For evolutionary psychiatrists, psychologists and others Interested In soclaphysiological Integiatlan

ASCAP

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"Referring to George Gurdjieff, who had scared him when young, impresario Lincoln Kirstein wrote, His was the combined operation of X-ray and moonbeam, with the smack of a sledgehammer.'

Nicholas Jenkins[1]

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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 psychopathologi-cally 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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World Psychiatric Association, Psychotherapy Section Home Page is:

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

ADDRESSED TO & FROM .,

The British Social Biology Council (1914-1995)

Under several names, and over a period of more than 8 decades, the British Social Biology Council has made a lasting contribution to British education. The National Council for Combating Venereal Disease was founded in 1914. As its interests broadened, it became the British Social Hygiene Council in 1926, and the British Social Biology Council in 1950.[1] In 1935, the Council founded the journal *Biology.*[2] This became *Biology and Human Affairs* in 1943, and *Social Biology and Human Affairs* in 1980.[3]

Never a very well-to-do organisation, the Council owed it survival after World War II to the generous hospitality of the Eugenics Society, which provided facilities at its London office. When this office had to be closed, the Council became economically inviable. Council and journal were given a last few years of life by amalgamating in 1989 with the Biosocial Society based in Oxford and Cambridge. In 1993, the last Treasurer of the Council, Mr. Jagtar Singh, handed over the council's remaining assets to the Biosocial Society. In 1995, as the Council's last Chairman and Editor, I handed over the journal to the Biosocial Society as well. We are grateful to the Biosocial Society for this extension of the Council's life, and are sure it will make good use of the journal, but for all practical purposes the Council is at an end, and it may be a good moment to consider its work and history.

In its early days, the Council's leading spirit was Mrs. Sybil Gotto, later Mrs. Neville-Rolfe, who set out to ensure that those employed in social work should have a thorough grounding in the biological sciences. Thanks to her work and the Council's influence, social biology began to be taught in 1927 in Aberstwyth College, and in the 1940's at the London School of Economics. In the early 1930's, the Council organized a national conference on the Place of Biology in Education.

In later decades, Robert Weatherall, MA FIBiol, was largely responsible for the survival and continuing success of both the Council and its journal, as its Editor from 1938 to his death in 1973. He had a worthy successor in H.M. (Harry) Thorns, BSc MIBiol, who served for many years as Editor, Secretary, and later as its Vice-Chairman. His unfailing humour and good humour, his bubbling enthusiasm, and his inexhaustible energy kept the Council not only alive but expanding its activities, which included 11 successful symposia in London from 1976 to 1986. His death in 1987 was a sad loss.

Ever since the 1950's, Weatherall and Thorns had been supported by the calm Chairmanship of Dr. R.H. (Bob) Nimmo-Smith, and the devoted work of his wife Joan as Business Secretary, until their deaths in 1991. They too, are most sadly missed. Finally, mention must be made of D.M. (Derek) Jeynes, JP BSc MEd MIBiol, who with his wife Rosemary, for long edited and produced the journal, and also acted as local organizer for the Symposia.

Through the efforts of the members of the Council, social biology became a major subject in the University of Reading and in a number of Colleges and Education in Reading and London, and by the 1970's it was well established in the British school curricula.

The scope of social biology as promoted by the Council can best be seen in the following tables (see page 4 of this issue).

W.M.S. Russell

Editor's Note: Also, seethe Russells' article which appears on page 16 of this issue.

Table 1 — Titles of the 11 BSBC London Symposia

Social Biology and Education	1976
Human Adaptation	1977
Communication	1978
Man in His Urban Environment	1979
Kinship and Mating	1980
Biosocial Aspects of Mental Health	1981
Human Evolution	1982
Biosocial Aspects of Food	1983
Population	1984
Primate Behaviour	1985
Use and Abuse of Drugs	1986

Table 2 — Programme of 1980 Symposium on Kinship & Mating

Illegitimacy, Kinship, & Anti-Kinship	Christine Davies
Kinship Symbols and their Evolution	Claire Russell
The Marriage Process and Marriage Partners	G.A. Harrison
Genetic Defects Associated w/Human Inbreeding	Alan Bittle

Table 3 — Programme of Symposium 1981 on Biosocial Aspects of Mental Health

The Social System of a Group of Monkeys	Michael Chance
Autism and Related Developmental Derailments	Nikos Tinbergen
Theory and Practice of Group Therapy Ethics of	Malcolm Pines
Ethological Engineering in a Drug Addiction Unit Group	Peter Lewis
Methods in Education	M.L.J. Abercrombie

Table 4 — Programme of Symposium 1982 on Human Evolution

Continuity & Discontinuity in Human Evolution	J.S. Weiner
The Fossil Evidence for Human Evolution	L.B. Halstead
The Evolution of Navigation	Alan Stimson
The Principles of Cultural Evolution	Claire & W.M.S. Russell

Table 5 — Programme of 1984 Symposium on Population

Overpopulation Crisis in Animals & Man	Claire & W.M.S. Russell
Human Competitive Breeding	Jack Parsons

Correction & Errata

To the Editor,

The last sentence of Vitaliy I. Egorov"s article, *Schizophrenia and* [sic] *Evolutionary Approach,* in the August edition of the newsletter, is a direct quote from my article on delusional disorder that appeared in the newsletter a year earlier (volume 10, number 6, pages 5-16): *"Just as nausea and fever are physiological adaptations to toxins and infections, delusions may be an evolved psychological adaptation designed to mitigate the serious dangers of social isolation and exclusion."*

The idea expressed is incorrectly attributed to Henderson[1] and Sullivan.[2] A.F.C. Wallace[3] is, to my knowledge, the only researcher other than myself to suggest that social exclusion may be implicated in the etiology of delusions. The argument that delusions may be a psychological adaptation to social exclusion was first made by me at HBES 1995, and was the substance of my article in the ASCAP newsletter. This confusion may have arisen because I cited Henderson, Sullivan, and Wallace in a footnote as early and prominent proponents of the idea that social relations are important factors in the etiology of psycho-pathology. The explanatory text of the footnote was omitted in the published version of the article.

Ed Hagen
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Depending Which Quarter

Thinking of in this context of consciousness's key role as a post hoc rationaliser (I do, therefore I think!) led me to cobble up the following:

The human mind, a fickle thing,
Self-serving, does so quickly swing,
That when a weather vane I see, It
speaks to me of constancy.

Mike Waller
mwaller@comparator.win-uk.net

Changes for The ASCAP Society & The ASCAP Newsletter.

Like the British Social Biology Council and Mike Waller's weather vane, The ASCAP Society too anticipates changes. Sometimes we change too little! Frank Carrel and I just came to abashed awareness prior to publication this month that our masthead did *not* change in the August and September issues as it should have after our annual meeting in July. We have no excuse, just apology, and the explanation of a *very busy* summer.

Anyhow, let me underline that Mark Erickson is now President, Dan Wilson most recent Past-President, Ivor Jones new President-Elect, Thomas Joiner First Vice-President, and Lynn O'Connor Second Vice-President. Though not on the masthead, Linda Mealey will be the Beck Award chairperson.

In another action of The ASCAP Society in its July meeting, the formal motion passed that its new fiscal home be the Neuropsychiatry and Social Brain Institute (NASBI), the name of a new corporation. I am applying for nonprofit (and therefore tax-free) corporation 501 (c)(3) status in Wisconsin. This stems from my retirement from full-time university work in early 1999. ASCAP will move from its natal home to mine as I was born and raised in Wisconsin before moving 40 years ago. Suzie and I plan to move to the capitol city, Madison. We own a home there and have family throughout the state. I plan writing principally and enough clinical practice or other money-earning activity to support an office and professional travel.

The aims of the new institute expand slightly objectives articulated on the newsletter masthead in various ways. They include to:

1. Pursue the research, educa tional and scholarly ends of sociophysio-logical integration,

2. Elaborate the meaning of this concept, including aspects of paleobiology, sociophysiology, interpersonal and group relations, psychotherapy and psychopathology,

3. Continue the publication of 777e *ASCAP Newsletter,*

4. Make use of the World Wide Web and other aspects of the Internet as well as other educational venues, and

5. Augment the welfare of people with developmental disabilities by sociophysiological study of their conditions, such as those with genomic deletions and other genome abnormalities.

Also a 501 (c)(3) entity may apply for grant support. Any person subscribing to the newsletter will be an institute member.

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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.

ARTICLE:

by Russell Gardner, Jr.

Draft of Two Pages on Instinct Theory

Introduction:

I was asked recently to write a two page entry to a *Encyclopedia of Stress.* It felt an honor, and I was pleased, but a dubious honor as I had never, to my recollection used the term, instinct, in any writing of my own, and moreover, sensed it to have become a more-or-less discarded term. (I was later reassured to find that when I consulted our 1969 *Encyclopedia Britannica* that of all people Nikos Tinbergen himself had agreed; perhaps reading this three decades ago had partly formed my opinion). In any event, I found myself getting into it and the following is what I came up with was one problem: the request was for two double spaced manuscript pages but in my writing I didn't allow for the references. With references, therefore, it would be too long. But by now I was fond of all that I had said in the entirety, and, moreover, had promised Frank Carrel, our Managing Editor, to provide him with something for this issue. So I give it to you slightly longer than it will perhaps appear in the *Encyclopedia,* but also, this gives you a glimpse at what I wrote with perhaps some incentive to give me some feedback.

The word instinct stemmed from a Latin root meaning impulse or instigation. Historically the term differentiated innate from learned actions. Instincts meant untaught, genetically preprogrammed, stereotypic, goal-directed behaviors and behavior-chains shaped by natural selection. They exhibited more complexity than reflexes only and occurred mostly in non-human animals. Nobel Prize winning ethologist Konrad Lorenz described fixed motor patterns, triggering stimuli of instinctive responses (releasers), and imprinting wherein a newly hatched bird followed and attached itself to any moving object located before it, replacing the mother usually in that position at that time for the little bird.[1]

The concept of inherited behavior remains greatly important. But Nikos Tinbergen, who shared the 1972 Nobel Prize with Lorenz, pointed out that popular use of the term instinct has 3 meanings:

1. Behavior driven from within, e.g., the mating instinct emerges in the spring,
2. Nonleamed behavior, e.g., the newborn knows exactly of its mother's nipple,
3. Unpremeditated behavior, e.g., the driver instinctively put his foot on the brake.[2]

Lacking precision, the term is often omitted in works of present day ethologists, sociophysiologists, behavioral ecologists, and other workers in animal and human behavior.

Prior to the ethologists, the theoretician-psychoanalyst, Sigmund Freud, used the word instinct (also libido and drive) to carry forward his machine metaphors of the mind that had been popular in the nineteenth century, employing, for example, hydraulic and expended fuel metaphors (Lorenz did also for a time).[3] Later John Bowlby contrastingly defined instinct as behavioral system actions that follow a recognizably similar pattern typical of the species with value for survival and that emerge even without the ordinary opportunities for learning.[4]

Machine models hold little interest for modern theorists and researchers. Indeed, explosions of biological research on all fronts have rendered distinctions between learned and innate impossible. Capacity for learning is clearly inherited, a property more expanded in humans than other animals. Moreover, research in molecular biology, notably in deciphering the genomes of many living forms, has demonstrated numerous conserved genes held in common from bacteria to flies to fish to humans.

Many likely determine or influence behavior. Modern mammals exhibit reactions that ancestral vertebrates surely also had, e.g., the flight or fight response.

Many anciently determined behaviors hinge about conspecific recognition and interaction (conspecifics are members of a same species). These entail learning and behavioral modification to varying extents. Certainly mating, social rank hierarchical, nurturant, nurturance-eliciting, making in-out group distinctions, and play behaviors must be included. These go awry in psychiatric disorders. Examples include that:

1. Persecutory delusions reflect a conviction that the patient is targeted by hostile out-group members,
2. Mania indicates a patient behaving in a com manding (dominant) fashion inappropriate for circumstances,
3. Depression implies that the person behaves as a low ranker,
4. Paraphilias redefined are displaced mating urges, and
5. Autistic patients poorly elicit nurturance from parents nor do they play spontaneously with other children.

Humans possess a brain three-times heavier than their nearest relatives amongst the great apes, likely from greater sociality which seems to enhance adaptation more than it costs in child-birth complications. But 98.5% of their genomes remain identical. Inherited neurons altered to varying extents by experience clearly determine all behaviors. Neuro-scientist-Psychiatrist Eric Kandel stressed that all learning reflects altered gene transcription and neuronal action.[5] Learned behavior, once antonym to instincts, now instead implies additional choices for the individual. Psychiatrist leader Daniel X. Freedman noted that biological psychiatry is a redundancy. No unbiological psychology or sociology exists either.[6] All animal behavior, including human action, represents genetically programmed performances influenced by individual experience. *c8*

Humanity As It Is:

A poem for the ASCAP annual meeting

by Glenn Cochran

After I met the founder of this group
I realized that I had just experienced
Listening as an art. I hadn't expressed
My thoughts as usual, they'd been drawn from me,
As a cool surface draws heat from a hot one.
I assume that such potent listening is achieved
Through training and practice, like art, and through empathy,
Which deepens and broadens with training and practice... like art.

I think you professional listeners hold a key To
the kind of friendship people want and need But
lack the courage and craft to create.

I know now that Russell was in hedonic mode,
The mode in which we all must live,
Now that every variant is a member of our tribe.
But that mode derives from your daily, defended exposure
To all the types and vagaries of human existence,
Unavailable now to ordinary people.

I wonder if you're applying your healing arts
Topically, all unwitting of their prophylaxis
for systemic human malaise, as though dermatologists
Had discovered penicillin artd found it effacacious for a rash.

For instance, take mismatch. Once upon a time
Everyone knew who were friends and who were enemies,
Where we belonged and what we should do,
Now uncertainty plagues us all, and some of us break,
And these may be your patients, symptoms, perhaps,
Of a more subtle, universal malady.

Science erodes our inherent hope for an eternal destiny
And this disillusion is too heavy a burden
For friendship as most people know it now:
We all need to be listened to and heard with empathy...
And to listen and hear... so that we can each distinguish
Our particular complex of feelings from that which we share
With everyone. Such discrimination
May be the basis of the hedonic mode,
The conscious decision to feel good about humanity
As it is...
As it is.

ARTICLE:

by Madelaine Bobbins

Human Nature at Work: We Do Not Have to Change a Thing

Introduction:

Most practitioners I know worry about the children. I worry more about the people who take care of them. Mostly I worry about how people are supposed to put in a day's work, usually under highly stressful circumstances, and have anything left for the kids at the end of the day. My own dad was a manufacturer who died of a stroke at age 42. I was 15 years old. Quick tongued and high-spirited as I was, I figured Daddy died of me.

Mom, however, tells a story about an unforgiving response to a shipment cut all wrong. So, Daddy died of work stress? Either way, there was little that I could do about it then. Clearly, largely unconsciously, I have been working on it ever since.

With a decade of clinical experience under my belt, and other kinds of health care related work before that, I entered business school at roughly the age that he died. By 43,1 had completed my degree and entered the world of business as consultant to senior management. I was there to make it a better place for organizations and everyone dependent on them, and found the world of work to be exactly as it must have been for Dad — basically decent folks driving each other mad. My hunch was that there was something within our nature that, if better understood and accepted, could be redirected consciously toward a more fruitful result.

Case Study I — Exposing Human Nature:

Operating in the organizational fray is not easy, but can be sustained by a little success. For example, I once conducted an evaluation for a small business (Company X) that had been acquired by the company for which I worked. Full company interviews suggested a constellation of three senior management males and one sidelined, only sometimes included, female, meeting endlessly behind closed doors. Company X's *children,* for those who can tolerate the analogy, albeit grown men and women, expressed their distress, at times in the tears of either gender. People felt excluded, disenfranchised, and unbearably uncertain about their fate. Senior management viewed itself as doing what any good parents would do, which was to turn virtually every ounce of energy inward to save the nest for their brood.

After wondering with senior management if they had been able to explain things to their people, one responded, *"Well, no, we've been so busy and exhausted; and, I figured they knew."* A full company meeting was scheduled to explain the motivation behind recent events, to apologize for any hurt to others, and to express gratitude for employee loyalty in spite of it all.

Over the following two years, the company instituted a variety of *Best Practices* activities, inclusive of employees and management. Life is complicated in organizations, and. not all hurts can be healed, but new hires can be made with an eye on resiliency, which Company X did as well. Both their morale and financials showed measurable improvements.

Hypothesis:

My own hypothesis would be that, in these times of tremendous uncertainty, people in organizations spend vast resources on trying to figure out what's really going on, not only, but especially, when it hurts. When people explain what's going on, and moreover, apologize to and thank those who may have suffered as a result, that energy can be turned more positive and productive, as appears to have been the case with Company X. More specifically, on human nature in organizational settings, the hypothesis would be:

"More good can be done by exposing and affirming human nature than by struggling foolishly to uproot anxiety related defensive strategies that took millions of years to root."

So What is Really Going On:

Company X's survival was threatened. The future was uncertain, as it is, I believe, for anyone who is awake these days. Boundaries shift within and among organizations, within and among nations, and perhaps beyond, far too fast for comfort. Mark Sirower, in *The Synergy Trap,* describes the 1980's as having "set all-time records" for "mergers and takeovers" in the U.S., totaling nearly $2 trillion; since then, another *"$20 billion to investment banking and other advisory fees to formulate and ensure the success of... acquisition strategies."* [1] The damage to companies in insecurity-related productivity losses has been estimated neatly by Price Pritchett to be $14,000/day for a company of 500 employees, with $70,000/week in compensation that "produced no constructive benefit for the company."[2]

At the level of nations, William Greider, in *One World, Ready or Not,* suggests that, although we don't seem to get it yet, America has already lost her economic dominance—anxiety producing perhaps, but not nearly as anxiety producing as the global picture he details below:

"Imagine a wondrous new machine, strong and supple, a machine that reaps as it destroys. It is huge and mobile, something like the machines of modem agriculture but vastly more complicated and powerful. Think of the awesome machine running over open terrain and ignoring familiar boundaries. It plows across fields and fence rows with a fierce momentum that is exhilarating and also frightening. As it goes, the machine throws off enormous mows of wealth and bounty while it leaves behind great furrows of wreckage."

"Now imagine that there are skillful hands on board, but no one is at the wheel. In fact, this machine has no wheel nor any internal governor to control the speed and direction. It is sustained by its own forward motion, guided mainly by its own appetites. And it is accelerating ... modem capitalism driven by the imperatives of the global industrial revolution. .. great changes sweep over the affairs of mere governments and destabilize the established political order in both advanced and primitive societies. Everything seems new and strange. Nothing seems certain. ..our wondrous machine, withal its great power and creativity, appears to be running out of control toward some sort of abyss." [3]

If that doesn't do it, create uncertainty about the future that is, there is always terrorism, the Millennium, Global Warming, and even further out, potentially this: A report from NASA on a recent citing of a Gamma-ray burst so powerful that if one ever happened within about *"3,000 light-years of Earth, we would be toast."* [4]

I imagine that Margaret Wheatiey, *(Leadership and the New Science),*[6] and Tom Peters, (*Thriving on Chaos),*[6] might counsel that we *"go with the flow"* and *"learn to love if,* respectively. As it happens, I am a great fan of each, and do find our world an exhilarating place to be at times, but still believe that it is easier said than done to cope with it all relentlessly, unless, maybe, you are on Prozac, which most of us are not, not yet anyway. And so it seems that we are all on a daily diet of old and new worries, with little hope of relief anytime soon.

What Are We To Do?

Most kids get tucked in with"/ *love you".* I got tucked in with *"Honesty is the best policy,* so naturally I am in the *"search for truth"* camp, or more specifically the *"truth topowef* camp, of problem solvers. Hence, the hypothesis about exposing and affirming who we really are, in response to what's really going on, as a way to make things better. An upcoming seminar on Evolutionary Psychology struck me as a fine way to learn more about these truths to pass along in

my work.[6a] I was also intensely curious to know what the masters would think of this idea about exposing and accepting human nature, rather than trying to change it. The question I hoped they would address was this: *"Can we understand, even better expose and affirm, human nature's response to its environment and, in so doing, redirect that response if we so choose ?*"

What follows is an account of the week's events in this seminar, submitted as Case Study II. For the sake of brevity and to prevent diffusion of the point, more of what was really going on has been left out than has been included. The reader will also note greater emphasis on our group dynamics than on any individual, with the exception of whatever it is that I may wish to reveal about my own struggle with change, along the way of the tale. Experience suggests that an organizational psyche always finds someone to forward its agenda, on a rotating basis, depending on the availability and propensities of the individuals present at the time. True or not, I find this to be a more humane and effective approach to understanding and improving organizational life.

Case Study II — **Testing the Hypothesis:**

Monday: Our first day opened with a beautiful introduction, filled with anecdotes and theory on the five mental modules serving evolutionary goals. Out of the corner of my mind, I began to notice that familiar dynamic of roughly three dominant males and one, sidelined, sometimes let in, female. I also knew that, whatever else went on, I was almost invariably the one in any group to stir the pot. Some things don't change, no matter how hard I try. The other thing that never changed is that I kept trying. So this week I had made a yet again promise to myself to give it a rest. Emerging, familiar group dynamics. What else was new. Leave it alone. Safe for the day.

Tuesday: However, on this second day, our totally entertaining and insightful guest speaker for the day, Robert Wright, said two things that I found positively stunning. To paraphrase:

1. We all want to play a role in some larger enterprise for which the world is grateful.

2. Maybe if we just bring it (our human nature) to self-consciousness it will make some difference for the better. *("Yes! The master thinks so tooT)*

Number 2 (truth) had always been my Number 1 (contribution). Although I received mixed reviews on the grateful part, with Wright's words as enticement, I felt doomed to speak. It was only a matter of time.

Wednesday: Looking back, it was as if my utterance on this third day was an announcement of what was to come. Although I cannot recall the context, the comment was about my former boss' agitation with my telling him truths he did not want to hear, especially truths that he had been struggling to figure out himself, and that turned out to be right. For any student of the psychodynamics of group life, it is also noteworthy that another woman took my seat by the door, bumping me into just about front and center position, directly to the right of the alpha female who would *"magically* disappear for the remainder of the week. It was coming.

Thursday: A suggestion was made from among faculty that the faculty keep quiet this day to let the people who paid money to be at the seminar have their say. By that point, I was 100 percent distracted by the process unfolding. I learned over earlier breaks that I was not the only one distracted by process noise, and knew from other settings how hard it can be to pay attention to content with the big process elephant in the middle of the room. Usually it goes unaddressed. Usually, the meeting ends, same old, same old, back to business as usual, with morale the same or made worse by the blow to every other non-participating ego in the room. So this was different, this asking people to keep quiet thing.

Carefully monitoring the impact, I observed that the asked-to-be-quiet-faculty were not exactly hanging onto every word said by anyone else. They

were... reading! One was reading an article, another a book, and another the morning paper. My heart was pounding. I knew that I would talk. To the best of my recollection, it went something like this:

> "*I feel very nervous to say what I am going to say, but if I may, I know that it would surely be more than my money's worth and maybe some others would get something too... (Receiving a nod to continue)... well I think I am observing a dynamic so common in organizational settings, which is where I work, that if the great minds in the room would address themselves to it, I would be most grateful. I also would like to underline what our speaker said earlier, i.e., that people feel blessed to kiss the hand of an alpha, so I am not sure that asking the alpha's to recede is the best way to handle it, well maybe it is, but since it appears that we have lost them, as the wife, mother, daughter and sister of alpha's, Hove alpha's and wish they would come back."*

Break time was near, so it was declared that the group would address itself to the issue of alpha dominance after break or that evening at an informal seminar. During break, a number of people thanked me for speaking what was on their minds. Even better, I thought, was that one of the said alpha's approached me with, *"I'm told you made a comment before break but I didn't hear it; I was reading."* We laughed together in a way that I knew would have moved things along beautifully in a real organization. It seemed we shared something warm and funny between us, something far better than nothing to build on.

If we had actually worked together, it would have been so easy now to pop my head into his office with some business question or concern, likely prefaced with a warm, fuzzy *"Are you reading?"* My hunch was fortified by this *"alpha reader* entering the room after break with a bag of new books. As I smiled to myself, he turned around with a big smile and a joke about the books in our now shared context. I am not sure exactly what he said, but who cares. As prototype for organizational settings, we were warmly engaged and I was happy.

When we would actually address the issue as a group had been left a little ambiguous, so after break when it was not picked up, another wise, friendly, and funny male raised the issue from the group. He said that he was unhappy that we did not take it up and, more than that, he was certain that I would be really unhappy. I thanked him for his support and added no more than, "Actually, I am happy." From my perspective, the comment was so loaded that if people needed some time to absorb and maybe pow-wow on how to address it that was perfectly okay with me.

What made it downright glorious for this hypothesis tester was that the after break dynamic appeared to have shifted. It was more than an allowing of air time for non-participators, but a real back and forth of engagement between them and their alpha's. In so short a time, we could not possibly have changed any part of human nature, and apparently we did not have to. All it took, or so it seemed, was exactly the self-consciousness about which Wright spoke.

Friday: On this last day, we broke out into groups to discuss human emotion as evolutionary tools. Each participant was asked to choose an emotion group. I found my way to the *"love group",* wondering why I had not chosen the "anxiety group," much more my problem. Never underestimate the ability of a self-organizing system psyche to put people where they belong. I learned on break from an "anxiety group" attendee that the alpha domination dynamic had emerged in their group and was named as such by one of the participants. *"What started out badly turned out to be a really great group."* One process vs. content rule of thumb is this: Only as much process intervention as is necessary to get the job done, then get out of the way—like over to the *"love group"* perhaps. Once again, it appeared to take no more than an awareness of the dynamic to turn the dynamic around. This experimenter's dream come true.

Each presenter and guest speaker in attendance was asked to say a few words as a wrap up for the week. Among their comments, I noted encouragement to continue with practical applications of the concepts of the course. Another talked about how "humbled" he had been by the intelligence of the group. Still another said that he had never seen "a *group who knew so much sit so quietly and with such good humor while we went on… The people in this room always knew exactly what was going on... You are all really good stock."* Truth to power and the world was grateful?

Conclusion:

A good result indeed, at least for the testing of a hypothesis aimed to improve the life of groups. No, we do not have to waste vast amounts of energy trying to change that which we cannot possibly change near term. But it is possible to redirect that which is natural to us, once we are aware, and if we so choose. Once again, at least as much has been left out of Case Study II as has been included. There were nuances and sideshows too many to count, among women, among men.

Examples as questions: What accounted for the semi-inclusion of a single alpha female? How was she selected/replaced and by whom? What were the criteria for her selection? What accounted for the absence of overt female competitiveness relative to the overt display of competitiveness among the males? Why did support among women, which was substantial, also take place more often than not out of full view? What accounted for the more public display of the rather extreme vacillation between competitiveness and support among males?

As we learned in an informal evening seminar, complexity theory holds that N=3 (people) as the most effective decision making body. Might this observation shed some light on the natural emergence of roughly three alpha's in so many group settings, particularly in these times when agility and speed are thought to be so much to our advantage? Would knowing and accepting this dynamic help us to shift gears toward greater inclusiveness when — and perhaps only when — a group is convened more to discuss than to decide?

It is as well intriguing to ponder what it is about self and public awareness that can turn the tide of a naturally and regularly occurring dynamic. Perhaps our answer can be found in the writings of Wright[7] and Ridley[8] on status, reputation, and reciprocal altruism. Simply put, most folks want to be seen as unselfish and good, for its own sake and/or for the benefits involved, e.g., public trust that aligns itself with the service of one's own agenda. Hogging the floor can undermine the hogger once caught in the act. As Wright claims:

"*... we are designed to think of ourselves as good and our behavior as defensible, even when these propositions are objectively dubious... exposing... this illusion, makes the illusion harder to buy.*[9]

It may also be that it pays to meet the needs of others (e.g., for inclusion and respect) if for no other reason than the wish for return engagement, which could be prevented by complaints on course evaluation sheets. And finally, when decent people get a grip for whatever reason, how much do we care, and how much energy should we spend on trying to figure out why?

I am just getting started. There is far more to learn than is already known on these and other questions. Still it seems that we already know enough to make things a little less stressful at the end of the day. For practical purposes, that is, for getting through the day without having to waste vast amounts of energy on licking sometimes preventable wounds, it feels to me worth the try. Neither in Case Study I nor II did we ever take on a direct, full group, theoretical discussion of the N=3+ group dynamic. In neither case did we have to. We worked it out in some other way. Maybe not all of the world, but enough of the world was grateful— and, at the level of human nature, we didn't have to change a thing. *c8*

ARTICLE:

*by **Robert** Saba*

Individual Psychology and Evolutionary Psychology/Psychiatry

With great pleasure I attended both the ASCAP and HBES meetings in Davis in July. Among other good effects, to a newcomer like me, was to find many of the leaders of these organizations quite approachable and supportive of questions and new ideas. Therefore, I am encouraged to make the following observation: there is an apparently good fit between the blossoming findings of evolutionary psychology/ psychiatry and Individual Psychology. Of course, ASCAP members are familiar with evolutionary psychology/psychiatry so I will not elaborate there. However, they may be less familiar with Individual Psychology. So please allow me to explain and to attempt to show why there seems to be a good fit.

Alfred Adler (1870-1937), a self-styled *"nerve specialisf,* practiced medicine in Vienna, Austria. He became interested in psychological disorders, participated in Freud's discussion groups for some time, but broke away and eventually founded Individual Psychology.[1] Adler supposed that:

1. Humans innately strive for perfection (also called superiority or the "best adaptation possible");

2. They strive within the context of the group (initially the family) to find a place in the group;

3. In the process of finding a place, using their private logic, they create a life plan or style, i.e., an individual interpretation of the world and their place in it; and

4. All thoughts and emotions become channeled to the service of fulfilling and maintaining this plan.[2]

This life plan sets at an early age (Adlerians disagree, with guesses varying from 2 years old to the teens). Because each unique person subjectively constructs his/her plan, the term Individual Psychology came into being.

To Adlerians, mental disorder is just that, viz., a disorder in the life plan. The way out of disorder is to discover the erroneous aspects of the plan and to re-direct one's energies toward a functional plan. So, for example, a depressed person may be such to get attention, which is a major goal of her life. The goal is erroneous ("I must be the center of attention"). Therefore, it is usually impossible to attain and the person resorts to depressive behaviors as an acquired set of behaviors guaranteed to bring others to her side.[3]

Now back to the idea that Individual Psychology if; a good fit with evolutionary psychology/psychiatry At least six parallel themes emerge when the two are compared. As the chart below indicates, there is commonality of type of goal, making functional sense of reality (organization), the primary context of life, social strategies, definition of psychopathol -ogy and basic psychotherapy procedure.

The central difference between Evolutionary Psychology/Psychiatry arid Individual Psychology is the source of the organization of behaviors into what might be called one's personality. In the former, instincts are the source of all the brain and therefore the mind can do. In the latter, the individual self is said to creatively construct a plan of adaptation.[4]

A synthesis of these two propensities may lie in the idea that any human, armed and influenced by natural propensities, once they have developmen-tally arrived at the ability to logically reason, may very well form a life plan which is the subjective creative expression of the natural instincts to fit their specific environmental needs. The conclusions of psychotherapist Joseph Weiss in San Francisco, as reported by Russell Gardner, entail "a personal plan for how one will play out his or her continuing history" and seems to reflect the Adlerian life plan.

Russell Gardner's "sociophysiology" describes communication roles (PSALICs) derived from innate biosocial roles and behavior systems.[5] Though I cannot find any direct reference to a personal plan which organizes these PSALIC expressions, the description of humans as story-telling animals is not far from an individual's story of himself as a life plan. As Dr. Gardner quotes Terrence Deacon in his *Symbolic Species,* "We tell stories about our real experiences and invent stories about imagined ones, and we even make use of stories to organize our lives."

As evolutionary psychology/psychiatry, it seems to me, reflects Adlerian thought, so too does Adlerian thought mirror the evolutionary perspective. In fact, though it may be presumptious of me to suggest this, it may very well be that if Adler, who died in 1937, had been familiar with sociobiology and evolutionary psychology, he may have accepted the natural propensities of humans as significant influences on the formation of an individual life plan. Consider the following excerpts from an Adler paper written originally in 1933:[2]

> *"The striving for perfection is innate... which belongs to life."*

> *"The scientist especially the biological scientists have always stressed this evolutionary principle in the body. Especially since Darwin, Lamarck and others, it is a matter of course to take the evolutionary thought into account."*

> *"To live means to develop."*

> *" We must keep in mind that we are dealing with something primary which adhered already to primordial life."*

> " *This coercion to carry out a better adaptation can never end."*

> *".. .it would be a lucky find if we knew more about the direction which we have to take since we are, after all, embedded in the stream of evolution and must follow it."*

So there it is albeit sketchy. Evolutionary psychology/psychiatry and Individual Psychology seem to have a lot in common. They show the potential to fit together nicely. The hard scientific evidence of the evolutionists meets the years of keen observations and clinically useful techniques of the Adlerians. I believe that they show promise of each informing the other. *c8*

Parallel Themes of Evolutionary Psychology/Psychiatry & Individual Psychology

Theme	Evolutionary Psychology/Psychiatry	Individual Psychology
I. Natural goal (need)	To survive/reproduce (high rank/adaptive success).	To be in a perceived superior position.
II. Organization	"The Adapted Mind"[4] (repertoire of behaviors).	Life plan as expression of private logic.
III. Context of life	EEA = other humans	To belong (a perceived superior place
IV. Social strategies	Social reciprocity, etc. (cooperation)	Ideal life plan = social interest
V. Psychopathology	A non-functional adaptive response	An erroneous life plan
VI. Psychotherapy	Adjustment of adaptive response	Re-direct to cooperation

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Adlerian Therapy Home Page

http://www.gallaudet.edu/~11mgourn/adlerian.htmil

Key Concepts:

Based on a growth model, this approach emphasizes the individual's positive capacities to live in society cooperatively. It also stresses the unity of personality, the need to view people from their subjective perspective, and the importance of life goals that give direction to behavior. People are motivated by social interest and by finding goals to strive for. Therapy is a matter of providing encouragement and assisting clients in changing their cognitive perspective.

Applications of this approach:

Can be applied to all spheres of life, such as parent/child counseling, marital and family therapy, individual counseling with children and adolescents, correctional and rehabilitation counseling, group counseling, substance abuse programs, and dealing with problems of the aged. Being a growth model, it is ideally suited to preventive care and alleviating a broad range of conditions that interfere with growth.

Contributions of this approach:

Adler founded one of the major humanistic approaches to psychology. The approach's greatest contribution is the Adlerian ideas that have been integrated into other therapies. The model is a forerunner of most current approaches to counseling. Its focus on consciousness foreshadowed the cognitive-behavioral approaches; its recognition of the social context and of parent/child interaction paved the way for some of the various family therapies. Adler's influence has extended into the community mental-health movement. The interpersonal emphasis is most appropriate for counseling culturally diverse populations.

ARTICLE:

by Claire Russell & W.M.S. Russell

Population Crises and Population Cycles 9. Central Mexico and the Andes to the Conquests

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

In May 1522, Hernan Cortes wrote to the Holy Roman Emperor Charles V (Charles I of Spain), describing his conquest of the previous August of the Axtec city of Tenochtitlan on Lake Texcoco in the Valley of Mexico. *"No race,"* he wrote, *"however savage, has ever practised such fierce and unnatural cruelty as the natives of these parts"* (translated by Pagden, 1971). One can sympathise with Cortes: He had a grueling time restraining his Tlaxcalan allies from killing and eating all of the Axtec women and children. But of course, the Mexicans are not and were not inherently crueller than other peoples. They were simply experiencing the worst population crisis in recorded history, ending in a population crash unique in combined scale and proportions **(Figure 1** on page 19).

In Mexico, as in the Old World, irrigation and terracing had brought about high population density, cities, division of labour, trade, and social stratification. The cultivation of *chinampas,* floating islands on lakes, made possible very high population densities even by Egyptian or Chinese standards -up to 360 people per square kilometre. A succession of brilliant centres of civilisation arose **(Table 1** on page 20), to succumb in turn to population crises, with famines, epidemics, and often destruction of the cities (La Venta, Teotihuacan, Tollan). Barbarians invaded from the North, and set up progressively more stressful civilizations, the Toltecs, the Tepanacs, and finally the Aztecs, who conquered almost the whole of Mexico in 15th century A.D.

The Aztecs were as brutally militaristic as the watershed empires of the Old World: They burned books, ruled by terror, and brought up their own children with cruel punishments. But for a lack of major river systems, theirs was not a centralised but a tributary empire, extracting loot (including 2 tonnes of gold per year) from subject cities, and harrying the few independent ones, such as Tlaxcala, with raids. By tribute and capture, they obtained victims for human sacrifice.

This very unpleasant form of stress culture developed early (in Teotihuacan) in this chronically overpopulated land. Among the Aztecs, the luckier ones had their hearts torn out; the less lucky were roasted alive. Before being sacrificed, children had their nails torn out to make them weep copiously, as a (sympathetic magic) hint to the rain-god. The best human meat was eaten by the upper classes, and rest was thrown to the animals in Emperor's zoo. The whole culture of the Aztec Empire was built around human sacrifice. The practice was endemic in the tributary and independent cities, as well as among the Aztecs themselves.

In the later 15th century, human sacrifice reached an unparalleled scale, with tens of thousands of victims, as one symptom of the terrible final population crisis in Mexico, and especially among the Aztecs, beginning with a serious famine in the 1450's. The Aztec population density was so high that, in addition to their very productive *chinampa* agriculture, they had to import as tribute 2,700 tonnes of maize per year. Class divisions became rigid and extreme, the swollen army was always suppressing revolts, and wars with the independent cities became fiercer and more frequent. The crisis finally made the Aztecs vulnerable to the Spanish Conquest of 1519—1521.

The invading force had the (then) best soldiers of Europe, including Amazons such as Maria de Estrada, who handled the sword and lance as well as any man, the incomparable leadership of Cortes, and the brilliant diplomacy of his loyal and very intelligent Mexican mistress Marina. They had horses, steel weapons, fire-arms, guns, and ships for use on Lake Texcoco built by the master shipwright Martin Lopez. But this force, never more

and often less than a 1,000 strong, could not possibly have possibly have conquered an empire of millions without a catastrophic population crisis and the universal hatred felt for the Aztecs by all of the other Mexicans. Without the coastal Totonacs, as one Spaniard admitted, they could not have beaten the Tlaxcalans, and turned them into loyal allies. With the Tlaxcalans, they could not have beaten the Aztecs. When the Spaniards had been driven out of Tenochtitlan, and their cause seemed hopeless, a Tlaxcalan chief persuaded his people not to change sides: *"by vividly recalling the habitual treachery, the continual cruelty, and the customary arrogance"* of the Aztecs (Thomas, 1994).

Cortes shared his conquest with the Mexican nobles, including Aztec princes. After he lost control, many of the Spanish and Mexican lords oppressed their Mexican peasants. However, Cortes was himself responsible for the supreme demographic catastrophe, by beginning the import of worse enemies than small pox — sheep and cattle. Between 1520 —1620, the Spanish authorities made land grants in Mexico of 44,000 square kilometres for cattle ranches and 31,00 square kilometres for sheep farms, to be stocked at 28 cattle and 257 sheep per square kilometre. The animals roamed freely over native croplands. By 1620, overgrazing had turned large areas to wilderness and caused widespread erosion and valley floods. This drastic decline in land productivity was probably the most important factor of all in the population crash.

In the Andean region, hydraulic civilisation was made possible by irrigation based on a number of rivers running in parallel from the high plateau of the Andes through the arid coastal desert to the Pacific. Several brilliant civilisations arose here in both highlands and desert (Table 2), until progress was halted when the whole region was conquered in the later 15th century by the Incas, under whom *"there was almost no technological inventions"* (Josephy, 1968). The Inca state was a typical watershed empire, solely concerned with agriculture and war. History was falsified, and the subject peoples were moved around *en masse.* In this human ant-hill, the individual's life was dictated form early childhood, food and clothing were prescribed in detail, and "virtually everything that was not compulsory was forbidden" (W.M.S. Russell, 1967). Soon after the Inca conquest was complete, population crisis set in, with a serious epidemic in 1525 —1527, constant revolts bloodily suppressed, and a civil war among the Incas themselves in which thousands perished, won by the bastard usurper Atahualpa with the support of the professional Inca army. A population crash only surpassed by the Mexican one reduced the population of the region from 10 to 2 million in a century.

When the crisis was over, a more humane and civilised hydraulic empire might have replaced the Incas, as the Persians replaced the Assyrians and the Han replaced the Ch'in. But here the sequence was interrupted in 1532 by the arrival on the plateau of Francisco Pizarro and his Spaniards. Atahualpa offered to receive them in his headquarters at Cajamarca *"like brothers"* — an unfortunate turn of phrase, since he killed 43 of his own half-brothers with their families.

He planned to capture the strangers by treachery and make them eunuchs for his harem. But although surrounded by some 30,000 Inca soldiers, the intrepid 168 Spaniards captured Atahualpa, used him as a hostage to gather a vast amount of loot and gain initial control of the empire, and finally killed him, to the relief of the local natives. By 1539, after 2 pitched battles and many skirmishes, the Spaniards had finally conquered the Inca Empire. They sometimes had the support of many Incas, since everybody hated Atahualpa and the army, and they always had the total support of the subject peoples, "a *decisive factor in the over of Inca rule"* (Hemming, 1972).

A party of Incas remained independent for a time in the town of Vilcabamba, on the edge of the rain forest on the eastern slope of the Andes. This was thanks to the skillful diplomacy of an exceptionally humane and intelligent ruler, Titu Cusi. However,

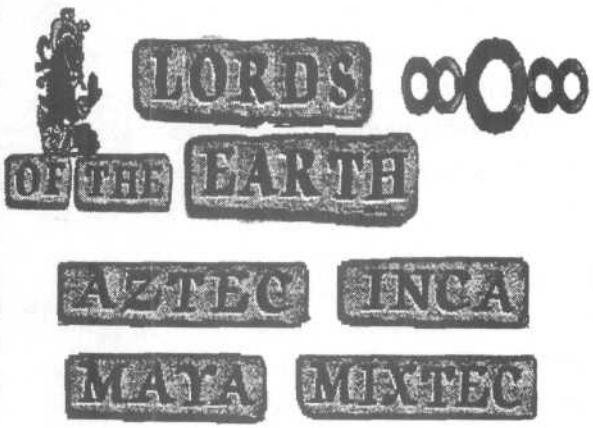
upon his death, the Incas reverted to type. They tortured and killed a Spanish medical missionary who had done them but good, and murdered a Spanish envoy, *"a sympathetic expert on native affairs?* (Hemming, 1972), after giving him a safe-conduct.

The resulting punitive expedition finished off the last remnant of the Inca Empire, in 1572. Some of the Spaniards who now dominated the region were less cruel and rapacious than the Incas, others even more so. But the Spanish authorities allowed the terraces and irrigation works to fall into disrepair, and thus destroyed the agricultural wealth of the this Andean empire.

Our account of the Aztec and Inca Empires, and the horrors of the final population crises, should be balanced by at least a mention of the wonderful achievements of civilisation in these regions. The surgery of the Andean coastal desert people, for instance, has been described as the best in the world before modern times. In Moche cemeteries of the 5th to 7th centuries A.D., copper dilators and currettes in graduated sizes have been found, for use in surgical abortions; *"a gynaecologist could still use these instruments to perform a curretage"* (Urteaga-Ballon and Wells, 1968).

The textiles of the Paracas and Nazca cultures, the sculptured pottery of the Moche, and the figurines of Colima in Western Mexico, are all without parallel in world art. The Incas melted down the Chimu gold treasures, and the later ones made for the Incas by captive Chimu goldsmiths were melted down by the Spaniards, but a few wonderful pieces made by the Chimu's predecessors, the Moche, have been excavated.

Again, beautiful objects made by the Mixtec goldsmiths and jewellers have been excavated at Monte Alban. Except for some captured by the French, which have since disappeared, the gold pieces made by the Mixtecs for their Aztec masters were all melted down by Charles V to pay for his interminable wars. But some of them were first exhibited in Europe. So we have enthusiastic descriptions not only from Mexico — Cortes, the soldier Bemal Diaz, and the Friar Motolinia — but also from the Italian humanist Peter Martyr, who saw the objects in Valladolid (in a letter to the Medici Pope Leo X), and from Albrecht Durer, no less, who saw them in Brussels (according to his journal). Durer wrote that he had never seen any things that so rejoiced his heart. *c8*



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This WebSite is dedicated to those who believe that the Americas created a universal language and they were not isolated from the rest of the world in the early centuries as believed. This theory is based on geology and archaeology.

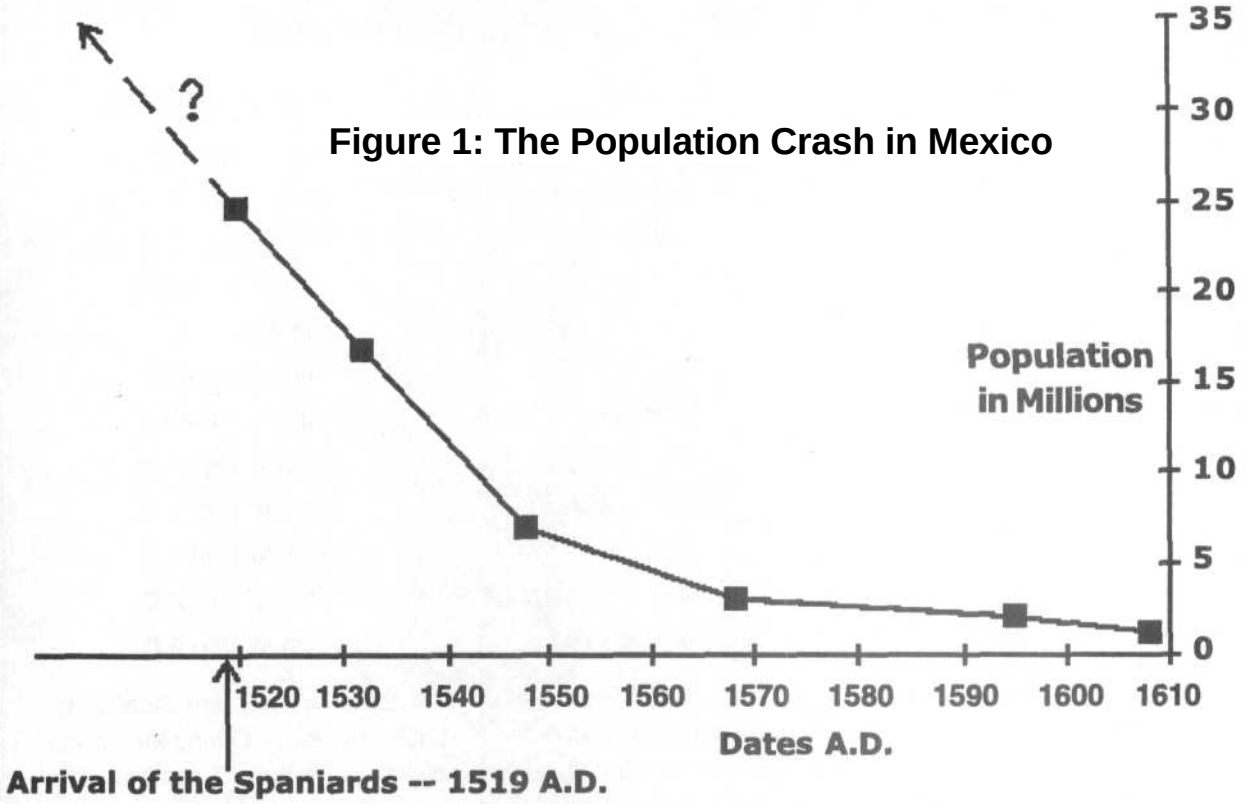

Figure 1: The Population Crash in Mexico

Throughout this paper, "Mexico" means Central Mexico, excluding a Northern region of barbarian nomads and a southern region (Yucatan) occupied by the Maya, the subject of our 10th paper.

As usual, much lower population estimates have been given for the earlier dates. But the figures on the graph, based on tribute lists and rounded, are plausible in terms of food consumption and probable population density at the time, and in view of the signs of exceptionally severe population crisis. This crisis was in full swing when the Spaniards arrived in 1519 A.D., so the crash may have started earlier at an unknown date from a still large population, as suggested by our dashed line.

As shown in our earlier papers, China and India experienced much greater absolute drops in population, and Mycenaean Greece an equally great proportionate drop. However, the Mexican combination of scale and proportion is unique. This has sometimes been ascribed to the arrival of new diseases from Europe (smallpox, measles, etc.) to which the Mexicans had no specific immunity to: There were serious epidemics in 1520,1531-1512,1545, and 1576. However, the exceptionally low general resistance, due to the stresses of this exceptional population crisis, was probably at least as important as a lack of specific immunity, and there were other causes of high mortality, as noted in the text.

http://web.idirect.com/~chpitta/entruji.html - **Chimu Culture Home Page**

http://www.pond.net/~jimreed/olrnec.htm &
http://udgftp.cencar.udg.mx/ingles/Precolombina/Olmecas/docs/olmin.htmf - Olmec Home Pages

http://www.wsu.edu:8001/~dee/CIVAMRCA/CIV.HTM - Civilizations in America (Tiahuanaco, Teotihuacan, Toltecs, Chavin)

http://www.travelvantage.com/per_moch.html - Moche & **Chimu Cultures**

Table 1: Some Centres of Mexican Civilization

City	People	Location	Period (Centuries)
LaVenta	Olmecs	Gulf Coast	13th to 5th B.C.
Teotihuacan	Olmecs?	Valley of Mexico	3rd B.C. to 7th A.D.
Monte Alban	Zapotecs	Oaxaca Valley	3rd B.C. to 10th A.D.
	Mixtecs	" " "	14th to 15th A.D.
Cholula	Mixtecs	Puebla Valley	7th A.D.
	Late Olmecs	" " "	8th to 15th A.D.
El Tajin	Totonacs	Gulf Coast	7th to 15th A.D.
Tollan	Toltecs	Valley of Mexico	10th to 12th A.D.
Mitla	Zapotecs	Oaxaca Valley	10th to 13th A.D.
	Mixtecs	" " "	13th to 15th A.D.
Azcapotzalco	Tepanecs	Valley of Mexico	13th to 15th A.D.
Tenochtitlan	Aztecs	Valley of Mexico	14th to 16th A.D.

By 1978, there were about 11,000 known archaeological sites in Mexico, and about 75 had been excavated. The cities listed in the table are evidently only a small selection of the most famous ones. During the period listed they were all probably independent city-states, sometimes with a wide influence over other cities. The people of Tenochtitlan called themselves the *Mexica* at the time of the Spanish Conquest. The term *Aztecs* refers to their legendary place of origin, *Aztlan,* perhaps in what is now the South-West of the United States. However, this term conveniently distinguishes them from the other Mexicans. The greatest statesman of modem Mexico, Benito Juarez (1806-1872), was a Zapotec from Oaxaca. He and his generals prevented a second Conquest, this time by the French.

Table 2: The Andes before the Spanish Conquest

Period (Centuries)	Culture/Empire	Location
8th to 1 st B.C.	Chavin	Northern Highlands
8th to 1st B.C.	Paracas	Southern Desert
1st to 6th A.D.	Nazca	Southern Desert
2nd to 8th A.D.	Moche	Northern Desert
6thto9thA.D.	1st Watershed Empire of Huari & Tiahuanaco	Based on Southern Highlands, covered Southern Desert
9th to 15th A.D.	lea	Southern Desert
11 th to 15th A.D.	Chimu	Northern Desert
15th to 16th A.D.	2nd Watershed Empire of the Incas	Based on Central Highlands, extended from (modern) Colombia to Chile

Only a selection of cultures are listed. The parallels between the Chavin and Olmec cultures suggest very early communication between Mexico and the Andean region, probably only the Pacific Coast. The first watershed empire is inferred from archaeological evidence. The second is well known from the histories written just after the Conquest by the Spaniards and Hispanicised Incas.

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Ancient Mesoamerica

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Editor: William R. Fowler, Department of Anthropology, Vanderbilt University.

Ancient Mesoamerica is the international forum for the method, theory, substance and interpretation of Mesoamerican archaeology, art history and ethnohistory. The journal publishes papers chiefly concerned with the Pre-Columbian archaeology of the Mesoamerican region, but also features articles from other disciplines including ethnohistory, historical archaeology and ethnoarchaeology. Topics covered include the origins of agriculture, the economic base of city states and empires, political organisation from the Formative through the Early Colonial periods, the development and function of early writing, and the use of iconography to reconstruct ancient religious beliefs and practices. Ancient Mesoamerica publishes original research papers, theoretical articles, and substantive reports of field research, as well as reports on important finds and excavations.

ABSTRACTS & EXTRACTS...

Kawagoe R; Takikawa Y & Hikosaka O: Expectation of reward modulates cognitive signals in the basal ganglia. *Nature Neuro-science,* 1998; 1:411-416.

Abstract: Action is controlled by both motivation and cognition. The basal ganglia may be the site where these kinds of information meet. Using a memory-guided saccade task with an asymmetric reward schedule, we show that visual and memory responses of caudate neurons are modulated by expectation of reward so profoundly that a neuron's preferred direction often changed with the change in the rewarded direction. The subsequent saccade to the target was earlier and faster for the rewarded direction. Our results indicate that the caudate contributes to the determination of oculomotor outputs by connecting motivational values (for example, expectation of reward) to visual information.

Jegalian K & Page DC: A proposed path by which genes common to mammalian X and Y chromosomes evolve to become X inactivated. *Nature,* 1998;394:778-780.

Abstract: A proposed path by which genes common to mammalian X and Y chromosomes evolve to become X inactivated Mammalian X and Y chromosomes evolved from an autosomal pair; the X retained and the Y gradually lost most ancestral genes. In females, one X chromosome is silenced by X inactivation, a process that is often assumed to have evolved on a broadly regional or chromosomal basis.

Here the authors propose that genes or clusters common to both the X and Y chromosomes (X-Y genes) evolved independently along a multistep path, eventually acquiring dosage compensation on the X chromosome. Three genes studied here, and other extant genes, appear to be intermediates. ZFX, RPS4X and SMCX were monitored for X inactivation in diverse species by assaying CpG-island methyiation, which mirrors X inactivation in many eutherians.

ZFX evidently escaped X inactivation in proto-eutherians, which also possessed a very similar Y-linked gene; both characteristics were retained in most extant orders, but not in myomorph rodents. For RPS4X, escape from X inactivation seems unique to primates. SMCX escapes inactivation in primates and myomorphs but not in several other lineages. Thus, X inactivation can evolve independently for each of these genes. The authors propose that it is an adaptation to the decay of a homologous, Y-linked gene.

Snyder LH; Grieve KL; Brotchie P & Anderson RA: Separate body- and world-referenced representations of visual space. *Nature,* 1998;394:887-891.

Abstract: In order to direct a movement towards a visual stimulus, visual spatial information must be combined with posturalinformation. For example, directing gaze (eye plus head) towards a visible target requires the combination of retinal image location with eye and head position to determine the location of the target relative to the body. Similarly, world-referenced postural information is required to determine where something lies in the world. Posterior parietal neurons recorded in monkeys combine visual information with eye and head position. A population of such cells could make up a distributed representation of target location in an xtraretinal frame of reference. However, previous studies have not distinguished between world-referenced and body-referenced signals.

Here the authors report that modulations of visual signals (gain fields) in two adjacent cortical fields, LIP and 7a, are referenced to the body and to the world, respectively. This segregation of spatial

information is consistent with a streaming of information, with one path carrying body-referenced information for the control of gaze, and the other carrying world-referenced information for navigation and other tasks that require an absolute frame of reference.

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de Quervain DJ-F; Roosendaal B & McGaugh JL: Stress and glucocorticoids impair retrieval of long-term spatial memory. *Nature,* 1998,394:787-790.

Abstract: Extensive evidence from animal and human studies indicates that stress and glucocorticoids influence cognitive function. Previous studies have focused exclusively on glucocorticoid effects on acquisition and long-term storage of newly acquired information.

Here the authors report that stress and glucocorticoids also affect memory retrieval. They show that rats have impaired performance in a water-maze spatial task after being given footshock 30 minutes before retention testing but are not impaired when footshock is given 2 minutes or 4 hours before testing. These time-dependent effects on retention performance correspond to the circulating corticos-terone levels at the time of testing, which suggests that the retention impairment is directly related to increased adrenocortical function.

In support of this idea, the authors find that suppression of corticosterone synthesis with metyrapone blocks the stress-induced retention impairment. In addition, systemic corticosterone administered to non-stressed rats 30 min before retention testing induces dose-dependent retention impairment. The impairing effects of stress and glucocorticoids on retention are not due to disruption of spatial navigation perse. These results indicate that besides the well described effects of stress and glucocorticoids on acquisition and consolidation processes, glucocorticoids also affect memory retrieval mechanisms.

van Steeden MJ & Romer H: Evolutionary transition from stretch to hearing organs in ancient grasshoppers. *Nature,* 1998;394:773-776.

Abstract: Ears of modern insects occur on a wide variety of body parts and are thought to have evolved from ubiquitous stretch or vibration receptors. This relationship, based on comparative anatomy and similarities in the embryological development of ears in divergent taxa, has led to the widespread assumption of homology of these structures in insects, although this has not been tested rigorously. Here the authors report on the hearing organs of a relatively ancient, atympanate bladder grasshopper (Bullacris membracioides), which is capable of signalling acoustically over -2 km.

They show that, within single individuals of this species, serially repeated abdominal ears show functional continuity from simple to more complex forms. All 12 morphologically differentiated organs respond to sound frequencies and intensities that are biologically significant, and mediate adaptive behavioural responses. By linking observations at the anatomical, physiological and behavioural level, their experiments provide evidence for the transition in function and selective advantage during the evolutionary development of this complex structure. It is possible that ancestral insects with only simple pleural receptors had auditory capability covering distances substantially greater than contemporary insects with tympanate ears.

Hupe JM; James AC; Payne BR; Lomber SG; Girard P & Bullier J: Cortical feedback improves discrimination between figure and background by V1, V2 and V3 neurons. *Nature,* 1998;394:784-787.

Abstract: A single visual stimulus activates neurons in many different cortical areas. A major challenge in cortical physiology is to understand how the neural activity in these numerous active zones leads to a unified percept of the visual scene. The anatomical basis for these interactions is the dense network of connections that link the visual areas.

Within this network, feedforward connections transmit signals from lower-order areas such as V1 or V2 to higher-order areas. In addition, there is a dense web of feedback connections which, despite their anatomical prominence, remain functionally mysterious.

Here the authors show, using reversible inactivation of a higher-order area (monkey area V5/MT), that feedback connections serve to amplify and focus activity of neurons in lower-order areas, and that they are important in the differentiation of figure from ground, particularly in the case of stimuli of low visibility. More specifically, the authors show that feedback connections facilitate responses to objects moving within the classical receptive field; enhance suppression evoked by background stimuli in the surrounding region; and have the strongest effects for stimuli of low salience.

Harris CM & Wolpert DM: Signal-dependent noise determines motor planning. *Nature,* 1998;394:780-784.

Abstract: When we make saccadic eye movements or goal-directed arm movements, there is an infinite number of possible trajectories that the eye or arm could take to reach the target. However, humans show highly stereotyped trajectories in which velocity profiles of both the eye and hand are smooth and symmetric for brief movements.

Here the authors present a unifying theory of eye and arm movements based on the single physiological assumption that the neural control signals are corrupted by noise whose variance increases with the size of the control signal. They propose that in the presence of such signal-dependent noise, the shape of a trajectory is selected to minimize the variance of the final eye or arm position. This minimum-variance theory accurately predicts the trajectories of both saccades and arm movements and the speed-accuracy trade-off described by Fitt's law. These profiles are robust to changes in the dynamics of the eye or arm, as found empirically. Moreover, the relation between path curvature and hand velocity during drawing movements reproduces; the empirical two-thirds power law[1]. This theory provides a simple and powerful unifying perspective for both eye and arm movement control.

Brewer JB; Zhao Z; Desmond JE; Glover GH & Gabrieli JDE: Making memories: Brain activity that predicts how well visual experience will be remembered. *Science* 1998;281:1185-1187.

Abstract: Experiences are remembered or forgotten, but the neural determinants for the mnemonic fate of experience are unknown. Event-related functional magnetic resonance imaging was used to identify specific brain activations that differentiated between visual experiences that were later remembered well, remembered less well, or forgotten. During scanning of medial temporal lobe and frontal lobe regions, subjects viewed complex, color photographs. Subjects later received a test of memory for the photographs. The magnitudes of focal activations in right prefrontal cortex and in bilateral parahippocampal cortex predicted which photographs were later remembered well, remembered less well, or forgotten.

Wagner AD; Schacter IDL; Rotte M; Koutstaal W; Maril A; Dale AM; Rosen RB & Buckner RL: Building memories: remembering and forgetting verbal experiences as predicted by brain activity. *Science* 1998;281:1188-1191.

Abstract: A fundamental question about human memory is why some experiences are remembered whereas others are forgotten. Brain activation during word encoding was measured using blocked and event-related functional magnetic resonance imaging to examine how neural activation differs for subsequently remembered and subsequently forgotten experiences. Results revealed that the ability to later remember a verbal experience is predicted by the magnitude of activation in left prefrontal and temporal cortices during that experience. These findings provide direct evidence that left pref rontal and temporal regions jointly promote memory formation for verbalizable events.

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