

ASCAP

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"We praise the 'lifetime of study,' but in dozens of cases, in every field, what was needed was not a lifetime but rather a few short months or weeks of analytical inductive inference ... We speak piously of taking measurements and making small studies that will 'add another brick to the temple of science.' Most such bricks just lie around the brickyard."

John R. Platt¹

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**Across-Species Comparisons and
Psychopathology (ASCAP) Society
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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.**

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

**The WWW Address for the The
ASCAP Home Page is:**

<http://psy.utmb.edu/ascap>

**The WWW address for
membership & subscription is:**

<http://psy.utmb.edu/ascap/aform.htm>

**The WWW address for the European ASCAP
Home Page is:**

[http://evolution.humb.univie.ac.at/ascap/europe/
index.html](http://evolution.humb.univie.ac.at/ascap/europe/index.html)

**World Psychiatric Association,
Psychotherapy Section Home Page is:**

<http://www.psychiatry.ubc.ca/WPA/psychother.htm>



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

ADDRESSED TO & FROM.,

4th Annual Aaron T. Beck ASCAP Award Competition

The ASCAP Society is sponsoring the 4th Annual Aaron T. Beck Award competition. This award is given to the best unpublished paper related to the subjects of evolutionary biology and psycho-pathology. Single authored papers may be submitted by students of relevant fields (e.g. psychiatry, psychology, biology, anthropology), as well as by recent graduates (within 3 years of terminal degree or residency graduation).

Over the last 3 years, a number of outstanding papers were submitted. The award winners thus far have been Dr. Nicholas Allen of the University of Melbourne, for "*Towards a Computational Theory of Depression: An Evolutionary Perspective*", and Souhir Ben Hamida for "*Mate Preferences: Implications for the Gender Difference in Unipolar Depression*", and Edward Hagen for "*An Evolutionary Hypothesis*".

Society members feel that an evolutionary perspective can be used to integrate various levels of understanding and thereby generate new or broadened perspectives for solving clinical problems. There are many possible areas for research and theorizing, including, to name a

few, the relevance of evolutionary theory for psychotherapy, comparative psychology and psychiatric illness, comparative brain anatomy and pathological behavior, relations of attachment processes or social rank hierarchy to psychopathology. Data-driven papers are acceptable as are literature reviews supporting novel concepts.

The award will be presented in the form of a plaque, at our annual meeting to be held on 8 July 1998, in Davis, California, one day prior to the annual meetings of the Human Behavior and Evolution Society. The Aaron T. Beck ASCAP Award carries with it a cash prize of \$1000.00 to support travel expenses. The essay will be published in The ASCAP Newsletter. The winner will also receive a year's free subscription to The ASCAP Newsletter as well.

The ASCAP Society is an international group of clinicians and academics who are linked by a common interest in evolutionary biology and how this perspective can inform our work and research (ASCAP refers to Across-Species Comparisons and Psychopathology).

All participants should send 3 copies of their paper to:

Thomas Joiner, Ph.D.
Chairman of the Beck Award
Committee
Department of Psychology
Florida State University
Tallahassee, FL 32306-1051

The postmark deadline for entries will be March 15, 1998.

Do not hesitate to call (904) 644-2040, for more info about the Beck Award or the ASCAP Society or send E-Mail to: joiner@darwin.psy.fsu.edu.

Or visit the World Wide Web page for the Beck Award Competition at: <http://psy.utmb.edu/ascap/beck.htm>.

Top National Honor Given to Pennsylvania Psychiatrist Aaron T. Beck

Aaron T. Beck, M.D., University Professor Emeritus of Psychiatry at the University of Pennsylvania Medical Center and the President of The Beck Institute for Cognitive Therapy and Research in Bala Cynwyd, Pennsylvania, received The Cummings Psyche Award on 22 September 1997. The lifetime achievement award is given to a nationally distinguished behavioral healthcare professional who has made significant contributions to the theory and practice of efficient

psychotherapy and behavioral health services.

The Nicholas & Dorothy Cum-mings Foundation in cooperation with the Institute for Behavioral Healthcare honored Dr. Beck as "one of the major figures of 20th century psychotherapy. The award, consisting of \$50,000 and a bronze status of the Greek goddess Psyche, was presented to the renowned psychiatrist for his "significant and enduring contributions, which have reshaped the fields of psychiatry, psychology, social work, and behavioral health".

Dr. Beck pioneered cognitive therapy as an effective course of treatment for a wide array of psychological disorders, including depression, anxiety, obsessions and compulsions, phobias, and self-defeating behaviors. In 1975, he founded the Center for Cognitive Therapy, a world-renowned facility at the University of Pennsylvania.

Dr. Beck is a member of the Institute of Medicine of the National Academy of Sciences and a fellow of the Royal College of Psychiatrists. He has authored or co-authored over 360 articles and 12 books, and is listed among the most influential psychotherapists by the *American Psychologist* and the *Canadian Psychologist*. He has taken an interest in the ASCAP Society and fostered our proposal to sponsor the Aaron T. Beck ASCAP Award.

Wilson Critique

The article by Daniel R. Wilson, "Evolutionary Epidemiology", in the November 1997 issue of *The ASCAP Newsletter*, boils down to the belief that if a frequent pathological state has a large genetic component, one should consider the possibilities that it is:

1. Covertly useful to gene spread;
2. Was ancestrally useful to gene spread but due to environmental change is now dysfunctional.

The example given of manic depressive illness, which the author rightly states is reasonably common, especially when defined broadly, suggests "at least 0.5% of the human genome world-wide." Recent studies indicate that depression and manic depression are indeed world-wide phenomena with remarkably constant rates across extraordinarily diverse cultures.¹ Bipolar disorder is even more constant than unipolar major depression.

Would not the implication of this epidemiological finding be that the hypothesis is unlikely that a past adaptive genotype has now become dysfunctional through cultural progress? To assume this "used to be genetically useful, but now it is out of date" hypothesis, that is so popular among evolutionary psychologists, requires that all these

diverse cultures have deviated similarly from the hunter-gatherer phase (if one postulates a non-manic depressive ancestral hunter-gatherer population).

That frequent pathological states are probably due to something having gone wrong with the utility of a beneficial adaptation is possible, even likely, but to assume that this is due to environmental or cultural change is an independent auxiliary hypothesis which requires a complex validation, and has not received any that I am aware of.

It is frequently believed that when pathology is manifested in emotional, motivational, or cognitive areas, that whatever has gone wrong must be in a related psychosocial adaptive module. This has led to thinly supported speculations concerning depression as a mode of social abasement, manic as misplaced upward striving, delusions as a mode of social integration, etc.

However, it is quite conceivable that psychosocial disruptions are due to something having gone wrong in entirely different adaptive modules, e.g. prophy-ria causes periodic psychosis. For instance, we have suggested that the spontaneous panic attack, that develops into agoraphobia, may be a manifestation of a suffocation false alarm,² a defect in a useful evolved mechanism that

prevents us from suffocating, under certain circumstances, but is not, in itself, a psychoso-cial/adaptive module.

Similarly, Judith Rapoport has suggested that some features of obsessive compulsive disorder may be best understood as a disorder of self-grooming. I have elaborated on his by suggesting that the particular defect may be in the criteria utilized in coming to the definite conclusion that the available data has satisfied an orienting inference, in this case in the area of personal cleanliness.³

As indicated by the letter from Kalman Glantz, on remarks from Jay Anderson Thomson, one still has the difficult task of deciding when an undesirable action, such as rape, indicates simply the manifestation of a human potential or that something in fact has gone wrong in the control of this potential. This, of course, requires a useful definition of disease and has been the subject of animated controversy in recent days.^{4,5}

The statement by Wilson that:

"It is clear at least some contemporary pathologic syndromes or expressions not of genetic error but of past advantageous selection stretched by a current environment goes beyond the plasticity of their health range and phenotypic reaction", goes well beyond the available facts.

What evidence is there for this hypothesis?

Donald F. Klein
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Introduction to an Article to Come
(This article will be in the February 1998 ASCAP issue.)

Hereby I send an article to ASCAP that It might be a supplement to Daniel Wilson's article about Evolutionary Epidemiology in *The ASCAP Newsletter* of November 1997.

I wrote most of the paper in August, September, and October 1997. After reading Wilson's paper, I thought that the two articles might naturally complement each other. I have not yet submitted my paper to any journal. I would be glad to have some first-hand response of it from ASCAP readers.

The paper is an attempt to illustrate and discuss two tentative hypotheses, which constitute a coherent hypothesis of major-depressive illness and schizophrenia. They have mainly arisen out of my ethological observations of depressed patients, schizophrenics, and normal controls during the last 15 years, but also out of my participation in many biological-psychiatric and psychopharmacological congresses in Europe,

Russia, and USA. In addition, I have studied physiological, biochemical, and genetic literature.

Lately, I have had the pleasure that two of my main papers about markers and parameters of major depression and recovery have been accepted by the *Journal of Nervous Mental Disorders*.

It is on this background that I want to share some of my ideas with ASCAP readers.

Of course, I am fully aware that the proposed hypotheses may deviate from the real dynamics and etiology of the two main psychoses. But they might represent new viewpoints that could be useful to other researchers. At any rate, they contribute to the ideas these disorders, in an untraditional way.

To Daniel Wilson:

It was a pleasure to read your article on Evolutionary Epidemiology. Of a special interest were your calculations suggesting a positive survival of manic-depressive disorder, both pre-historically and perhaps also in the industrial age, although the industrial society may be rather stressing to those afflicted with the disease.

You might have mentioned schizophrenia, which has the same 1% prevalence as manic-depressive illness.

What the specific advantages have been pre-historically of the two disorders is difficult to say. A loose scenario might point to the following:

1. Schizophrenics are often leptosome, i.e., adapted to warm climates.
2. Manic-depressives are often small and pycnics, i.e., well-adapted to cold climates. Their energy oscillations might be adapted to summer activity and winter slow-down ("hibernation").

However, in spite of such ideas, it seems more likely to ascribe their specific characters to sociointellectual abilities.

I agree that psychiatry has no common theory. However, I think that biological (biochemical) psychiatry is advancing. But it still needs to incorporate the other part of biology: ethology and evolutionary theory.

In my ethological-psychiatric research, I have tried to document the importance of observations of patients in their natural or semi-natural environments. And in my paper to ASCAP, I suggest a coherent hypothesis based on behavior and physiology. Thus, our articles seem to somehow complement each other.

Tyge Schelde
arcirip@cybemet.dk

Healing the Moral Animal: Lessons from Evolution

Course Announcement: From 20-24 July 1998 at the 19th Cape Cod Institute, Albert Einstein College of Medicine (held on the eastern shore of Cape Cod, in Eastham, Massachusetts, U.S.A.).

This is of interest to psychiatrists, psychologists, teachers, health care administrators, as well as to counselors, general practitioners, wholistic practitioners, and social workers whether in private or institutional niches.

Anthropologists and bioengineers are welcome! This interdisciplinary course moves from evolutionary principles to the treatment of emotional distress. Strong emphasis on alliances, values, and our evolved minds.

Summary of Courses and Instruction:

20 July 1998, Monday, 9:00 a.m. to 2:30 p.m. - John Pearce, Jim Brody, and Russell Gardner, Jr.

Evolutionary theory and our mental health care (Brody), natural selection and human capacities, our presumed original environments, physical and psychological adaptations for survival, mismatch of our evolved traits with themselves and with our culture, evolutionary theory and treatment.

21 July 1998, Tuesday, 9:00 a.m. to 1:15 p.m. -- Robert "Bob" Wright.

Moral impulses as biological adaptations, deception and self-deception, biology and social status, the Darwinian analysis of moral issues and public policy. Can what's natural be pathological? Inner city violence, child abuse, Serotonin and aggression. Is knowing thy (Darwinian) self therapeutic? Biology and Buddhism.

22 July 1998, Wednesday, 9:00 a.m. to 12:15 p.m. -- Russell Gardner, Jr.

Mood Disorders, an expression of evolved psychological features. Anxiety, depression, mania, OCD, sociophysiology and evolution: Considerations for treatment.

23 July 1998, Thursday, 9:00 a.m. to 12:15 p.m. - Jim Brody, John Pearce, and Russell Gardner, Jr.

Psychological adaptations and familial action patterns. Psychological adaptations, familial action patterns, the behavioral family history, mode jumping in children and adults. Uses of the psychological adaptations and familial (behavioral genetics) models.

24 July 1998, Friday, 9:00 a.m. to 12:15 p.m. - Jim Brody, John Pearce, and Russell Gardner, Jr.

Spouses and lovers. Differences in male and female reproductive

interests, strategies for deceit and cooperation (manipulators and enablers), children and altruism/competition, interventions, issues with managed health care, especially for emotional distress; conflicts with psychological adaptations.

Fee is **\$435.00** for one program. **\$250.00** for each additional program. **\$285.00** for medical residents and graduate students with documentation.

Other courses and registration are on the Internet at this site: <http://www.cape.Org/1998>. Readings and course information are available by E-Mailing: jbrody@compuserve.com.

Make checks payable to: "Montefiore - **Cape Cod**", and mail them to:

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of Medicine
1308 Belter Building
Bronx, New York, NY 10461

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Pre- & Post-Doctoral Positions in Evolutionary Psychiatry

We are seeking pre-doctoral and post-doctoral applicants for positions in our Center for Adaptive Behavior and Cognition to study evolved cognitive mechanisms in humans (and other animals). Please circulate the following ad to all appropriate parties, and visit our website for more details about what we're up to here. (Note that our group has just moved from Munich to Berlin, in case there is any confusion-same research group, new location!)

The Center for Adaptive Behavior and Cognition at the Max Planck Institute for Human Development in Berlin, Germany, is seeking applicants for a 1 one-year Pre-doctoral Fellowship (tax-free stipend DM 21,600) and a 1 two-year Post-doctoral Fellowship (tax-free stipend range DM 40,000-44,000) beginning in September 1998.

Candidates should be interested in modeling bounded rationality in real-world domains, and should have expertise in one of the following areas: judgment and decision making, evolutionary psychology or biology, cognitive anthropology, experimental economics and social games, risk-taking. For a detailed description of our research projects and current researchers, please visit our World Wide Web Homepage at:

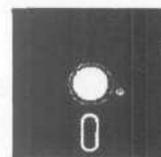
<http://www.tnpiib-berlin.mpg.de/abc>

or E-Mail Dr. Peter Todd at:
ptodd@mpib-berlin.mpg.de.

The working language of the center is English. Send applications (curriculum vitae, letters of recommendation, and reprints) by **28 February 1998** to:

Professor Gerd Gigerenzer
Center for Adaptive Behavior and
Cognition
Max Planck Institute for Human
Development
Lentzeallee 94
14195 Berlin, Germany.

**Please E-mail any
contributions to
ascap@utmb.edu, or
mail hard copy and
3.5" HD diskette to:
Russell Gardner, Jr.,
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WordPerfect,
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you. Thank
you.**



ANNOUNCEMENT

Announcement of the WPA Role.

This marks the 1st issue in which *TheASCAP Newsletter* is the official newsletter of The Psychotherapy Section of the World Psychiatric Association (WPA).

The section is chaired by our European Editor, John S. Price and co-chaired by our Editor-in-Chief, Russell Gardner, Jr. A former section chairman is Ferdinand "Ferdo" Knobloch, also a member of the ASCAP Society. A meeting of the section will occur during the next WPA meeting from 6 August to 12 August 1999, in Hamburg, Germany.

Some selected portions of the WPA by-laws include:

A. Purpose of Sections:

1. The collection and dissemination of information concerning scientific activities within special fields of psychiatry and mental health.
2. Establishment of working relations with national and international organizations in the same field, with a view to achieving better coordination of activities of interest to the Section and the WPA.
3. Organization of scientific meetings on topics of interest to the Section.
4. Organization of Symposia dealing with the Section's speciality, at World and Regional Congresses as well as at Regional Meetings organized under the auspices of the WPA.
5. Development of educational materials.

C. Reinstatement of Sections:

- a. Sections must be reinstated every 3 years by the Executive Committee, upon recommendation of the Secretary for Sections. In order to be reinstated for an additional 3 years, Sections must:

1. Have at least 20 members.
2. Have held an election for the Section Committee, including the Chair and Secretary, in accord with its By-Laws.
3. Have presented 1 symposium at a World Congress Regional Meeting or Regional Congress during the immediately preceding 3 years; and/or have prepared alone or in collaboration with another Section educational material authorized to carry the WPA logo by the Executive Committee.

D. Section Membership:

- a. Sections may enroll non-psychiatric medical and non-medical persons in related professions into ordinary membership.
- b. The Secretary for Section should be provided at least annually with an updated Section membership list.

E Section Officers:

- a. Any Section Member is eligible to be a member of the Section Committee and/or a Section Officer except for members of the Executive Committee. At least 2 of the Section Officers must be qualified psychiatrists.
- b. It is preferable that a Section Member serve no more than 6 years in a particular post of the Committee and no more than 9 years as a member of the Section Committee.
- c. The registration fees during World Congresses and Regional Meetings will be reduced for the Chairmen of the Sections that are organizing an event during the meeting or, when the budgetary situation permits, waived.

F. Section Meetings and Elections:

a. Section meetings should be held, if possible, at the World Congress and, in any case, at least once during each 3 years authorized term for the Section. The Section Committee may meet as many times as necessary to conduct the business of the Section.

1. Minutes of each Section or Section Committee meeting must be kept and copies made available to the Secretary for Sections.
2. Members of the Executive Committee may attend any Section or Section Committee meeting.

b. If an election is to be held at a Section meeting, the meeting must be attended by more than half of the Section members.

If it is not possible to hold the required election of a Section Committee and officers at a duly called Section meeting because of the required quorum is not present, the election may be held in another manner in accord with the Section By-Laws.

H. Section Reports:

- a. Each Section Committee shall submit an activity report to the Secretary for Sections once a year. The report should contain details of the Section's administrative and scientific activity and its future plans.
- b. The concluding report on a Section's activity over the period between General Assemblies should be submitted to the Secretary for Sections 6 months prior to the date of the next General Assembly.

I. Organization of Section Symposia:

- a. Whenever a Section wishes to sponsor a scientific meeting, permission should be sought in advance from the Secretary for Sections who will consult the Secretary for Meetings and provide advice to the Section. The manner of financing the meetings should be discussed with the Secretary for Sections so as to facilitate the acquisition of funds.
- b. The planned programme should reflect the purpose of the Section and be in accordance with the aims of the WPA.



**World Psychiatric Association
Home Page**

<http://www.wpanet.org/index.htm>

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

Structure:

The basic members of the WPA are 106 national psychiatric societies, representing more than 140,000 psychiatrists worldwide. The societies are clustered into 18 Zones and five Regions: The Americas, Europe, Africa, Asia, and the South Pacific. Representatives of these Societies constitute the WPA General Assembly, the highest governing body of the organization. The WPA also has individual members and there are provisions for affiliation of other associations (e.g. those dealing with a particular topic in psychiatry).

**World Psychiatric Association - XI Congress
Hamburg, Germany 5-12 August 1999:
<http://www.wpanet.org/xiworld.htm>**

Courtship, Love, and Culture

Timothy Perper On Limerence

I second Dorothy Tennov's ideas on limerence, based on my own fairly extensive observations of courtship. The concept of limerence is, in my view, a major contribution to our understanding of sexuality and love. I'd like to make some additional comments.

I feel it as useful to distinguish whether limerence, desire, and attraction are mutual and reciprocated or not. If they are, then the resulting "love" - I used quotation marks because there are so many forms and kinds of love - fulfills whatever criteria we may have for "eras" ~ an altered state of consciousness that pervades everything both Self and Other do, feel, perceive, and think.

It is not for nothing that English uses words like passion, rapture, entrancement, enchantment, and the like for both "this" state of mutual involvement AND for states of profound religious feeling and involvement. In fact, the earliest descriptions of Eros in Western writing ~ in Plato's Symposium - make the connection very explicit: for Socrates and especially for his "instructress in love," Diotima of Mantinea, Eros is the immortal mediator between this world of physical semblances and seeming realities, and the eternal world of the Divine. For Diotima, the intense experience of "embodied" love, in the here and now of our physical perceptions, both derives from and leads to knowledge of the world of pure beauty and truth, a process that modern scholars call the "erotic ascent."

Later writers took the Diotimian tradition in at least two directions. For neo-Platonists like Plotinus, eras remains the mediator between the daily world of everyday living and the All. Christian writers of antiquity, St. Augustine especially, found such Platonism very attractive, being able (for example)

to identify the All with the Mind of God. However, these early Christian writers found Eros much less attractive, replacing any and all forms of Erotic mediation between heaven and earth with the figure of Christ. Thus, the writer of the First Epistle to Timothy as well as St. Augustine in the City of God both "explicitly" assert that "there is one mediator between God and men, the man Christ Jesus" (I Timothy 2:5 - King James Version). This borrowing of the Platonic formula was, we can imagine, designed in part to appeal to Platonic philosophy as Christianity emerged from Palestine into the cosmopolitan Greco-Roman Mediterranean world.

However, the Christian formula also "attenuates" the erotic, thus acting not merely to substitute the charismatic (*sensu strictu*) figure of Jesus for a pagan deity, but also to undermine the idea that intense bodily experiences, such as those of reciprocated love, are models for knowing the Divine. To be sure, this anti-eroticism was part of a broader Christian suspicion of the body, and of sex in particular, but the pagan view of embodied love leading to knowledge of the gods did not survive in orthodox or official Christianity. Indeed, many modern Christians would consider it sinful to suggest that sex is an avenue leading to knowing God.

Nonetheless, a second - if far less orthodox! - tradition existed in antiquity and continued to exist through the middle ages into modernity. For lack of a better term, I will call it "Ovidian", because it is represented so elegantly by Ovid's "Art of Love." Often misread by cynics and skeptics as merely a Roman version of "How to Pick Up Girls," the Art of Love is actually a superbly crafted and carefully observed celebration of erotic play (what has been called "ludic" love). To be sure, love poetry pre-existed Ovid - there are examples from Egypt dating back to circa 1500 BCE ~ but the Ovidian

treatment of love makes it a wonderful pleasure - a true "joy" not for its culmination in intercourse but for the "process" of mutual recognition and shared enticement.

Consonant with its enjoyment of the here and now of love, the Ovidian tradition seems to back away from the kinds of heavy philosophizing characteristic of Plato. There is, however, an implicit cosmology in Ovid and in the Ovidian love-play tradition. It centers not on sin, guilt, and redemption - which were major issues for Christianity - but on bubbling and light-footed deities who smile and laugh. Unfortunately, such things are evanescent, and certainly later Christian writers eschewed the Ovidian.

We have historical hints, especially now that sexuality research has come out of various closets, that antiquity ~ from around the start of the common era to the fall of Rome ~ was hardly anti-sexual.

Unfortunately, such hints have been translated, shall I call it, by later writers for whom sexuality was dangerous. These of course included Christian writers, in part because they were enmeshed in a broader erotophobic dualism: the material body is a trap, a contraption of evil deities and forces acting in opposition to the spiritual. This form of dualism appears in Manichaeism and in various Gnostic beliefs, and was inserted into Christian tradition perhaps most markedly by St. Augustine. One result is the familiar image of Rome as a place of orgies, sin, and corruption - a Cecil B. de Mille movie brought to life - where sex is not the play of Ovidian deities, but the work of devils and evil forces.

My impression is that erotophobic early Christian writers earmarked for special censorship those works that claimed that Mary Magdalene was Jesus' consort. For example, the Gnostic Gospel of Philip describes Jesus kissing Mary Magdalene on the mouth, adding that the other disciples were angered and jealous of Jesus's attention to her. Although these legends of Mary Magdalene never completely vanished, it is very clear that her legends did not produce a "Christian" erotophilic tradition. In principle, one supposes that they might have.

An additional anti-erotic factor was Stoicism, not because it was specifically erotophobic, but because it rejected passions of all kinds. In Stoicism, limerence would have been seen as dangerous derangement. There are some obvious limits to what we can conclude about antiquity from the -written documents we have. Not only have they been destroyed ~ e.g., by Christian censors ~ but they were never typical in the first place. Because literacy was nearly solely the possession of leisured and wealthy males or of sectarian polemicists, most writing about sex represents not the common events of common people's lives, but is powerfully agenda-bearing. So the picture is badly skewed.

Even so, we can see in Roman antiquity the beginnings of modern beliefs about sex, particularly the idea that when embodied sexuality "goes too far" - a Stoic notion -- then its obsessions are dangerous. This notion is greatly strengthened when we switch our attention from "reciprocated" or Ovidian loveplay to NON-reciprocated desire. Also known from antiquity, "lovesickness" was proof positive for the erotophobes of antiquity -- and afterwards! -- that sex is best left strictly alone. Much of Augustine's writing about sex seems to me primarily to be condemnations of limerence and its obsessions. For Augustine, these of course distract the Christian from contemplating the object of True Faith, God Himself.

There is, then, a curious reversal in Augustine that transcends merely replacing Eros as the mediator with "the man Christ Jesus." Because Augustine was writing tracts against limerence, he necessarily was unable to connect it to Socrates' "divine madness", a term Socrates uses in Phaedrus for erotic love. What had been for Diotima and Socrates a pathway to knowing the divine had become, by Augustine's time, a pathway to the devil.

I am stressing antiquity because choices made in those years have shaped 2000 years of subsequent European history. One can track out the re-emergence of the Ovidian tradition in the 1100's in Provence and elsewhere in Europe, and in the decision by Church writers like Peter Lombard in the

mid-1100's that marriage is made by mutual consent and consummated by intercourse. It was not until the Council of Trent in the 1500's that orthodox Christianity could reinstate the principle that public announcement and approval is "needed" for marriage.

The result has been a deeply uneasy truce, sometimes breaking out into open warfare, between visions of limerence and its sources in the mind and in embodied sexuality. It has been seen as a route to knowing the divine as well as the work of devils and demons.

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Field Studies of Courtship— References and Notes

The following are some annotations about my own field of research, the study of how people fall in love. Martha Cornog and I - we're married - are now working on a scholarly book on the evolution of human sexuality and eras. This started with a response to Glenn Cochran, who asked for evolutionists' stories.

Some background. By training, I am a biologist -- a geneticist ~ and have published in animal reproductive and parental behavior, among other areas. Nearly two decades ago, I began studying human courtship, sexual attraction, and related issues of how men and women meet, become erotosocially interested in each other, and fall in love. The work is based on (by now) some 2000 hours of ethological and ethnographic participant-observation of men and women in a variety of public settings, including singles bars, church socials, parties, and the like. Results include ethological descriptions of courtship as well as extensive interviews that suggest how people interpret their own and other's behavior, emotions, beliefs and motivations. The first two years of research was funded by two full support grants from The Harry Frank Guggenheim Foundation, but considerable field work was also done afterwards. A

scholarly book plus papers, listed below, have come from the work. Relatively few researchers have observed courtship in field settings. In North America, they include David Givens, an anthropologist, and Monica Moore, a psychologist, as well as myself, a biologist. Happily, our data - obtained independently of each other - dovetail very nicely. I have listed the relevant publications below:

Givens, David B.: The nonverbal basis of attraction: Flirtation, courtship, and seduction. *Psychiatry*, 1978;41:346-359. — A classic, Givens does the first observation-based, modern scholarly discussion of the courtship sequence. Givens' description is behavioral-emotional rather than strictly ethological. Givens observed men and women.

Givens, David B.: *Love Signals: How to Attract a Mate*. New York: Crown, 1983. — A trade book that nonetheless contains invaluable descriptions of behavior. May be hard to get, but well worth it.

Jankowiak, William (editor): *Romantic Passion: A Universal Experience*. New York: Columbia University, 1995. — Recent ethnographic and theoretical essays on love and eros in different cultures, including an essay by Jankowiak about the People's Republic of China. On page 3 of the introduction, Jankowiak writes "...humans have evolved the vital propensity to experience romantic passion, which is expressed as 'love,' enacted in courtship, and ultimately manifested as reproductive success. In other words, it is a potent potential experience regardless of the presence or absence of specific cultural institutions or child-rearing practices. In effect, it is a human universal." The essays in this volume support that conclusion.

Matter, E. Ann: *The Voice of My Beloved: The Song of Songs in Western Medieval Christianity*. Philadelphia: University of Pennsylvania, 1990.— Not a study of courtship at all, but a detailed and scholarly discussion of medieval exegeses of the *Song of Songs*. However, on page 63, it contains a medieval description of the courtship sequence, from the work on Honorius Augustodunensis, a monk writing in the late 1100's.

Moore, Monica M.: Nonverbal courtship patterns in women: Context and consequences. *Ethology and Sociobiology*, 1985;6:201-212. — Detailed ethological observations of women's flirtation behavior, with discussion of effectiveness of these behavior patterns in communicating sexual interest to men. Moore focused on women's behavior; her observations correspond to those of Givens and of Perper.

Moore, Monica M. & Diane L. Butler: Predictive aspects of nonverbal courtship behavior in women. *Semiotica*, 1989;76:205-215.—A trained observer can predict ahead of time the outcome of a courtship interaction.

Moore, Monica M.: Courtship signaling and adolescents: "Girls just wanna have fun"? *Journal of Sex Research*, 1995;32:319-328.—The only observational study of young women (13-16 years old) developing and practicing their seductive repertoires; studied in school settings in Midwest U.S.

Perper, Timothy: *Sex Signals: The Biology of Love*. Philadelphia: ISI Press, 1985. —A scholarly description of results from (then) some 1,000 hours of ethological and ethnographic participant-observation of flirtation and courtship in public settings in the U.S. and parts of Canada, plus theoretical material on biosocial functionality and a critique of ethobiological theories. Courtship involves a temporally organized sequence of verbal and non-verbal behavior (look, approach, talk, turn, touch, synchronize) that culminates in mutual erotosexual arousal, interest, and if possible, intercourse. Women are actively proceptive and can describe the sequence analytically and clearly; men are much less adept at describing the sequence although they respond to it behaviorally and emotionally. The sequence is "biosocially" functional. Studies both men and women. In Honorius' Latin, the sequence is: visus, alloquium, contactus, osculum, and factum: look, talk, touch, kiss, and the deed.

Perper, Timothy & David L. Weis: Proceptive and rejective strategies of U.S. and Canadian College women. *Journal of Sex Research*, 1987;23:455-480.

College age women describe in content-analyzed essays how they actively initiate, maintain, and escalate sociosexual signaling to men; their descriptions are based on their own understanding of the courtship sequence and on their role in creating it. No association was found between proceptivity and independently measured sexual conservatism either in the U.S. or in Canada. Proceptive strategies compared to rejection strategies.

Perper, Timothy: Theories and observations on sexual selection and female choice in human beings. *Medical Anthropology*, 1989; 11:409-454.— Summarizes some 1500 hours of ethological and ethnographic field participant-observation of human courtship behavior in North America, describes the approach—talk—turn—touch—synchronize courtship sequence in detail, and contains observation-based critiques of sociobiological theories, including Trivers' PI theory. The paper also discusses women's roles in initiating and escalating the sequence in relation to female and male choice. A reasoned, if dense, summary of a decade's worth of work.

Perper, Timothy: Courtship. In: Vern L. Bullough and Bonnie Bullough (editors), *Human Sexuality: An Encyclopedia*. New York: Garland, 1994, pages 152-155. — Exactly what it says: an encyclopedia article. It succinctly describes the courtship sequence and some of its implications.

Perper, Timothy: *Field observations of courtship: Women's roles and evolutionary implications*. Paper presented at the 1996 Symposium: Women's Attraction to Men — Critically Examining Evolutionary Hypotheses, American Psychological Association, Toronto, Ontario, Canada. — Brief summary of field data and an evolutionary model of human erotosexual attraction and emotion set in the context of competing theories of love and attraction.

Perper, Timothy and Martha Comog (in preparation) Tentative Title: *The Evolution of Love: Women, Biology, and Culture*. Praeger/Greenwood.—This scholarly book will cover observations and evolution

of eras, human sexual affiliation, and the role women have had in creating these forms of behavior and feeling in history and evolution.

Givens, Moore, and Perperall worked independently — none of us knew each other at all when we started. The descriptions dovetail extremely well. Only Karl Grammer in Europe has made similar observations, but not of the sequence of events as such, but instead along the lines of Eibl-Eibesfeldt's static field photography. Crucially, we lack cross-cultural observations of the detailed ethology of courtship seen as a dynamic process in cultural and biosocial context.

Recently, psychologists influenced by evolutionary psychology, particularly the theories and results of David Buss, have gathered paper-and-pencil data on sexual strategies. However, it is difficult to align the Bussian "hypothesis-testing" questionnaire data with the ethological and ethnographic field observations, although Moore 1995 represents one such effort. Bussian theory, which derives mainly from sociobiology, has generated a fair amount of controversy in psychology, particularly among social psychologists, including psychologist members of the 1996 APA symposium mentioned above.

A recent review that strongly argues the value of Bussian evolutionary psychology for studies of human sexuality is Allgeier, Elizabeth Rice and Michael W. Wiederman. How useful is evolutionary psychology for understanding contemporary human sexual behavior? *Annual Review of Sex Research*, 1994;5:218-256.

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Re: Human Universals

I am grateful to Timothy Perper and Martha Cornog for their response to Glenn Cochrane in Re: Human Universals. I have been interested tracing human evolution by looking at the evolution of fellow mammals during the Pleistocene. Modern humans are very good Ice Age mammals, in that - compared to

other species in their family - they are large, brainy, very fat, with showy luxury (display) organs. Also, one finds a characteristic step-wise evolutionary progression from the tropics to -ultimately - periglacial environments over the late Pliocene to the late Pleistocene. I have published on that in some detail elsewhere.^{1,2} Display is in large mammals an important part of courtship, as well as the testing and reinforcing of rank. Not too surprising, displays center on evolved display organs, but in humans with a difference. The difference is that in addition to the biologically given, humans add a very heavy dosage of cultural components. In essence we make into Art whatever we show off with.

Put another way: we are "Condemned to Art", for whatever we do we enhance artistically. We turn biological functions into art: the old quest for security at night, the covered shelter, the cave becomes - ultimately - architecture; food is artistically presented as cuisine; body cover becomes uniforms and fashion; mating covers the range from romance, and the artistry it entails, to bordellos, etc. Having worked a quarter century in a Faculty of Environmental Design with architects, urban designers, landscape architects, industrial designers and engineers this is one powerful lesson I came away with. Human environments are artistically structured to fulfill deep seated biological urges - and to hell with maintaining environmental integrity. When pointed out at a conference, one infuriated architect jumped up and shouted, "So what! Do you want to live in ugly surroundings?" Beauty ahead of environmental integrity, but also ahead of reason and health! We are, I shall argue, irrationally condemned to art in everything we do and seek to gain stature through artistic perfection, excesses and uniqueness. It's a human universal and one that virtually sets us apart from our fellow travellers through the ages, the large mammals - though we all carry the disposition for showy, enduring display within. G5

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ARTICLE:

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Population Crises and Population Cycles 7. North-Western Europe: The Breakthrough and After

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In the hydraulic societies, with their huge population densities, we have seen that the effects of the crises were cumulative, causing a growing load of stress culture and the decline of civilisation. In North-Western Europe, with its low population densities (until the 19th century), it was the effects of the relief periods and renaissances that accumulated, causing continuous progress even during the crises and eventually the technological breakthrough. **Figure 1** does indeed show that the rate of technological progress stepped up during relief periods and slowed down during crises, including that of the 20th century, which is living on the capital of the previous relief period (**Table 1**). But **Figure 1** also shows that progress acquired a momentum that carried it through even the crisis periods, and in this region alone we can study this continuous progress, the fruit of low population density.

The renaissances [see **Table 3** of the 6th paper (February 1997 *ASCAP* in the series) were marked by higher real wages and general standard of living [see **Figure 3** (March 1996 *ASCAP*) of the first paper], greater social mobility, greater freedom, splendid cultural achievements, and improved amenities of life - for instance, the splendid medieval system of public baths and lavatories which repeatedly broken down during crises, with obvious repercussions on health. The simple sequence of **Table 3** (February 1997 *ASCAP*) of the 6th paper (and **Figure 1** of this) is misleading, because population cycles were staggered in different parts of the region. In the mid-14th century, the Kingdom of Bohemia (modern-day Czech Republic) was enjoying a renaissance, with a flourishing university, a Holy Roman Emperor, high real wages, and improved peasant rights; hence it suffered not at all from the first visit of the Black Death, which was reducing the population of the rest of North-Western Europe by about one-third. Over-population, with all of its consequences, developed in Bohemia later in

the century, causing much higher mortality than elsewhere when the Black Death returned in about 1380, and eventually a terrible civil war (1419 -1437), when the rest of the region was beginning to enjoy the Early Modern Renaissance. This began in the Low Countries, Southern Germany, and especially Northern Italy.

France, the most seriously overpopulated country in the region, had suffered so severely in the Medieval crisis that her renaissance was delayed, and it was soon interrupted by the religious wars (1559 -1593). The English renaissance was interrupted by a short sharp crisis, with a serious epidemic, in the 1550's, which so reduced the population that it ushered in the glorious Elizabethan flowering. Finally, at the height of the Early Modern crisis elsewhere, the Dutch had a renaissance of the ancient Northern Mediterranean type, based on their temporary supremacy in world trade. But through all of these vicissitudes, technological progress continued throughout the region.

In the Roman Empire, the only important labour-saving devices were the animal-powered Gallic reaping machine, used and probably invented in North-Western Europe, and the vertical water-mill, also used mainly there, and in any case on a tiny scale ~ a few dozens altogether. In early medieval North-Western Europe, water-mills were legion: 5,624 were recorded in England in 1086, and at the same time France may have had approximately 20,000. " *This hydraulic energy was equivalent to that which could be deployed by one-quarter of the adult population of the kingdom*" (Debeir, et. al., 1991). Some time before 1137, the English invented the rotating vertical windmill: there were at least 56 in England by 1200, and in the next century they diffused all over North-Western Europe. Tidal mills appeared in the 12th century, steam bellows in the 13th century. The mills were used for grinding com,

forging iron, tanning, fulling, making paper, sawing, brewing, polishing armour, and crushing anything from olives to ore. Many of these uses depended on the invention of the cam, which the Chinese had used only for hulling rice, and the Northern Mediterranean peoples only for making toys. The mechanisation of fulling has been called as important a development as the mechanisation of spinning and weaving in the 8th century. During the medieval crisis, fear of unemployment caused some opposition to fulling mills, but nothing could stop their advance. Medieval technologists enjoyed great prestige. There was a widespread individualism and thirst for personal glory new in world history. In the Gothic cathedrals, thousands of craftsmen proudly signed their work. In classical Athens, the greatest of all Greek sculptors, Phidias, died in prison, accused of blasphemously sneaking a self-portrait into a religious composition. In medieval France, with complete impunity, the great sculptor Gislebertus carved his name just beneath the feet of Christ in the centre of the West facade of Autun Cathedral.

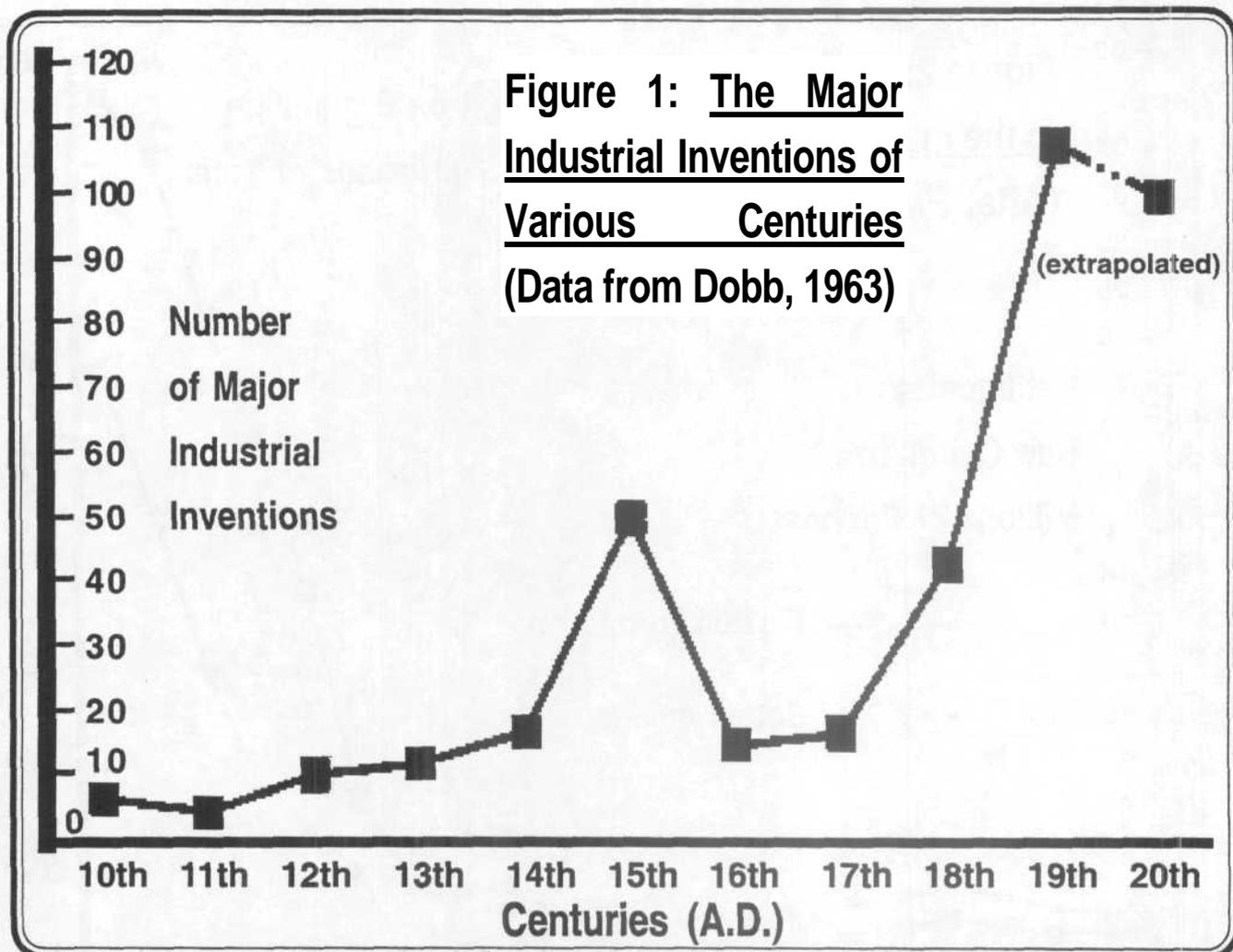
"In the 12th and 13th centuries,... there was born... a new conscious empirical science" (Crombie, 1969). Scientists and technologists worked together, Pierre de Maricourt, author of a brilliant study of magnetism, was a near neighbour and probably a friend of the versatile technologist Villard de Honnecourt. The development of clockwork was a joint achievement of science and technology. During the population crises, there was some censorship of science, and some scientists suffered seriously (Roger Bacon, William of Ockham, Cardano, Harriot, and Galileo). But the censorship was nothing like as bad as that in the population crisis of the late 5th century (B.C.) Athens, or in the Islamic world from the 16th century to the 19th century, when virtually all scientific activity was banned.

In the 14th century, block printing reached North-Western Europe, ultimately from China. The Chinese had also invented movable type, but this was of little importance until it was combined with the alphabetic scripts of Europe. But between 1439 and 1450, Johann Genfleisch zur Laden zum Gutenberg, reinvented movable type for printing books, and

mechanised printing by devising the press. This supreme invention gave science the momentum to advance spectacularly right through the Early Modern population crisis, and ensured that when the Long Renaissance began science and technology were more closely integrated than ever: Newton's discoveries about light and colour were reported to the Royal Society in 1672, and by 1704, they were being applied, by James Christopher le Blon, to the problem of printing in colour.

Between 1670 and 1750, North-Western Europe enjoyed the priceless gift of a new-stable population. Malthus discovered the reason: the region had achieved (especially during this period), unprec-edentedly low birthrates, thanks to a change in the pattern of marriage (**Table 2**). The resulting labor shortage in the British textile industry led to explicit demands for labour-saving inventions (e.g., in 1733) 1757, 1764, 1772, 1792, & 1800), and even the offer of prizes for them (1760's). The demand was met by a number of new devices (**Table 3**), and the expanding textile industry launched the industrial revolution (**Figure 2, Table 3**).

Unfortunately, the birthrates did not keep pace with the lowering death-rates, and the populations grew again, producing an incipient crisis - the Napoleonic Wars, unemployment and cheap labour after 1815, slowing down the revolution, and famine in the Hungry 1840's. A temporary solution like that of the ancient Northern Mediterranean kept the Long Renaissance going until 1914, and made possible the second phase of the revolution (steel and electricity, **Table 3**): between 1851 and 1931, 18 million people emigrated from the British Isles, and 17 million from the rest of North-Western Europe, and by the 1870's, Britain was importing more than half her wheat. But birth rates continued higher than death rates, and in the appalling population explosion of the 20th century, North-Western Europe had reached population densities [see **Figure 1, Table 2, and Table 3** of the 6th paper (February 1997 *ASCAP*)], and all of the precious benefits of low density were thrown away. The sad results of this we shall consider in a later paper, when we come to the present world population crisis. c8



Notes for Figure 1: The relationship between population cycles and technology is brought out roughly in this graph, based on figures prepared (for quite different reasons) in 1928 by the Executive Secretary of a United State Temporary National Economic Committee. Probably nearly all refer to inventions in North-Western Europe and its extensions overseas. Centuries are, of course, arbitrary divisions, and not perfectly corresponding with crises and relief periods (see Table 3 of the 6th paper of this series, which was in the February 1997 *ASCAP Newsletter*). In the light of recent research, the inventions of the 12th have been underestimated here. Still, it is possible to see upsurges of invention (more than doubling the previous century's score), in the relief periods of the 12th century, the 15th century, and the 18th & 19th centuries, and slowing down, or actual decline, in the crises - 13th & 14th centuries, 16th & 17th centuries, and the 20 century. The number for the 20th century was extrapolated (to 100) from the 27 inventions listed up to 1927. Our century has certainly been living on the inventive capital of the 19th century - see **Table 1** of this paper.

Notes for Figure 2: The figure shows the sudden huge expansion of the British textile industry (measured by imports of raw materials), as a result of the labour-saving inventions listed in **Table 3**. Some 12 years later, the iron industry expanded in turn. As the cotton industry grows, it created a greatly increased demand for steam engines, machines, transport, dyes, fuel, and building materials. The almost explosive development of the textile trade therefore led to a rapid expansion in the industries which produced these things, most notably the iron industry. Thus cotton effectively led the whole of the British economy into the Industrial Revolution.

**Figure 2: Cotton and Iron
in the Industrial Revolution**
(After Pacey, 1974)

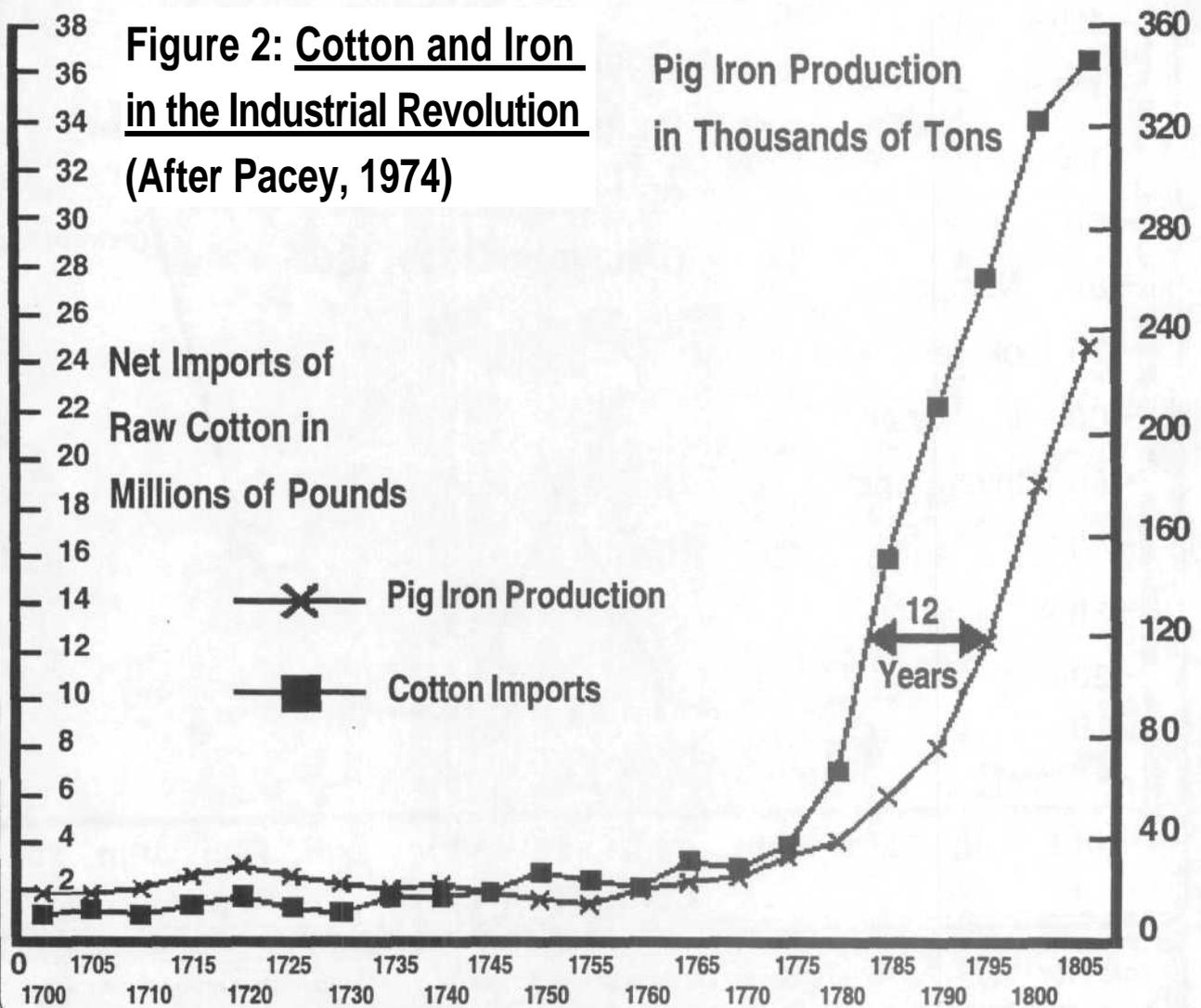


Table 1: Anticipations. 1796-1914

Date (A.D.)	Inventions & Discoveries
1796 -1857	Cayley's Aeronautic Theory
1822 -1848	Babbage's Computers
1843	Lady Lovelace's Computer Programming (with ideas more advanced than those used in the first IBM computer of 1944)
1856	Celluloid, the 1 st Plastic
1880's	Tsiolkovsky's Space Flight Theory
1884	Rayon, the 1 st Artificial Fibre
1896	Becquerel discovers Radioactivity
1900	Planck announces Quantum Theory
1902	Marya Sklodovska (Madame Curie) isolates radium. Rutherford and Soddy discuss possibility of splitting atom.
1904	Thermionic Valve, the 1 st Electronic Device
1905	Einstein's Special Relativity Theory

This table amply demonstrates that the later 20th century, the Modern Population Crisis Period, is living on the inventive capital of the previous period of relief from population pressure. The Russian Tsiolkovsky and the Polish Sklodovska are examples of individuals from North-Eastern Europe, who made major contributions to the technological breakthroughs, as noted in the 6th paper in this series (February 1997 ASCAP Newsletter).

Table 2: The Marriage Pattern of North-Western Europe

A. Comparison in Space: Selected Countries (Data from Hajnal, 1965)

<u>Country</u>	<u>Date A.D.</u>	<u>Percentage of Women still Single at Ages:</u>	
		<u>20-24</u>	<u>45-49</u>
North-Western Europe 1900 to 1901			
Austria		66	13
Britain		73	15
Sweden		80	19
Others			
Ceylon	1946	29	3
Korea	1930	2	0
Morocco (Moslems)	1952	8	2

B. Comparison in Time: British Royal & Ducal Families (Data from Hollingsworth, 1957)

<u>Period of Birth (A.D.)</u>	<u>Percentage of Women still Single at Ages:</u>	
	20	50
1330to1479	42	7
1480to1679	45	6
1680 to 1729	75	17
1730to1779	76	14
1780to1829	89	12
1830 to 1879	80	22

"In the different states of modern Europe, it appears that the positive checks to population (high death rates) have prevailed less, and the preventive checks (low birth rates) more, than in ancient times, and in the more uncultivated parts of the world. In almost all the more improved countries of modern Europe, the principal check, is the prudential restraint of marriage, the greater number of persons who remain unmarried, or marry late." (Robert Malthus, 1830) Modern research fully confirms Malthus, as the tables show, especially for North-Western Europe ("the more improved countries"). The pattern seems to have become established in the 17th century. In ordinary families (as opposed to the upper-class ones in Table B), the age of women at marriage was particularly high during the later 17th century and the earlier 18th century, the precious period of almost stable population in North-Western Europe that prepared the way for the Industrial Revolution.

Editor's Note: The following articles in the series appeared in these newsletters:

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| Article 1 - Volume 9, No. 1 (100), March 1996
Introduction: Crises & Cycles in Animals & Man. | Article 2 - Volume 9, No. 10 (107), October 1996
The Crises and Cycles of China |
| Article 3 - Volume 9, No. 11 (108), November 1996
North Africa and Western Asia | Article 4 - Volume 9, No. 12 (109), December 1996
The Northern Mediterranean - Greece |
| Article 5 - Volume 10, No. 1 (110), January 1997
The Northern Mediterranean - Rome & After | Article 6 - Volume 10, No. 2 (111), February 1997
North-Western Europe - the Region & its Crises |

Table 3: Some Inventions & Discoveries of the Industrial Revolution

S = spinning

(A.D.) W = weaving

<u>Date</u>	<u>Textiles</u>	<u>Steam Power</u>	<u>Iron & Steel</u>	<u>Machine Tools</u>	<u>Electricity</u>
1690		Papin's Theory			
1702		Savery's Engine			
1712		Newcomen's Engine			
1717			A. Darby I makes cast iron with coke		
1733	Kay's flying shuttle (W) Wyatt's machine (S)				
1750's			This method in wide use		
1764	Hargreaves ¹ hand-powered jenny (S)				
1769	Arkwright's separate horse-powered condenser jenny (S)	Watt's			
1771	Arkwright's water-powered spinning mill (S)				
1774				Wilkinson's boring mill	
1775		Boulton-Watt partnership			
1779	Crompton's mule (fine spinning)		A. Darby III & Wilkenson, 1st iron bridge		
1781		Watt's rotative engine			
1784			Cort makes wrought iron with coal		
1785	Cartwright's power loom (W) Steam-powered coarse spinning				
1790	Steam-powered fine (mule) spinning				
1792	Kelly's self-acting mule (S)				
1801		Trevithick's high-pressure engine			
1802-7				Maudslay's Portsmouth Block set	
1804		Trevithick's locomotive			
1821					Faraday's motor
1831					Faraday's dynamo
1841				Whitworth's standard screw thread	
1850's	Power loom (W) widely adopted				
1860			Bessemer's converter steel production		
1868			Siemen's open-hearth steel production		
1873					Industrial motors
1878					Swan's filament lamp

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ABSTRACTS & EXTRACTS...

Hoffman, R.E. & McGlashan, T.H.: Synaptic Elimination, neurodevelopment, and the mechanism of hallucinated "voices" in Schizophrenia. *American Journal of Psychiatry*, 1997; 154 (12):1683-1689.

Abstract:

Objective: After peaking during childhood, synaptic density in the human frontal cortex declines by 30% - 40% during adolescence because of progressive elimination of synaptic connections. The characteristic age at the onset of Schizophrenia - late adolescence and early adulthood - suggests that the disorder could arise from the irregularities involving this neurodevelopmental process.

Method: A computer simulation of a speech perception neural network was developed. Connections within the working memory component of the network were eliminated on the basis of a "Darwinian rule" in order to model loss of synapses. As a comparison, neuronal cell death, also postulated as being linked to both neurodevelopment and Schizophrenia, was simulated. The authors determined whether these alterations at low levels could enhance perceptual capacity and at high levels produce spontaneous speech percepts that simulate hallucinated speech or "voices".

Results: Eliminating up to 65% of working memory connections improved perceptual ability; beyond that point, network performance declined and speech hallucinations emerged. Simulating excitotoxic neuronal loss at low levels also improved network performance, but in excess it did not produce hallucinations.

Conclusions: The model demonstrates perceptual advantages of selective synaptic elimination as well as selective neuronal loss, suggesting a functional explanation for these aspects of neurodevelopment. The model predicts that psychosis arises from a pathological extension of one of these

neurodevelopmental trends, namely synaptic elimination.

Extract: The model may address an intriguing question raised by Crow: why has the genetic predisposition to Schizophrenia remained robust in diverse human populations in spite of obvious fertility disadvantages? Our results suggest that genes that lead to postnatal reductions in corticocortical connectivity might be advantageous cognitively up to a certain point (and hence selected for) but in certain combinations could produce too much pruning ~ with psychotic symptoms resulting.

The model also predicts that when phonetic clarity is curtailed, the narrative speech perception abilities of schizophrenic patients reporting voices are reduced compared to those of non-hallucinating schizophrenic patients. These differences were demonstrated in a recent study of schizophrenic patients that used a speech tracking task.

Coccaro, E.F. & Kavoussi, R.J.: Fluoxetine and impulsive aggressive behavior in personality-disordered subjects. *Archives of General Psychiatry*, 1997;54:1081-1088.

Abstract:

Background: Evidence of an inverse relationship between central serotonergic (serotonin [5-hydroxytryptamine]) system function and impulsive aggressive behavior has been accumulating for more than 2 decades. If so, pharmacological enhancement of serotonin activity should be expected to reduce impulsive aggressive behavior in subjects in whom this behavior is prominent.

Methods: A double-blind, placebo-controlled trial of the selective serotonin-uptake inhibitor fluoxetine hydrochloride was conducted in 40 nonmajor-depressed, non-bipolar or schizophrenic, DSM-III-R personality-disordered individuals with current

histories of impulsive aggressive behavior and irritability. Measures included the Overt Aggression Scale-Modified for Outpatients, Clinical Global Impression Rating of Improvement, and several secondary measures of aggression, depression, and anxiety.

Results: Fluoxetine, but not placebo, treatment resulted in a sustained reduction in scores on the Irritability and Aggression subscales of the Overt Aggression Scale-Modified for Outpatients that was first apparent during months 2 and 3 of treatment, respectively. Fluoxetine was superior to placebo in the proportion of "responders" on the Clinical Global Impression Rating of Improvement: first at the end of month 1, and then finally demonstrating a sustained drug-placebo difference from the end of month 2 through the end of month 3 of treatment. These results were not influenced by secondary measures of depression, anxiety, or alcohol use.

Conclusion: Fluoxetine treatment has an antiaggressive effect on impulsive aggressive individuals with DSM-III-R personality disorder.

Meador-Woodruff, J.H.; Haroutunian, V.; Powchik, P.; Davidson, M.; Davis, K.L.; Stanley & Watson, J.: Dopamine receptor transcript expression in striatum and prefrontal and occipital cortex. *Archives of General Psychiatry*, 1997;54:1089-1095.

Abstract:

Background: The identification of novel subtypes of the dopamine receptors has renewed interest in the involvement of dopaminergic mechanisms in schizophrenia. We determined the expression of transcripts encoding the dopamine receptors in the brains of schizophrenic patients.

Methods: The levels of the messenger RNA molecules encoding the 5 dopamine receptors were quantified in postmortem brain samples from 16 schizophrenic patients and 9 control subjects. Samples from multiple regions of the prefrontal

cortex, primary visual cortex, and striatum were subjected to in situ hybridization followed by quantitative image analysis.

Results: Expression of dopamine receptor transcripts did not differ between schizophrenic patients and controls in striatum or visual cortex. Dramatic decreases of dopamine receptor transcripts were found in the prefrontal cortex, but these changes were restricted to the D₃ and D₄ receptors, and localized to Brodmann area 11 (orbitofrontal cortex).

Conclusions: Cortical dopaminergic neurotransmission may be disrupted in schizophrenia at the level of receptor expression. There appears to be a focal abnormality of D₃ and D₄ messenger RNA expression in the prefrontal cortex, with down-regulation of both, consistent with prefrontal cortical hypodopaminergia in schizophrenia.

Sapolsky, R.M.; **Alberts, S.C.;** & Altman, J.: **Hypercortisolism associated with social subordination or social isolation among wild baboons.** *Archives of General Psychiatry*, 1997;54:1137-1143.

Abstract:

Background: The phenomena of basal hypercortisolism and of dexamethasone resistance have long intrigued biological psychiatrists, and much is still unknown as to the causes and consequences of such adrenocortical hyperactivity in various neuropsychiatric disorders. We have analyzed basal cortisol concentrations and adrenocortical responsiveness to dexamethasone in a population of wild baboons living in a national park in Kenya. We tested whether social subordination in a primate is associated with dexamethasone resistance. Furthermore, we examined whether individual differences in adrenocortical measurements were predicted by the extent of social affiliation in these animals.

Methods: 70 yellow baboons (*Papio cynocephalus*) were anesthetized and injected with 5 mg. of

dexamethasone; the cortisol response was monitored for 6 hours. The animals were of both sexes in a range of ages and had known ranks in the dominance hierarchies within their troops. Extensive behavioral data were available for a subset of 12 adult males who were anesthetized under circumstances that also allowed for the determination of basal cortisol concentrations.

Results: The socially subordinate baboons were less responsive to dexamethasone than were the dominant ones; as one manifestation of this, postdexamethasone cortisol values were more

than 3 times higher in the dozen lowest-ranking animals compared with the dozen highest. In addition, socially isolated males had elevated basal cortisol concentrations and showed a trend toward relative dexamethasone resistance.

Conclusions: Our findings indicate that social status and degree of social affiliation can influence adrenocortical profiles; specifically, social subordination or social isolation were associated in our study with hypercortisolism or feedback resistance.

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