many possible choices. An action is often chosen based on the reward that it is expected to produce. What kind of cellular activity in which area of the cerebral cortex is involved in selecting an action according to the expected reward value? Results of an analysis in monkeys

of cellular activity during the performance of reward-based motor selection and the effects of chemical inactivation are presented. We suggest that cells in the rostral cingulate motor area, one of the higher order motor areas in the cortex, play a part in processing the reward information for motor selection.

Merabet L; Desautels A; Minville K & Casanova C: Motion integration in a thalamic visual nucleus. *Nature*, 1998;396(6708):265-268.

Abstract: Thalamic nuclei have long been regarded as passive relay stations for sensory information enroute to higher level processing in the cerebral cortex. Recently, physiological and theoretical studies have reassessed the role of the thalamus and it has been proposed that thalamic nuclei may actively participate with cortical areas in processing specific information. In support of this idea, we now show that a subset of neurons in an extrageniculate visual nucleus, the lateral-posterior pulvinar complex, can signal the true direction of motion of a plaid pattern, indicating that thalamic cells can integrate different motion signals into a coherent moving percept.

This is the first time that these computations have been found to occur outside the higher-order cortical areas. Our findings implicate extrageniculate cortico-thalamo-cortical loops in the dynamic processing of image motion, and, more generally, as basic computational modules involved in analysing specific features of complex visual scenes.

***The Lost Civilisations of the Stone Age* by Richard Rudgley**

http://www.serve.com/archaeology/books/uk/anchis_sep98.html

As an award-winning professional anthropologist (British Museum Prometheus Award 1991), now based in Oxford's Pitt Rivers Museum, Rudgley is well placed to give an up-to-date overview of the Stone Age for the general reader.

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¹ Weiss R: Scientists use worm to produce first complete genetic blueprint of life. *Houston Chronicle*, Friday, 12/11/1998, p. 27A.

A Book Review of Jared Diamond's *Guns, Germs, & Steel: The Fates of Human Societies* — page 7

¹ Potts R: *Humanity's Descent*, New York, New York: Avon Books, 1996.

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The Inner Brain and the Outer Brain — page 11

¹ Birtchnell J: *How Humans Relate: A New Interpersonal Theory*. (Hardback) Prager: Westport, Connecticut, 1993.
(Paperback) Psychology Press: Hove, Sussex, 1996.

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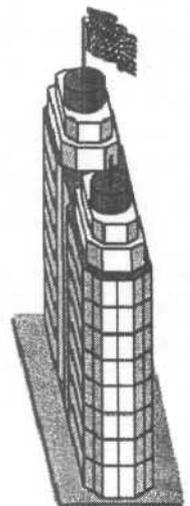
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