Newsletter of the Society for Sociophysiological Integration

ASCAP

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"Lubert Stryer... told of a conversation with Henri Peyre, then professor of French at Yale. Unimpressed with Stryer's account of how he intended to determine the molecular basis of vertebrate vision, Peyre mentioned that the truly interesting question was the molecular basis of remorse." *Nicholas Short*[1]

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.

Editor: R. Gardner, Graves Bldg, D-28, University of Texas Medical Branch, Galveston TX 77555-0428.
Tel: (409) 772-7029
Fax:(409)772-6771
E-Mail: Rgardner@utmb.edu
Previous volumes are available. For details, contact Managing Editor: Erica Ainsbury, at above address.

ASCAP Society
Minion Statement

The 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 is a function of the ASCAP society.

Concerning paleobiology, sociophysiology, interpersonal and group relations, and psychopathology

ADDRESSED TO & FROM ...

BUSINESS MEETING REPORT

from the First Annual ASCAP meeting in Philadelphia on May 21 and 22, 1994.

John Price presided at the onset given the absence of President Paul Gilbert unable to attend. However, Paul sent a welcoming address (see below) that John read after introductions amongst the group. The address was acclaimned and felt to be particularly appropriate for our stage as an evolving organization. Attendees included Kent Bailey, Aaron Tim Beck, Mark Erickson, Russell Gardner, Kalman Glantz, John Pearce, David Rosen, and Debra Snyderman. Guests included David Burns (accompanying Dr. Beck), Patty Bailey, and Suzie Gardner. Debra Snyderman had arranged the excellent meeting facility and was correspondingly thanked as were Russell and Suzie Gardner who made many arrangements and Erica Ainsbury who has been responsible for the markedly improved format of the newsletter.

John Price then gave way to the new president, John Pearce, who presided for the rest of the meeting. Paul Gilbert was thanked for his leadership and work over the previous year.

Other business matters included: The name will now be The ASCAP Society. The byline will now be "The Society for Sociophysiological Integration". That ASCAP has been an acronym for Across-Species Contrast-Comparisons and Psychopathology will be an historical and interesting, but not defining, feature. The wording of the mission statement, however, will be under review during this coming year. The society will continue to have its organizational home at the University of Texas Medical Branch (UTMB) in Galveston.

Thenceforth, an annual meeting will be linked with another meeting to which members are likely to go: this especially includes the Human Behavior and Evolution Society (HBES) and the International Society for Human Ethology (ISHE). Specifics will depend on the wishes of the current president. Formats for the scientific meeting may include symposium proposals to the meeting of choice (or/and the other as well). However, the business meeting and perhaps a small group format of the sort deployed in the later portions of this meeting might occur before, after or intercurrent with the other meeting. Methods for recruiting younger professionals into the membership were discussed at length.

Kent Bailey was nominated and endorsed as the new second vice-president; moving up are Leon Sloman to president-elect, and Dan Wilson as first vice president. Russell Gardner was endorsed as the secretary and continuing newsletter editor. A new subscription form will inquire about the willingness of the new subscriber for publication of phone and address especially e-mail address. A glossary for terms used often by society members but not necessarily known to newcomers was recommended. Biographical and scientific parts of the meeting will be summarized in future ASCAP issues.

Russell Gardner, Jr.

ELECTRIC FISH ESSAY

I was glad to hear that you were able to include the electric fish essay in the May ASCAP, as I have written to the expert in the field to ask if I can visit him.

In the April issue of The Psychologist (organ of the British Psychological Society) there is a review of a book.[1] The reviewer says "the authors focused on the distinction drawn by Hofstede between individualistic and collectivist cultures ..." I wonder if these two cultural styles are facilitating, respectively, Beck's autonomic and sociotropic personality styles. I liked this Beckian distinction, with the possibility of predicting who will succumb to "horizontal dimension stress" and who to "vertical dimension stress".

I like the new ASCAP style, the format looks much more professional, and clearly Erica is a great asset. Floreat ASCAP.

John Price

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by Paul Gilbert

PRESIDENTIAL ADDRESS ...

Dear Friends & Colleagues: Let me begin by welcoming you to the first meeting of ASCAP. I wish to express my sincere disappointment at not being able to be with you in person. It is, as we say, a little matter of resources. I am afraid I did not have enough RHP or show sufficient RAB to secure enough to make it! However, my SAHP was significantly raised by the idea of coming and speaking that I write a few words as opening comments to you. (Now if you have understood all the initials I have just used, you are definitely in the right place!)[1]

As you know, today is fundamentally an organisational and business planning day, to explore the agenda for the coming years. It would be inappropriate of me to state too formally what these should be, since in groups like ours, agendas emerge through social discourses. However, as this is the first formal meeting of The ASCAP Society as such, it may be useful to ground ourselves in our history, remind ourselves why we formed as a group, and offer some thoughts about future directions.

Societies like ours spring up for many reasons: to fill an intellectual vacuum; to occupy a space that seems vacant; to form a social relational network of like-minded individuals who, by their exchanges, recognise, support, value and encourage each other. This group process allows us to share a certain passion that a particular way of thinking is needed to solve certain problems and achieve certain goals.

ASCAP was set up initially by Russell Gardner, who is a real engine for the society in the form of the ASCAP Newsletter. As a society, it was formally set up by the group of four: Michael Chance, John Price, Leon Sloman and Russell Gardner (I and John Birtchnell, David Stevens and others had been part of the earlier meeting, but all but these four had left for other obligations). This was in July, 1991. Leon, I understand, made the actual proposal. Antonia Price, Jean Gilbert and Suzie Gardner had urged us on in that fateful meeting. This is not to minimize the stage-setting by the newsletter already then in its fourth volume.

In December, 1987, Russ had started the newsletter to facilitate an international sharing of ideas on how to study psychopathology from an evolutionary perspective. The newsletter aimed at providing an hedonic forum for the exchange of ideas, just as friends might do who write to each other. Since that time, I have noted three changes of style in the newsletter, which now looks very professional indeed.

But what was the vacuum we felt we could fill? Why was our society necessary? During the eighties, when I got to know John Price, Michael Chance, Russell Gardner, Dan Kriegman, and many others, we identified the problem as a lack of integrative thinking around the role of evolutionary design in psychopathology. In the immediate post Darwinian era, the early analysts, of course, had evolutionary ideas clearly in focus. Both Freud's concept of id and Jung's concept of archetype were rooted in the evolutionary ideas of the day. But that was nearly 100 years ago. Since then much has happened. Therapeutically informed therapy and practice left evolutionary approaches to gather dust in a back room. The last thirty years have seen an explosion in our understanding of the neuron chemistry of the brain, but also a perpetuation of the view that the biology of mental states can progress with little recourse at all to basic brain design or evolved function. A similar story arises from those who study the social origins of psychopathology. The study of psychopathology, more than other areas of pathology, has become extraordinarily fragmented.

The spirit of ASCAP was to look with some concern at this fragmentation of our mental life. We were unable to rely fully on sociobiology and its statistical cleverness with probability theory, though we recognised its importance. And we were deeply suspicious that answers at the level of the synapse or gene would never be more than partial answers. We were concerned that when biologists talk about different levels, stripping down the onion, they imply that the lower levels are somehow more real, basic and important. Cellular-level biologists like to think that theirs is the real science and everything else mere philosophy.

We were concerned that cognitive approaches, and those others that focused on personal meaning, had

forgotten the role of biology, despite Beck's valiant attempts to re-introduce these in his book on anxiety.[2] Anxiety, depression and other states of mind are wired in as potentials. Without an innate fight/flight system, anxiety would be impossible. Fears and phobias track important evolutionary events. It is easier to condition oneself to fear snakes than guns and cars although today the latter kill and injure far more people. As you will know, a similar search for the systems that underpin depression is still hotly debated -- is it an attachment system, a rank system, a conservation of resources? As for psychosis, we are still some distance from exploring possible adaptive functions that have become distorted. Apart from Professor Tim Beck (who I understand is with you today), few cognitive therapists mention biology, or con-sider the role of innate biosocial goals, strategies and algorithms that may underpin schema and thus give access to the biology of distress. The social constructionists have important and interesting things to say, but when you chase down their concepts, they run into a quicksand of definition and language. It is not only that we are like the blind men touching the elephant. It is worse. We appear deaf as well! The various discip-lines of biology, psychology, anthropology and sociology etc. rarely seem to communicate with each other. Maybe we are not deaf, but just speak a very different language; or maybe it is about territorial control.

It is also worth reminding ourselves, as Randolph Nesse has done for medicine, that we need to integrate and study the normal adaptive function with the abnormal. As mammalian forms evolve, the evolutionary process sometimes pays heavily for its advances. Thus, for example, the cost of an effective immune system to protect an animal from invading parasites and pathogens also becomes the source of auto-immune dis-eases. The cost of evolving cell replication and cell repair can become a source of cancer as errors in rep-lication are made. More recently, we have learnt that a failure in the normal function that controls the death of cells can give rise to tumours. The cost of evolving a system to alert to physical damage is pain. The cost of evolving an avoidance-of-danger system is anxiety, fear and terror. And the cost of evolving self-awareness gives rise to the existential fears of awareness of death and decay. So the study of adaptive normal function and the pathological must go hand in hand.

ASCAP was born of this dissatisfation with fragmentation. In his approach to *basic plans,* Russell Gardner began to offer an approach that linked normal adaptive function with the abnormal. Those who emphasise systems like attachment and rank attempt to do the same. It is still not appreciated how fundamental a change of paradigm this is. It suggests that studying mood or behaviour outside the context of their adaptive functions, i.e. what they evolved to do, is going to be misleading. Anxiety is, as we know, about danger and responding rapidly to it, but depression is trickier. For example, in ranking theory, low mood or low positive affectivity are not seen as the primary disturbance in depression, but as consequences or symptoms of some change in a more fundamental mechanism that controls rank. Indeed this is why mania and depression can run together in the same person, because the mechanism that has gone wrong is not an affect system as such, but a mechanism that is controlling challenge, aspiration, explorative behaviour and risk taking, etc. The hypomanic is not like me, feeling good by dozing on a Greek beach in the sun, or like the Buddhist monk, meditating to a state of bliss, but is one who is compelled to act, rushing around, exploring, challenging and go-getting. It is up-rank behaviour of some sort. My good mood, the Buddhist's blissful mood, and the hypomanic's excitement are very different.

Indeed, a *basic plans* approach would offer a very different nosology from that of the DSM. It remains a puzzle why many still believe that careful phenomenology and statistics could ever offer more than a reliability of diagnostic forms, but with very suspect validity. One suspects that the co-morbidity data will sooner or later show the insurmountable problems in this hopeful pursuit. After all, we have known for years that if we were to put into a statistical package the common symptoms of fever, sweating, loss of appetite, taking to one's bed, muscular pains and so forth, all kinds of goobledy-gook would come out - probably quite reliably too. We made progress there when we understood the ideas of infection and bacteria, when we began to understand how the immune system works and how it breaks down, when we began to understand basic biological design. No statistically derived symptom cluster could help us here. It seems to me that *basic plans,* those which code for species-typic behaviours, offer a new and exciting way to cut the symptom cake. This is because they offer a new way of thinking about the basic internal functional codes and designs of the mental system. But we have

hardly begun. The group of four in 1991 summed up another of our concerns when they wrote the society motto as: "We view psychopathology in the context of biologic basic plans and wish to integrate studies of molecules, cells, individuals and individuals in groups."

These are more than the top-down and bottom-up concerns of our future methodology. It moves into the social fabric of life and in so doing, extends our view as Michael Chance suggests we should: it opens up new vistas with ideas to contribute beyond the psychopathological. Indeed, in view of Michael's concerns, thought may be given as to whether we should continue to locate ourselves so heavily in the field of psychopathology. So we can certainly give a nod to the social constructionists and recognise the pathogenic qualities of social life and the varied epidemiological rates of depression, violence, anorexia and so forth.

For me, ASCAP does not push any one theory, although admittedly, John Price and I are rather keen on ranking theory because unlike attachment, social dominance-submission has been so neglected in current theory. But these ideas have appeared in the newsletter because we have sent them in. For me, the key word in our motto is *integrative.* I know of no other society that places this theme so much at the centre of what it attempts to achieve. Nor do I know of any other society that views some kinds of basic plans rooted in, but not constrained by, evolutionary biology as a central fulcrum for their focus and theorising. This is what is missing from the biopsychosocial approach. Integration is symbolised in the society by the disciplines of our first presidents: Michael Chance, primatologist, was succeeded by John Price, psychiatrist, and I in my course of officerhood represent psychology. I see that two Americans (John Pearce and Dan Wilson) and a Canadian (Leon Sloman) will serve in time showing the international integration as well.

Much of what I have said is potted history. What of the future? Here I would just make four points:

1. It is clear that over the last six years we have moved from a loose band of like-minded people to a more formalised organisation. New colleagues have joined and others have left; some float in and out. It seems that most people wish to stay with the original name, although I remain concerned that this does not fully acknowledge our diversity.

2. Do we wish to continue to try to broaden our membership? One thing I am trying to do is seed mini-groups in various parts of the world. In England we have the group formed by Michael Chance which meets a few times a year. Currently, Dr Anthony Stevens is editing a book on Michael's ideas. On impulse, I agreed to do something on fashion!

Dr Nicholas Allen, in the psychology department at the University of Melbourne, who recently came to visit, is hoping to seed a small group in Australia. When I teach in Switzerland next month on evolutionary approaches, I shall explore a possible European connection. Maybe a small US group would also be possible? But if we do wish to broaden our cross-discipline membership (which I favour), then how should we accomplish this? When I tried to get letters published about this meeting in British and American journals, they refused (at least, the British ones did; I didn't hear from the American ones) — I guess because they saw us trying to use them for free advertising. So it may be that we would want to pay for some advertising space.

3. Do we want to hold more regular meetings or conferences, or stay as a loose group of people who enjoy the newsletter, but who do not yet see themselves as large enough to warrant meetings involving travel? If the answer is Yes, we want to meet more regularly, then would we want to piggy back with the HBES or ISHE, and run more formal conferences in tandem with them?

4. How do we want to appoint and maintain our committees? We need to address what kind of process will be used.

I perceive that we still have much to do in getting across our message and ideas. Like all things, ASCAP probably has to evolve, change and develop. These are, of course, the items to discuss today. In my view, ASCAP remains a project full of potential and promise. I am sure that John Price and the rest of you there will have much to discuss and suggest. So now it is time for me to hand it over to you. Let me end by giving my thanks to you all for your support, to Russ for his enormous work on the newsletter, and to all those who have contributed to it. May hedonic integration remain at the heart of our endeavours. Keep the vision, and as they say where you are; "Have a Nice Day!"

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by M Chance

ARTICLE: On our biological orientation of thought

Earlier this year I proposed that the readership of ASCAP should become less psychiatrically oriented in our mutual exchange of thoughts and be more concerned with contributing to survival strategies. This is because it would enable us to become truly biological thinkers. To illustrate what I mean, let me quote from psychiatrist William Glasser:[1]

"Psychiatry must be concerned with two basic psychological needs; the need to love and be loved, and the need to feel that we are worthwhile to ourselves and to others". He continues: "The proper role of psychiatry will always be to help people help themselves to fulfill their needs." This illustrates well how psychiatrists think and indeed how they are more concerned with the definition of mental pathology than with defining the actual ways in which people relate to each other before approaching the question of mental illness.

It is a mono-modal approach and this is why I think there has been too little discussion in ASCAP of the validity of the Socio-Mental Bimodality. Neither of the two ways in which people relate to each other are in themselves pathological. One of them, the agonic, can logically give rise to pathology (i.e. a progressively dysfunctional state), because the inhibited state of mental arousal in the agonic mode activates the archetypal components of the R-Complex (or Reptilian Brain) from which dominance/submission type social relations arise.[2]

Allowing the evidence to influence one's way of thinking is not easy and even when, as a result, a new formulation is achieved, one still has to actively dig up one's thought processes out of old soil (the hidden assumptions) in order to replant them in new and more fertile soil (i.e. by following out logical consequences) before one can re-arrange the material with which one has heretofore been familiar.

Up to now I have referred to material with which the readership of ASCAP is familiar and now I want to introduce material new to me because I think the two socio-mental modes could be a subset of what Koenradd Kortmulder has formulated in his field theory. (Those interested should write to him for a reprint of his paper entitled "On some generative orders of behaviors", Department of Zoology, University of Leiden, Post Box 9516, 2300 RA, Leiden, The Netherlands.) His field theory is like the Social Structure of Attention in which social relations are either flexible with maximum information input and through flow, e.g. hedonic, or are agonic and hierarchically rigid and interdependent as encountered by Robin Skynner and John Cleese.[3]

Kortmulder has, however, added a component found within the attentional field framework, namely, the existence of a prominent relation at any one time and situation which he calls that between an actor and his or her congener; a special person with whom the actor reacts in a predominantly positive or negative fashion and who is bound to the actor by a set series of acts and reactions which can be either agonic or hedonic in form.

Such a relationship is well illustrated by the relationship between the explorer Ran Feines and his technical companion, Mike Stroud. Feines' book is a very good read.[4]

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Later in this issue I tell how in the Austin State Hospital, the agonic conditions that foster mental disorder were in fact countered by Michael Chance's hedonic mode: an extraordinarily disturbed patient was adept at getting attention and manipulating the publicity-sensitive care system by exerting heavy-handed, self-destructive power-plays. Her therapist fostered the other atmosphere and made an enormous difference. I suspect that the description of Dr. Kortmulder of actor and congener is relevant to this case. Does Dr. Chance agree? Does Dr. Kortmulder?

R Gardner, Jr.

by M Waller

ARTICLE: Consciousness is only a cover: Response to Gardner

Thanks for the page of critique in the March Newsletter. Needless to say I want to come back at many of the points that were made. First, concerning suicidal tendencies, what kind of reliance should we place on the explanations people give for their own behaviour? It seems to me that the work carried out in the 1970s by Nisbett *et al* gives grounds for being very sceptical about the reliability of self-reports. The study I recall best is that with insomniacs.[1] An arousal group was given a placebo and told that it would exacerbate the symptoms of insomnia; a relaxation group was told the same placebo would suppress these effects; and a control group was given the placebo without any indication as to its possible effects. The experimenters correctly predicted that: a) the arousal group would get to sleep more quickly than usual because they would blame the symptoms on the pill (b) the relaxation group would have more problems than usual because they would assume their insomnia was particularly bad as it was countering the supposed effects of the pill; and (c) the "get to sleep time" of the control group would be unaffected.

However, the explanations given by members of the arousal and relaxation groups for the changes in their sleeping patterns were couched in entirely different terms. They had pre-existing hypotheses about their condition and used these to explain what had happened. There was a fairly general belief that insomnia was caused by stressful events and this led the arousal group to conclude that during the experimental period they had been relatively under-exposed to stress whilst the relaxation group thought the reverse. Yet, although at the conscious level subjects seem to have considered the pills an irrelevance, the experimental findings strongly suggest that some other part of their brains took their supposed effects very seriously indeed.

Experiments of this type, including work with hypnotic subjects, seems to me to lead to the inescapable conclusion that poor old consciousness is very much a Johnny-come-lately, *post hoc* rationaliser. Consciousness has a desperate desire to make sense of its world; this, after all is how it earns its evolutionary ticket. But before it so very recently came on the scene, something else was performing the central system management functions essential to survival, and it seems highly unlikely that this pivotal role was passed from the old to the new like a baton in a relay race. In arguing this I am simply following Norman's notion of a central regulatory system to which the cognitive system is no more than a subordinate in-feed.[2]

My reason for dragging all this in is to deal with your example of YK who thought that if she thrust herself in to the New York traffic "she would be borne upon it like a swaddled baby in a cradle on the waves of the gentle ocean". If we accept my premise that there are non-conscious parts of the brain which actually call the shots, statements like YK's do not have to be accepted as the whole truth. If I might offer a very unpleasant simile, consider the technique used by those running the Nazi death camps to induce their victims to walk unprotesting to the gas chambers. They were told they were going for a shower. Presumably, if asked "Where are you going?" they would have answered "For a shower". They weren't. By the standard of anybody who deserved the title "human" this procedure was indescribably evil, but it was also expedient. As the gene-centric process of natural selection is at least as amoral as the most degenerate fascist or nihilist, it is quite capable of developing a similar psychological mechanism to encourage at least some of its victims to "go gently into that good night".

With the man who put an eight inch butcher knife in his chest crying "Now my wife will be happy!" I have even less difficulty. In my model the core criterion against which we judge ourselves is whether we are worthy vehicles for the comparator gene's onward progress. In a species which pair-bonds, a self-judged failure subconsciously perceives him/herself as not only threatening to contribute substandard genes to the gene pool, but also acting to handicap any useful genes which the spouse may be carrying. A cry of "Now my wife will be happy!" in the context

of an act of self-destruction therefore seems entirely explicable.

All that said, I would be the first to recognise that what I am facing you with is a circular argument. When the evidence you offer does not suit my argument, I discount it as self-delusion. When it does suit my case I am happy to call it in support. However, as was first pointed out to me about thirty years ago, the simple fact of an argument being circular does not necessarily mean that it is wrong. I have also to say that the same asymmetrical approach to evidence operates on the other side of the line. I have recently seen a TV documentary about the Thompson gazelle in which it emerged that one key challenge to their survival is the relative slowness of their young. The parents escape from predators by running as fast as they do, but this is impossible for the young Tommies. They therefore conceal themselves in thickets and keep very still. Crucially, their survival is further aided by their being virtually odourless during this phase of the life cycle. Compare this with the smell of fear found in the urine of the experimental rats which has been shown to incite attack from others. A symmetrical approach to the evidence would suggest that the observed effects with both rats and Tommies are the "design" effects. With the latter, because being odourless self-evidently acts to preserve the individual, the offered explanation is readily accepted. But with the smell of fear, as the observed effects are very much to the detriment of the individual, imagination goes into overdrive to find an alternative, less controversial explanation.

Much the same is true with serum cholesterol/death rate problem Mark Erikson presented us with in the March Newsletter. No matter how life chances are improved by reducing cholesterol, mortality rates are held constant by deaths from other causes. This triggered a memory of a possibly apocryphal story I was once told concerning a European car factory which, in those long ago days of full employment, made extensive use of non-European "guest-workers". Its method for getting the best out of these employees was simple. Regardless of their individual performances against any objective standard, each year the least productive decile did not have their work permits renewed and were sent back to their country of origin. As my informant said: "It pays scant regard to natural justice, but it's very good for production".

I think the same principle is at the root of the constant death rate problem. Comparator genes, common to all members of the group in question, are "turning off" the comparatively poorest performers; regardless of resource availability. This explanation seems to me very elegantly to fit the available fads. Yet my guess is that the massively preponderant intellectual effort will continue to be directed towards force-fitting this kind of data to the deeply flawed idea that the evolution of basic plans can only encompass developments which favour the survival of the individual or its close kin.

One final point. I am not really arguing for something quite as elegant as a "suicide subcircuit". Frankly, I am not clever enough to get to grips with the biological hardware. Recently in the UK there has been an outcry because it has emerged that breeders of racing greyhounds produce far more pups than can possibly be wanted and then slaughter those which do not make the grade. Something similar happens with race horses. As with the repatriated guest workers, it is a far from nice way to behave, but it is unquestionably effective. Assuming racing ability amongst greyhounds to be normally distributed, the bigger your initial pool of pups, the bigger your eventual crop of champions. Obviously the general principle of producing more than are needed and then disposing of the least fitted is intrinsic to Darwin's general theory of natural selection. However, what the dog breeders are doing differs in two ways: it entails the application of intelligence rather than chance alone, and it is on an altogether different scale. The combination of speed and purposeful discrimination means that this approach would almost invariably outperform "natural" natural selection in terms of producing optimally adapted individuals. And this leads me to Wallers' Theorem:

If a gene which is already carried by all individuals in a breeding group mutates to express itself in ways which advantage the evolutionary interests of the best fitted of its carriers whilst disadvantaging the evolutionary interests of those who prove to be the least well fitted, it would be virtually guaranteed

immortality.

As to what kind of fixed gene could effect such a transformation, I hover between rogue versions of sexual selection genes which turn inward to select or reject their own bearers, kin selection genes which become generalised beyond the immediate family, or John Price's ranking genes which move on from suppressing the weaker individual to improve its chances of survival, to suppressing it as a precursor to taking it out of the gene pool. If pressed, I would put my money on the Price gene. In fact, suicide does not figure very large in my scheme of things. As John Price pointed out over thirty years ago, in the natural world you have only to feel one degree under to become a prime candidate for an involuntary contribution to the food chain. The main plank of my argument remains the indisputable detrimental effects low self-esteem has on mental and physical health and on task perfomrance. I continue to see this as the action of a transcendent "smart" gene which has earned its ticket to immortality by using the brains of its bearers to select those in each generation it should invest in heavily, and those whose exit from the gene pool it should expedite. The gene in question sweeps forward, generation after generation, securely embedded within the ever improving best of breed.

As I see it, what is wrong with this idea is not its logic, which seems to me to be impeccable. The real trouble lies in its awesome implications. Listening recently to Michael Argyle, the Oxford professor who has made a detailed study of human happiness, I got some insight into why it is so hard to gain acceptance for my ideas.[3] He pointed out that a number of studies had shown that depressives actually have a better grip on reality than do "normal" people. It would appear that to maintain our self-esteem at optimum levels we need to think we are more loved, respected, and envied than is in fact the case. Given this basic human need, it is a bit much to expect people to accept that we are no more than the temporary vectors of mindless specks of DNA and, in particular, that one minute cluster of specks specifies a mission abort package to be activated if we do not come up to scratch. However, in the end I believe "sociophysiology" will have to forego its addiction to what it is nice to know, and get to grips with what it needs to know, if it is to have a solid theoretical basis. (Now there's talking!)

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by R Gardner, Jr

ARTICLE: Response to Mike Waller: "Consciousness is only a cover"

Like Freud, Mike Waller has a version of a motivated unconscious such that what is on the surface cannot be accepted on face value!

Interestingly, Mike uses accuracy introspection about sleep as his first illustration. In this country, the discipline of sleep disorder medicine initially hinged around accuracy of introspection about one's own sleep. Stories of the first users of sleep disorder labs notably included certain patients who swore they could not sleep and yet when brought into the laboratory, the researchers could persuade them that indeed they had slept from the evidence of the inked polygraph tracings typical of sleep that they had produced. The most extreme example came from Charles Fisher, a teacher at the New York Psychoanalytic Institute and pioneering sleep researcher who told this story on himself about two decades ago.

Dr. Fisher came in one night to discover his lab crew disappointed because a subject scheduled to come in had not. So the chief himself said he would be the subject and retired for the night after the technicians fastened EEG, eye and chin electrodes to his own head. Disappointingly however, he could not fall asleep, try as he might. He tossed and turned and finally - after hours - called over the intercom to his lab technicians to come in order to disconnect him. Whereupon, after disconnection, they showed him his recording: the large slow waves of non-REM sleep

filled the early hours of the sleep period and then the sharp quick eye movements and EEG characteristic of that stage of sleep. He had very normal sleep, introspection to the contrary.

From this, one can conclude self-observation is terrible at the twilight zone of going to sleep and waking up, even for the most sophisticated of us. If one has the mental set that one is sleeping poorly, then this seems confirmable regardless of somatic reality.

As a teacher one experiences comeuppances: I have reiterated the above story numerous times to students and to patients. Insomniac patients have been unimpressed, sure that their sleeplessness would be confirmed in the lab. But my students have shown to me documentation that after many years of sleep disorder laboratory experience, the conclusion these days is that the best indicator of whether a person is sleeping badly is to ask. Consciousness is not perfect and can be fooled as Dr. Fisher pointed out, but consciousness also, as Mike engagingly notes, has earned its "evolutionary ticket." Both he and Freud have noted that its workings are not infallible, but it is still pretty good.

So when YK planned her suicide with the accompanying anticipation of gentle comfort was she really measuring her worth deleteriously and carrying out a societal, group-selected action, or behaving as her comfort-seeking dictated? She surmounted the desire and plan - indeed, more than two decades later, I received one of regular letters from her - she is doing well.

Thus YK lost her job owing to cutbacks in the health care industry and received great honors as she said goodbye: she is not faculty herself, she was taken out to a faculty club and given expensive gifts by those who had employed her. She found immediate new employment. Her abilities were attractive and she could have had the job she wanted from her description of the process (she phrased it somewhat differently). I believe her to be doing well and behaving in a reasonably alpha manner because she has allies and has more capability now to make use of them than when I first knew her. That is part of how psychotherapy works: teaching people called patients how to make and use allies.

Actually, I don't in fact see sociophysiology as "addicted to what is nice to know" but as dispassionate study, although I detected the humor-filled putdown that Mike was teasing me with in his final sentence - more on humor as this response goes on. Indeed, for me it is wonderful to think of DNA having enormous influence - it obviously does and therein lies wonderful challenges for sociophysiology.

But one *must* come to grips with the biological hardware! That is part of what the scientific movement is about. What genes help us make allies? I believe there are some on chromosome 15. For instance, when removed (in a genetic deletion causing mental retardation and absent speech), a syndrome described first in England for a pediatrician named Harry Angelman features incessant laughter. While profound mental retardation causes major problems in development, these children and consequent adults tend to have bonded caretakers. Laughter is a powerful signal to accomplish that purpose although one mother in the literature on this condition mentioned that her young son laughed in such a way to make her feel creepy because it was so disconnected from what was going on. We should remember Iranaus Eibl-Eibesfeldt's statement as follows:

The loud utterance of laughter is derived from an old pattern behavior of mobbing, in which several group members threaten a common enemy. Thus it is a special case of aggressive behavior and this component retains its original significance. If we laugh aloud at someone, this is an aggressive act, bonding those who join in the laughter. Common laughter thus becomes a bonding signal between those who are common aggressors.[1]

So I suspect that what the natural accident of Angelman's syndrome provides for us sociophysiologists (Mike included despite his ridicule) is a gene(s) that regulates this behavior. Usually in most of us it is there and laughter is attuned to the social situation accordingly. But something missing meant this development had problems. Now I scan every genetic article about this condition with special interest. Is there a "crichton" gene about to be delineated somewhere in that chromosomal location?[2]

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by R Gardner, Jr

ARTICLE: Five Harbingers of the Future: (i) Clinical work at Austin State Hospital

When young I enjoyed science fiction. Now I attune more to versions of the future that feel realistic, are grounded better in principles of science and medicine, and apply to the things that I ordinarily do, though I remain concerned also about the social repercussions highlighted by Michael Chance and John Birtchnell. As anyone in the U.S. now knows there are perturbations of health care policy and good features of the future are hard to discern for those of us used to practicing psychiatry and other medicine in the way we learned. Intertwined are horrendous problems of the prisons and epidemics of mind-altering drugs. All seem amplified in Texas where everything is bigger.

At the April time of beginning this essay, however, it is also full spring in Texas. Flowering all over is a pink shrub engagingly called harbinger of spring. We went to the capital city of Texas to visit the Austin State Hospital (ASH). We saw as well the hill country's roadside bluebonnets and paintbrush so loved by Lady Bird Johnson (widow of high profile president Lyndon B. Johnson). She works regularly at the National Wildflower Research Center in Austin, an entity that she inspired.

One cannot be completely pessimistic about the future. Innovations in the capital reflect important values of The ASCAP Newsletter and its emphasis on a biological basic science for psychiatry, psychology and associated mental health professions. Things to come are already here and blossoming, despite our worries about Pandora's boxes potentially opened by change. Additional to four Austin harbingers of spring is one from near Palestine, Texas, and the prison system there. The five (of which only the first is in this issue) are:

Harbinger 1: Clinical work at Austin State Hospital.
Harbinger 2: Merlin Donald's proposed second stage of human evolution in educational methodology.
Harbinger 3: Basic plans of the human genome project.
Harbinger 4: Brain-behavior pathophysiology for violent troubled kids.
Harbinger 5: Humanistic psychiatric treatment for felons.

Harbinger 1: **Phoenixes from ASH.**
Audienceship and alpha communicational states. I was invited to ASH this time by nurse-practitioner Jere Fisher (JF), who has been working with a retarded, brain-damaged and severely traumatized woman (MM) prone to injure herself by swallowing sharp objects, ripping open abdominal wounds (thereby at times exposing her intestines), and other impulsive extreme behaviors. MM may be retarded and in some ways unintelligent and appropriately classified as having psychopathology, but she - as the discussion unfolded - has been an artist in capturing the attention of emergency services and caretakers of the institution, especially since the public views mental health professionals with suspicion anyhow and such behaviors when publicized quickly gain newspaper headlines. JF had spoken with me about the patient many months ago, inquiring about tactics she heard me speak about a decade ago. I said some things and JF invited me for a consultative visit, but her work described below stands by itself.

Ms Fisher's approach had provided MM with rapt, approving, high status attention. She was a superb audience for MM. JF also provided expressive outlets that months later by the time of interview had pre-empted the dramatic, action-oriented story-lines that MM previously deployed, which had been not only primitive but troublesome to patient health, staff equinimity, and costs to the system.

So now, months later, instead of expressing herself through the action of physical complaints and personal damage, MM makes boldly drawn and strongly colored portrayals of imaginary animals and other creatures. She tells her stories dramatically too, as I discovered when I interviewed her before an audience of clinicians. She was forceful, vivid, encompassing the audience with her gaze and gestures as she told how things had been with her in her family of origin.

At one juncture in this session, I moved my hands in a shaping gesture of my own meant to foreshadow a change in the line of discussion, a transition in how

the interview might go differently from there. I felt we needed to cover some other issues, but wanted any change to be a gentle one. MM quickly alerted to this hand movement, however, and I sensed from her expression that she did not like that gesture.

So I asked her about how she felt about my hand movements, and learned that my sense of things had been correct. She spoke forthrightly of her distaste (I wonder, thinking about it later, if it was more felt because it was a non-verbal signal). Apparently, however, after I framed the reaction in verbal form and asked for discussion in like form, she seemed to feel it as less a catathetic put-down (John Price's language) than she had anticipated. She thereby felt somehow less forcibly and negatively "lowered" (in the terminology of John Birtchnell). Indeed, MM then continued her narrative in the different direction that I'd hoped for, and without distress or other objections.

Afterwards, JF told me, MM felt good about her performance. And performance it had been: she had exhibited an alpha communicational state and had seemed to enjoy every minute of unalloyed solo expression with her supportive JF nearby; her problem with my potential redirection seemed to have to do with not wanting interruption of her pleasurable state of telling her story, of being in charge.

The practical ethology of Gordon Paul. JF (and others of the team) have impressively worked with MM, but this tells only a small part of the story of the new procedures of ASH, which offers the only psychiatry training program in Austin. Ms Fisher is part of a program led up until this past month by psychiatrist Robert Gilliland (RG) (now run by chief psychiatrist Camille Pousson) that deploys (a) the practical ethology of Gordon Paul (from the University of Houston), (b) the socio-educational approach for patients with diminished frontal lobe substance (such as schizophrenics) fostered by Robert Liberman from UCLA, and (c) the new psychiatric medications of valproic acid and carbamazepine (antiseizure and mood stabilizing medications) and clozapine (a new antipsychotic medication with fewer side effects and greater efficacy than more traditional ones).

The chief psychologist of this program is Mark Schade, a previous student of Gordon Paul. Psychologist Robert Price (RP) oversees the ethological observations on which the Paulian ethology program hinges. Ten to twelve people who are trained and highly reliable in coding behaviors make regular visits to each of three extended care units (of which the third - the one I visited - is led by RG, RP, and JF).[1]

The observers make assessments of patient and staff behaviors during three-second periods on a carefully worked out schedule. These are used to help make decisions in patient care and for staff education and updating. The observers register the data on notepads later entered into computerized analytic systems (a thorn in the harbinger bush is that the transcriber now suffers from carpal tunnel syndrome!).

Dr. Gilliland has found the findings particularly helpful because bizarre symptoms command attention when the patients are enough impaired that they require treatment at the state hospitals of the present day. But they may be distorting. The ethological measurements focus on communicative and organizational strengths in addition to bizarre symptoms and help give a more systematic view of the patient's likelihood of succeeding in another setting.

Illustration: a patient claimed to own Texas A&M University in an unchanging delusional symptom. His verbal abilities obscured to the professional staff that he was in fact improving in a quiet less dramatic manner. Not only did he increasingly listen and converse in a more socialized manner, but he was more organized in his self-care and planning, making it likely that he would be able to work in a sheltered workshop, that is, in a less expensive and confining setting outside the hospital. All of this was strikingly apparent in documented form when data of the practical ethologists was put forth in the easily digestible informative summary outputs that they use. Usefulness of new medications can now be measured in a more objective manner than reliance on self-reports alone in conjunction with necessarily brief and sporadic professional observations.

This hearkened to me the arguments about the practical clinical advantages of psychiatric ethology made several years ago by ASCAPian Tyge Schelde, as in the abstract of a paper on depression that he co-authored.[2] This in part noted that *"One patient [of five] who obviously developed a new depression during the observation period without this being*

recognized by the Hamilton rating or the clinical control, seemed to have been better described by the behaviour rating. This study shows that ethological psychiatric methods are very suitable for obtaining a better basis for the observations of staff in the ward environment."

The four of us discussed that the near future of this can be easily envisioned - it should entail direct entry onto the keyboards of micro-computers. I recalled a medical student (now Doctor) Reed Bartz who with me at UTMB in Galveston deployed a program in BASIC that had been published in the Newsletter of the Animal Behavior Society.[3] Using it we measured laughter and the context of its production on psychiatric units. He entered his coded observations directly on the keyboard and the program automatically tallied the times spent and provided summary data. We restricted our observations to a set of eight combinations and were able to use the keyboard "home row" using a memorized code while not taking one's eyes off the action. We both learned it and established reliability by watching videotaped sequences.

Thorn in the bush. A big thorn in this harbinger bush is that one can envision administrative threats to a novel program: the hospital has had staffing problems that diminished public reimbursement, so RG worried out loud that the observers could be cut. He understands something of the bureaucratic mind. The usefulness of the observers may need to be rendered inapparent to cost-cutters because they may need decision-rules to make cuts. If costly items are new and non-traditional, cutting them may be rationalized by that newness and lack of tradition. They can by fiat be declared "luxury" despite the carefully documented demonstration of Paul and colleagues that in fact the method saves money.

Since Gordon Paul is in Houston, the ASH professionals are in close touch with him and have learned that a number of states are investigating his methods in the hope that they will save money in the cost-effective care of intractibly hospitalized patients. The beauty of the program is that it measures outcomes. Such documentation is attractive to decision-makers as exhortation is less persuasive than numbers. So it is not likely to die out completely. Even if removed from ASH, other states will likely perpetuate the schema. I emphasize, how-ever, that at the time of my visit, these were worries not actualities, and indeed, a new medical director is due aboard shortly who may be quite supportive.

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TO BE CONTINUED

by L Sloman

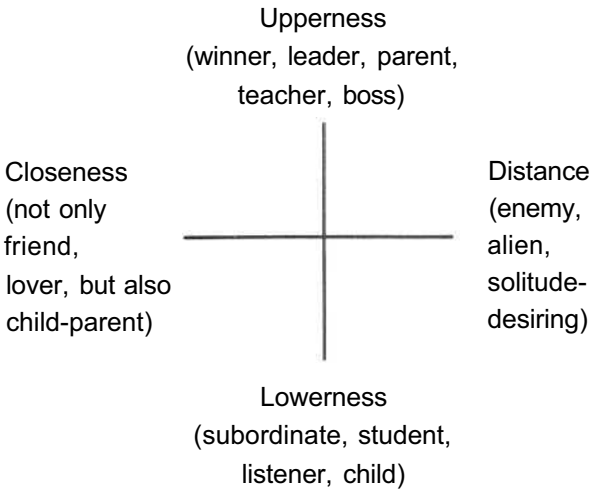
ARTICLE: On the cartoonization of Birtchnell's axes

I very much enjoyed the article on the "cartoonization" of Birtchnell's dimension and feel pleased to comment on it. The description of the applicant interview with the psychoanalyst, BL, provides material for speculation.

Our Involuntary Subordinate Strategy (ISS) model can be applied to a wide range of reaction patterns including, in my opinion, various types of depression. We can therefore be criticized as being overly reductionistic. For that reason I feel that it behooves us to recognize the complexity of the phenomena we are trying to understand. For example, I may use a lot of self put-downs, but on reflection view this as a technique which should make me less threatening to others, as a result of which they have less need to put me down which would, hopefully, result in their treating me with more respect. So my self put-down becomes a means of enhancing my status - which means I am using a "lowerness" technique to achieve "upperness". One could therefore argue that on the Birtchnell figure (see next page), I am going in two opposite directions at the same time.

BL seems to be a perfect example of the negative stereotype of a psychoanalyst whose behavior seems designed to elicit frustration in the patient. You describe your reaction to him as follows: "This went on and on. I became irritated, but then self-counselled, 'He is doing this on purpose; keep cool'. If he is playing some kind of game I can do it too." Later you say of BL he was "inappropriately upper in ... his

Birtchnell's Figure:



formalistic and idiosyncratic manner." I would see his behavior as well designed to make another person feel one down. Do you think it is possible that you appropriately decided that it would be inappropriate for you to express your irritation? This may in turn have resulted in activating your ISS. That is, this may have led you to feel subordinate and to perceive BL as dominant. However, you hadn't reached the stage of acceptance so that you were not as yet reconciled to this position. However, BL took the pressure off by suddenly becoming warm and open. You refer to this as abruptly giving up the upperness position. I wonder whether BL had a problem with closeness and was able to relate to you only when he established a link between your background and his own area of interest. If one wanted to become speculative, one might surmise that BL was an insecure man who compensated for a persistent ISS associated with feelings of low self-esteem by his "striking" waiting room, for example "phallic" lamps, which you refer to as indicative of an "appetite for upperness". In view of his apparent need to impress, would it be accurate to describe this as "defensive uppemess"? I present this because it illustrates an important issue. You have, I believe, argued that one task of therapy is to promote alpha behavior and I believe that you are right. In therapy it is important to distinguish between true self-assertion and self-assertion which is a compensation for underlying feelings of inadequacy. One could describe "alpha behavior" as "true self-assertion". Being "truly self-assertive" means one does not have to prove one's upperness, and there is also data to suggest that it is likely to be associated with the ability to have a "secure attachment". Therefore, therapy which facilitates the patient's ability to have a "secure attachment" should also enable the patient to become more self-assertive and vice versa.

In your commentary you also refer to Y as a "vertical" thinker (using Birtchnell's dimension) because he (Y) prefers John Price's formulation. My problem with this statement is that I do not see the upperness-lowerness and the closeness-distance dimensions as being independent. For example, I associate the ISS with lowerness. Yet in a very young child, the ISS can contribute to closeness by eliciting sympathy from parent figures. For example, the sad face of a helpless child is likely to evoke a strong parenting reaction in adult caretakers On the other hand, when an adult exhibits a strong persistent ISS in the form of depression there is a strong possibility that others will react by distancing themselves. For example, there is evidence that depression usually makes people less attractive and the possession of power makes man more attractive.

Commenting on the figure (I am not sufficiently familiar with all of Birtchnell's writings to comment on his model), I find the concept of secure attachment more meaningful than the concept of "closeness". Firstly because the capacity for "secure attachment" appears to be associated with mental health, and secondly because there is good evidence that a "secure attachment" tends to be associated with a smooth functioning of agonistic mechanisms. When the ISS is functioning efficiently it is short-lived and is quickly followed by acceptance, flight or self-assertion in another arena. A subsequent contact with the same adversary will probably elicit an attenuated ISS which serves to maintain the stability of the hierarchy. This may manifest as respect for one's teacher, parent or boss, etc. The term "lowerness" might be too pejorative for these situations. If there is a stronger temptation to challenge the authority figure, a more powerful ISS is required to control this wish. In that case the subordinate feels more inadequate, helpless, hopeless, etc.

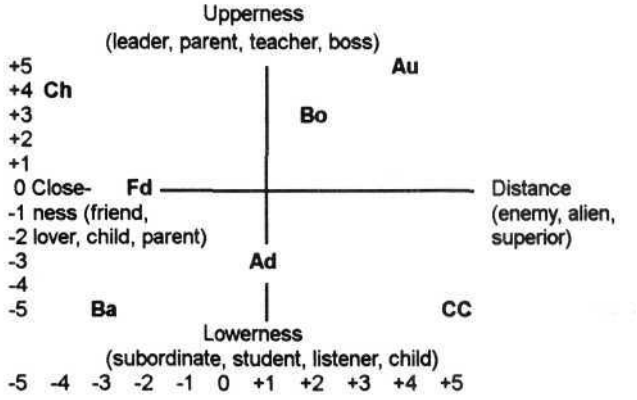
In summary, we need to be reductionistic in order to organize our thoughts about complex mental phenomena, but it may be more advantageous to base this reductionism on our understanding of biological mechanisms than on the dimensions of upperness and closeness.

by R Gardner, Jr.

AFTER COMMENT: After Comment to Leon Sloman: Appetites and mechanisms

I am sure that John Birtchnell (JB) will have commentary to this. Having provided the stimulus for your commentary, however, I will put in some words now without waiting.

The following expanded diagram makes several points that may have been confusing from the Vertical and Horizontal essay. For me, the beauty of the two axes is that appetites for relating can be plotted as on a X-Y grid, as follows:



KEY

1. Au is a highly authoritarian very distant boss governing from afar as a lord who delegated completely (y=+5, x=+5)

2. Bo is a somewhat distant boss who maintains appropriate upperness with respect to her subordinates: in a rating, she scored a mean of y=+3, x=+2

3. Consider Ad as an adolescent who is more or less respectful of teachers and parents (x=-3) while perhaps demonstrating a greater need for distance than before (x=~0) neither distant nor close according to the rating scale agreed upon by the multiple ratings of the clinical vignette.

4. Ch is a charismatic singer who very much wants closeness with her audience; she wants them to applaud and to like her (y= +4; x=-4)

5. Ba is a baby very much lower (needful of parents) and reasonably close although I'm mindful of Dan Stern's work in frame-by-frame analyses of child-parent interactions that baby's titrate distance very nicely as well as closeness (y=-5; x=-3)

6. For those who have seen Schindler's List. CC is a concentration camp victim: for survival, there is an appetite for much lowerness (subordinate and submissive behaviors) with wishes for as a great a distance from the people focused on - the persecutors - as possible (y=-5; x=+5)

7. A Fd (friend) is someone for whom one wishes closeness but neither upperness or lowerness (although in playful exchanges there might be challenges or mock defeats) (y=0; x=-3).

Thus, JB will have no problem handling your challenge and will indeed may say as a matter of opinion that lowerness is perhaps less pejorative than subordination. But having defended his schema as heuristically helpful and an excellent way of describing "appetites" for relating, I share with you a desire to go for mechanism. For this reason I've been working on some 26 communicational propensity states (CPSs) of which subordination and alpha are two, two that are among those that other animals exhibit as well. I also came up with a baker's dozen of CPSs that are unique to humans and their capacity to tell stories.

Returning to our searches for mechanism and illustrating brain-anatomy related to storytelling, the Abstracts and Extracts section this issue has a report on two patients from France with left frontal lobe lesions who could not - as a result of that damage - keep themselves from enacting preprogrammed storylines that were cued to them from meaningful signals in the environment. Both carried out the storyline of being at a museum, for instance, when in a house with pictures and articulation of the word "museum" by the owner of the house. That such patients display echopraxia (imitation of the examiner's posture) has been long known. But the author provided more complex stimuli and found the enactments were personally specific (to such factors of individual experience as education, class and previous experience).

I suggest that P factor of the frontal lobes labeled by Ward Halstead and brought to us by Seymour Itzkoff (see my review of Itzkoff's volumes in the October, 1993 ASCAP) may have been fostered by need on the part of our ancestors to tell ever better stories, perhaps for upperness appetites that had nothing to do with dominant aggression and in response to closeness-lowerness needs on the part of other people both little and big, amongst the many scenarios that story-telling and story-receiving newly allowed.

ABSTRACTS & EXTRACTS...

Budiansky S: A special relationship: The coevolution of human beings and domesticated animals.

Lhermitte F: Human anatomy and the frontal lobes. Part II: Patient behavior in complex and social situations: The "environmental dependency syndrome".

Postlethwait JH, Johnson SL, Midson CN, Talbot WS, Gates M, Ballinger EW, Africa D, Andrews R, Carl T, Eisen JS, Home S, Kimmel CB, Hutchinson M, Johnson M & Rodriguez A: A genetic linkage map for the zebrafish.

Roberts CWM, Shutter JR & Korsmeyer J: *Hox11* controls the genesis of the spleen.

Budiansky S: A special relationship: The coevolution of human beings and domesticated animals. JAVMA 1994;204:365-368.

It seems obvious that we "invented" domestication, just as we invented fire, the wheel, plastic wrap, and power steering.

But, it is an idea that recent research in evolutionary biology and animal behavior has taken serious exception to. This research suggests strongly that domestication represents a coevolved relationship, analogous to many other mutualistic partnerships in nature, in which loss of defensive and self-sufficient behaviors in a species is more than compensated for by the gain of food, protection, or shelter afforded by close association with another species...

... First, there is the extremely high failure rate of human beings as domesticators. Domestication involves a great deal more than just going out and grabbing an animal from the wild. Early European travelers to North America reported, for example, that American Indians kept raccoons and even bears and moose as pets, but none ever became domesticated species. Likewise, we know from ancient Egyptian records and pictures that that society, well-versed in animal husbandry - in fact, their entire civilization was really built on cattle herding - tried but failed to domesticate gazelles, ibexes, and even hyenas. By contrast, thousands of years earlier, the first agriculturists, woefully inexperienced by comparison, somehow managed to domesticate virtually every species that, even today, occupies a place of importance in our homes and fields. So, human intentions alone are not enough to explain what happened.

Second, some fundamental biological differences exist between domesticated species and their wild counterparts. Domestic species have, as a matter of innate behavior, and not just by training or socialization, a relative lack of fear, a docility, a high reproductive rate, and a number of juvenile characteristics that persist into adulthood, especially submissive food-begging and care-soliciting behaviors. Face-licking by adult dogs echoes the food-begging gesture of wolf pups; the way my sheep will nudge me or bleat at feeding time is strikingly similar to the behavior of nursing lambs. Where did these characteristics come from? Many people have raised raccoons, skunks, and wolves in human households, but even such tame animals are far from domesticated. They show a degree of aggressiveness, territoriality, and unpredictability, especially on reaching sexual maturity, that sets them apart from dogs and cats, for example. There is a paradox here: domesticated behavior is what makes domestication possible, it would seem that at least some of these domesticated traits somehow had to be in place before domestication could come to fruition.

Finally, a wealth of recent archaeological research has undermined the idea of the rise of agriculture as a brilliant invention that made our lives easier. Human intention is not only insufficient to explain domestication; in some ways, domestication seems to run

directly counter to human intention. Studies of human skeletons have chronicled a sharp increase in malnutrition, disease, and injury, and a drastic shortening of life span with the rise of agriculture. Of course, agriculture ultimately triumphed as a way of life, but that triumph appears to have been really only by force of numbers. An agricultural society can produce more food in a given area than a hunter/gatherer society, and so support more people, but the quality of that life was initially much inferior. The work was much harder, the food was nutritionally inferior, and farming led to a sedentary way of life that provided the perfect medium for epidemics to spread. This sort of life was not something that an individual would have selected by choice....

... We need to look through the eyes of the animals and ask what was in it for them....

... One intruiging analogy involves a mutualistic relationship between aardvarks and a species of gourd in the wilds of southern Africa. This gourd is regularly found growing around the entrance to the aardvarks' tunnels. The gourd is the primary source of water for the aardvarks during the dry season; the aardvarks are thus saved a dangerous trip to the water hole. The seeds of the gourd germinate poorly unless they have passed through the gastrointestinal tract of an aardvark; because this animal buries its feces as does a cat, the seeds that are eaten are planted and fertilized in the bargain. The most interesting thing about this symbiosis is that this species of gourd is the only member of the melon and gourd family found in the wild that lacks a naturally occurring and quite bitter toxin. ...

... What is in it for dogs and cats and sheep and cattle to associate with us? Again, a glance at nature is instructive. Many nondomesticated species gain an advantage by associating with us. Raccoons, white-tailed deer, starlings, barn swallows, chimney swifts, house mice, black rats, and Norway rats gain food or protection from predators through their association with us....

... Individuals within the wild populations that, through natural variation, were less fearful and had less well-developed defense mechanisms were the animals that would reap the benefits with higher survival and reproduction rates. In effect, the niche created by human settlements was a fruitful and unoccupied one, ripe for invasion and exploitation....

Lhermitte F: Human autonomy and the frontal lobes. Part II: Patient behavior in complex and social situations: The "environmental dependency syndrome". Ann Neurol 1986; 19:335-343.

Imitation and utilization behavior have previously been described in terms of a simple interaction between an examiner and a patient, and were interpreted as an excessive dependence on environmental cues. In this study, patient dependence was observed in complex situations of everyday life. Two patients with focal unilateral frontal lobe lesions were observed while in a doctor's office, a lecture room, a car and a garden, while visiting an apartment where various activities were possible, and while in a gift shop. The patients' behavior was striking, as though implicit in the environment was an order to respond to the situation in which they found themselves. The term *environmental dependency syndrome* is proposed for this condition. It implies a disorder in personal autonomy. Individual psychological traits influence the way in which loss of autonomy was manifested. This study does not offer a physiological model of autonomy, but it does provide clinical and behavioral observations on the loss of autonomy secondary to unilateral lesions of the frontal lobe.

PATIENT 1. A 51-year-old right-handed male engineer at the Salpetriere Hospital [had] a frontal syndrome evidenced by a behavioral disorder, euphoria, and progressive apathy. Computed

tomographic (CT) scan showed a left frontal glioma. The patient underwent a lobectomy to remove all visible tumor (oligodendroglioma).... After 6 years ... the frontal sndrome reappeared ... [from] a recurrence of the tumor. ...

PATIENT 2. A 52-year-old right-handed housewife had ... an astrocytoma in the basal left frontal lobe. Treatment consisted of a left frontal lobectomy and radiotherapy. She recovered well, returned home, and resumed her domestic work but showed a lack of initiative. ...

The first patient came from a high sociocultural background. He was a construction engineer, specializing in oil drilling and refining, was well-read and knowledgeable about art, and had also been a keen hunter. He had a distinguished appearance and had been popular with women. The second patient was from an average sociocultural background: her station in life was modest and she had confined herself to domestic work....

The Buffet A buffet had been laid out in a lecture room where there were about 20 people. When patient 1 came in, he clearly indicated his delight by word and gesture. He helped himself to the food and the orange juice. I offered him some whiskey. He declined my offer, but poured himself a glass of water and drank it. He behaved like a guest, not even thinking of offering anything to me or anybody else. When Patient 2 came in, she saw some stacks of chairs and proceeded to set them out side by side. She took the glasses that were stacked on the buffet table and laid them out one by one. She then offered me food on various plates and asked me if I wanted any port. Although I declined the offer, she poured some into a glass. Seeing that I continued to refuse, she offered me a glass of orange juice. I indicated that I wanted to clink glasses with her, so she poured herself some water and clinked glasses with me. In short, she behaved like a hostess, without thinking of serving herself....

The Museum: Patient 1 and his woman-friend came to see me at my apartment. Half an hour later, I asked him to come outside on the landing where we stood in silence for about one minute. I then said, in a neutral tone, looking at the floor, "museum". I opened the door back into the apartment. The patient went in first and immediately started to examine the paintings as if he were in a museum ... He continued his visit in the other rooms. Some objects attracted his attention more than others,... behavior appropriate for any normal museum visitor, and he made apt remarks. He spent a long time looking at a lion and a leopard, commenting on them. He went into the bedroom, as if it was part of the "museum". In another room, there was a surprise: There had been three paintings hanging on a wall, but one had been taken down and put on the floor (next to another painting). The patient noticed a painting was missing from the wall. He showed his delight at seeing hammer and nails on a table. He hammered a nail into the wall and hung the first painting up noticing that it went well with the others on the wall (in fact, all three were by the same painter)... However, he commented that he would try the other one in its place. Despite the clash of styles (it was very modern), he decided that he preferred it.

The experiment was carried out under the same conditions with Patient 2. On the landing, after the word "museum" was uttered, the patient walked quietly into the apartment. She took note of some paintings and other art objects but did not scrutinize them methodically. She showed the most interest in curios; for example, a panel with rhinoceros teeth, a collection of commemorative medals, and the (plastic) teeth of a lion....

I propose ... the term *environmental dependency syndrome* (EDS), which to my knowledge has never before been described....

First, the dependence on the social and physical envrionment resulted in the patients' actions. When questioned, they said that they thought they were duties to be carried out and that they had reacted in a natural way toward the environment. The decision for their actions was not one they made themselves. ... Mental inertia and apathy played a part, in the sense that the patients were powerless in the face of influences from the outside world....

Loss of self-criticism was obvious as when patients urinated against a wall in public (one patient was a

general), undressed completely, or gave a physician an intramuscular injection....

The patients' personality formed an integral part of their EDS and gave it an indivdual aspect....

Autonomy is the condition whereby a person freely determines the laws by which he or she abides. This concept is far-reaching. In this study, the word "autonomy" is restricted to the concrete behavior of the subject making a decision about an action involving the outside world. The problem is not to know whether the decision is or is not made by free will, but rather to recognize that it depends on two different groups of forces, the first implicit in the environment and the second dictated by the psychological state of the subject....

Postlethwait JH, Johnson SL, Midson CN, Talbot WS, Gates M, Ballinger EW, Africa D, Andrews R, Carl T, Eisen JS, Home S, Kimmel CB, Hutchinson M, Johnson M & Rodriguez A: A genetic linkage map for the zebrafish. Science 1994;264:699-703.

To facilitate molecular genetic analysis of vertebrate development, haploid genetics was used to construct a recombination map for the zebrafish *Danio (Brachydanio) rerio.* The map consists of 401 random amplified polymorphic DNAs (RAPDs) and 13 simple sequence repeats spaced at an average interval of 5.8 centimorgans. Strategies that exploit the advantages of haploid genetics and RAPD markers were developed that quickly mapped lethal and visible mutations and that placed cloned genes on the map. This map is useful for the position-based cloning of mutant genes, the characterization of chromosome rearrangements, and the investigation of evolution in vertebrate genomes.

The zebrafish *Danio rerio* (formerly *Brachydanio rerio)* is emerging as a model organism for the investigation of the genetic mechanisms of vertebrate development. Its short 3-month life cycle and the ease of making both haploid embryos and parthogenetic diploid fish facilitate the identification and analysis of mutations. Saturating the genome with mutations that affect various aspects of the early development of zebrafish seems to be an attainable goal. The ability to make stable lines of transgenic zebrafish, as well as the ease of making genetic mosaics, facilitates the study of gene interactions and gene function....

Such genomic analysis of fish may prove useful in investigations of mammalian genomes. Genetic linkage relations in mammals have been locally conserved over distances averaging up to 8 cM during 100 million years of mammalian divergence. Linkage analysis of fish and amphibian genomes has lagged behind, but studies have revealed linkage relations that have survived 400 million years of vertebrate evolution, which suggests that the primitive vertebrate gene arrangement may have been largely preserved during fish evolution. Brenner and co-workers have suggested that the ordering of genes in fish may prove useful in the analysis of the human genome.... Studies of zebrafish embryos are likely to further our understanding of developmental genetic mechanisms conserved among all vertebrates, including humans.

Roberts CWM, Shutter JR & Korsmeyer J: *Hox11* controls the genesis of the spleen. Nature 1994;368:747-749.

Many homeobox genes are clustered in a linear array along a chromosome, reflecting their ordered expression along the anterior-posterior axis of the embryo. Expression patterns as well as grafting, ectopic expression and loss-of-function experiments suggest that the Hox genes encode a combinatorial system of positional specification along that axis. In contrast, the function of orphan homeobox genes located at sites outside the four mammalian Hox clusters is less well understood. To assess the functional role of the orphan homeobox gene *Hox11,* we have generated *Hox11*-deficient mice through gene targeting. *Hox11*$^{-/-}$ mice have no spleen, but otherwise appear normal. *Hox11* is normally expressed in the splenic anlage arising from the splanchnic mesoderm. *Hox11*$^{-/-}$ embryos have no cellular organization at the site of splenic development but all other splanchnic derivatives develop normally. *Hox11* controls the genesis of a single organ, providing new insight into the genetic regulation of morphogenesis.

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