

ASCAP

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"Despite the slogan that science advances through experiments, virtually the entire literature of science concerns theory."
Peter Gallison¹

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.

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ASCAP Society Mission 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.

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

ADDRESSED TO & FROM ...

ALERT

Do you know of people who are **not** genetically connected siblings but have been raised **as though** they were? They are needed as controls for twin studies. They need to be (or have been if adult now) in the same grade level; they need to be 4 or more years old, but there are no upper limits.

Please notify us for **Nancy L. Segal** (who is searching for such people), or contact her directly at the

**University of California
at Fullerton
800 N State College Blvd.,
Fullerton, CA 92631.
Tel: (714) 773-2142.**

Nancy would elicit the cooperation of candidates for some information gathering and psychological testing. There would be minimal travel and time involved.

OMITTED TRIUNE

I see from part (i) of my article in last month's issue of ASCAP that I omitted reference to the work of Paul MacLean at the end of the first paragraph. It is: MacLean PD: The Triune Brain in Evolution. New York & London, Plenum Press, 1990.

MacLean makes plain that the

neuroanatomical basis for the distinction between the two modes almost certainly lies in the difference between the brains of present day mammals and the brains of present day reptiles. Whereas the "reptilian" brain is concerned with feeding, fighting and self-protection (and mating - which includes territory and rank order), the upper part of the *cingulate gyrus* of the limbic system of mammals is concerned with preservation of the species through mating and the triad of (1) nursing (including maternal care), (2) the separation call and (3) play. See also MacLean PD: Culminating developments in the evolution of the limbic system. In The Limbic System B. K. Doane and K. E. Livingstone, (Eds.): New York, NY: Raven Press, 1986.

Michael Chance
Birmingham, England

HISTORY OF LANGUAGE

I found it interesting to read Russell Gardner's report of the HBES meeting and compare his reactions to mine. My memories are all unrecorded: writing them up as he did does help to fix things in the mind, and, of course, in a record as well. His idea about the role of writing in making language complicated is intriguing: it was assuredly an adult activity to begin with and taught to the young with great difficulty to judge by surviving cuneiform texts with miswritten characters - schoolboy

stuff that happens to have been preserved. They copied texts, of course, and errors can be detected with great precision by modern scholars.

But I do not see how those who invented the correct forms would have made them MORE complicated in the sense of inventing new grammatical rules, etc. Which would be necessary to get the initial grammatical complexity from which Bichakjian's simplification proceeds.

William McNeill
Connecticut, USA

CRIME & PUNISHMENT

I have been devoting my spare energies to the study of the history of crime and punishment with the goal of having some context into which to put our societal current love affair with lengthy incarceration, and thus gaining some idea of how we ended up with the system I work in now. There seem to be cycles, large and small, of impulses to reform "criminal justice" and to calm the fears of the multitudes about unprecedented crime waves and unimaginable degeneration of behaviors engaged in by undesirables. There appear to be twenty year cycles and two hundred year cycles.

During revolutionary times both on the Continent and in America there was a great foment and desire to make social response to

deviant selfishness more humane and less an act of revenge of an overwhelmingly powerful monarch. And just two hundred years ago in England, all felonies were punishable by death, which could be commuted into "transportation" or banishment to the penal colonies of America or Australia.

Incarceration was not considered a sensible or useful alternative by the various reformers, yet by 1820 it had become the only alternative, since the death penalty had been scaled back and the colonies were no longer available as dumping grounds for the "criminal element". Michel Foucault chronicles this history in his book, Discipline and Punish: The Birth of the Prison.¹ He sees the

development of the technologies of surveillance and social control as the driving social temptation to employ lengthy incarcerations. His account of Bentham's architectural invention -- the "Panopticon" -- is interesting reading in the evolution of ideas about social control.

In modern times psychiatry had an opportunity to contribute on the cutting edge of prison reform when Martin Grader was appointed warden on the new experimental federal prison in Marion, Illinois (the facility the government built to replace Alcatraz) in the early 1970s. But alas! He resigned before it even opened, and "Aesculapian therapy" never reached the

limelight of American penology. I do wonder what examples of conspecific incarceration exist in the non-human realms of our planetary life, and what evolutionary biologists have made of these if indeed there are any such.

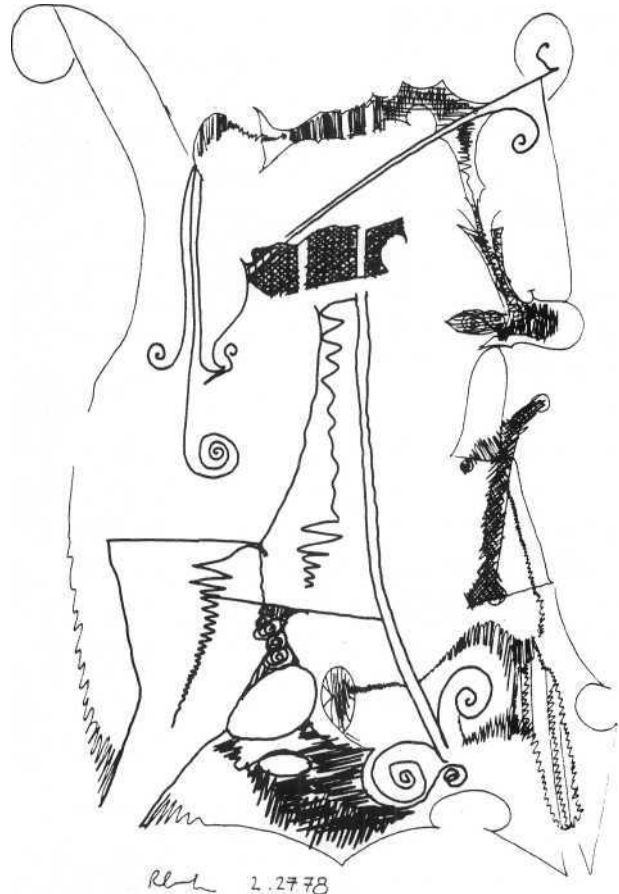
Stephen Mitchell
Texas, USA

[Editor's Note: Steve's final point of curiosity is a non-human human comparison. Aren't penitentiaries and hospitals evidences of big brains and compassion unusual amongst the species, like language and drama? Planning, alternatives for death for unpleasant conspecifics, and interest in sustaining life of nonrelatives are uniquely human and unique to modern humans at that.]

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ARTICLE: A socio-mental bimodality: Part (ii) of (iii)

Agonic mode in humans

The two social modes in human social relations - agonic and hedonic - are expressed and communicated between individuals by overt behaviour and non-verbal as well as verbal signals. Both are expressed in modern society through the mass media, especially television, and hence operate not only between individuals in close proximity, but over great distances as well.

In non-human primates the agonic mode brings about social cohesion such that it interferes with spontaneity and hence controls to some extent the form of the ongoing behaviour of the individual. Similarly, in human agonic groups when integrated task behaviour is required, the form of the direction can be seen to rely more on instruction and less on understanding of the nature of the co-operative task. This has been recently identified by Alvin Toffler as "overcontrol" and can be seen not only to be a more rigid form of control, but also interferes with efficiency.¹ Emotional interference with task performance also reduces the efficiency and it is common in marriage.² It takes many forms, but in essence consists of intimidating or humiliating another person, who, because they have allowed this to happen and involuntarily submitted when it first occurred, have found themselves unable to extricate themselves from being put down.

Warren Bennis, in his writing on patterns and vicissitudes in T Group development, was able to formulate a conclusion that goes some way to describing the features of agonic groups, namely: "... *that the core of the theory of group development is that the principal problems or issues the group must solve are to be found in the orientations towards authority and intimacy which members bring to the group. Rebelliousness, submissiveness, or withdrawal, as the characteristic responses to authority figures; destructive competitiveness, emotional exploitiveness, or withdrawal as the characteristic response to peers, prevent consensual validation of experience.*"³

Anyone unconvinced should read Wild Swans, the biography of Jung Chang for an example of social control combined with intimidation and humiliation in its most unmitigated form under the rule of Chairman Mao in China and in which is revealed how legitimizing this type of behaviour by authority engenders oppression by permitting those with grudges to pay off old scores.⁴

Hedonic mode of humans

Most people will find it rather more difficult to understand the new insight an understanding of this mode gives, because like health it is part of our normal nature acted upon. But we may not be aware of it consciously, though with media reports daily providing examples of breakdown in smooth human relationships, people might be more likely to see the point of investigating what keeps people happy and competent. As already explained, people experiencing any form of intimidation are living in ranked hierarchial social relations with their associates, but there are whole non-hierarchical societies, the hunter-gatherers, which maintain exclusive hedonic social relations.

Woodburn emphasizes that in immediate-return human societies a mobile, flexible nomadism is fundamental: There is an absence of institutionalised leadership, and of specialised or formalised institutions that can be distinguished as, say, economic, poetical, judicial or religious in function. Kinship concepts and terms are generally a great deal broader than our own, and they designate social relationships rather than actual kin. Leadership is not sought after.^{6,7}

According to Woodburn, the social organisation of immediate-return foraging societies has the following basic characteristics: 1) Social groups are flexible and constantly changing in composition. 2) Individuals have a choice of whom they associate with in camp gatherings in the food quest, travelling, etc. 3) People do not depend on *specific* other people for

access to basic requirements. 4) Requirements between people stress sharing and mutuality, whether in relationships of kinship or other relationships, but do not involve long-term binding commitments and dependencies of the sort that are so familiar in delayed-return systems.

Hence we in modern Western industrial society in the hedonic mode are more free to form a network of personal relationships that typically offer mutual support. Then we can also give free rein to our intelligence, our creativity, and the creation of systems of order in our thoughts and in our social relations. This is because attention, when released from self-protective needs, can be used to explore and integrate many new domains.

... attention, when released from self-protective needs, can be used to explore and integrate...

The healthy human individual in hedonic mode has a flexibility of arousal and attention that allows time for integration of reality, inter-personal relations, and private feelings and thoughts, providing prerequisites for the operation of creativity and inventiveness.

Stability of hedonic mode in humans

The essence of the stability of the hunter-gatherer societies is that they possess several ways of reducing aggression. This is also the essence of the hedonic mode; namely that there is an absence of overt aggression and of social rank organized by covert aggression.

This is often achieved by several processes:

1. The young infant is gradually familiarised with its total environment. Colin Turnbull writes of the Mbuti hunter-gatherers "*for true non-aggressivity and non-violence to be learned, the individual has to gain confidence in his relationship with all the various segments of his experience, and perceive it as a single totality rather than as the mere sum total of separate relationships*"⁸

2. Aggression is not responded to by hunter-gather-

ers. Richard Sorenson writes of the Fore of New Guinea⁹ "*when older children were the subject of attack by young children, they typically received it with amusement and affection. If the attack became painful, they sometimes moved away, or more often tried to divert the young child by affectionate playfulness or engaging him in other interests*", i.e.

3. The aggressive child's attention is diverted.

4. The child is indoctrinated into the cultural norm of the tribe. Norms serve as substitutes for the exercise of personal influence.

5. Sanctions act on a person's self-esteem, negatively by shunning, shaming, mocking, or group ostracism.

Evidence of the two modes in industrial societies

In the era immediately after World War II investigators, armed with coding protocols, observed numerous small groups of humans in search of the fundamental dimensions of social behaviour. Carter provided the first major review of results from the wedding of these two methods.¹⁰ He concluded that three sections were found to describe the behaviour of members of small groups; he named these dimensions *Group Goal Facilitation*, *Individual Prominence and Achievement*, and *Group Sociability*. These three dimensions are found in several dozen studies of social interaction, and in analyses of social dimensions of human personality. (For a review, see Fromme & O'Brien and Kemper.^{11,12})

Group Goal Facilitation was derived from items (aggregated across different studies) that included efficiency, co-operation, adaptability, "work with" skills, behaviour directed at group solution, and the like. This dimension reflects the **task** the actors have gathered to do.

Individual Prominence and Achievement was based on such qualities as aggressiveness, authoritarian attitudes, leadership, boldness, forcefulness, lack of timidity, physical ability, quickness in taking the lead. This set of behavioural characteristics appears to reflect a controlling and dominating stance toward others. This is the **power** dimension.

The final factor, *Group Sociability*, emerged on the

basis of such items as sociability, behaviour that is socially agreeable to group members, behaviour directed toward group acceptance, genial, cordial, and the like. This is the **status** factor.

When we consider the factors (Individual Prominence/Achievement and Sociability) found by Carter, we see that they are of a different order. Foremost is the fact that these two behaviours are orientated not to task completion, but to the other actors. To be forceful and authoritarian, or sociable and cordial, is to orientate one's conduct towards others. Hence the *power* and *status* factors are fundamentally descriptive of relational conduct.

Power is defined as the ability of one actor to realise his/her interests against the opposition of another actor. This follows closely the important formulation of the sociologist, Max Weber.¹³

Human actors are, on the other hand, capable of voluntary compliance with the wishes, desires, and interests of other actors, even at what may appear to be some sacrifice to themselves. Carter's factor of Group Sociability stands for the whole range of behaviours in which actors willingly accord each other benefits and compliance.

Kemper has also analysed the structure of an individual's emotions within a social interactional framework, which is the context in which most emotions are experienced.¹² The description of these outcomes can follow a relatively simple analytic assumption: each actor's power and/or status may increase, decrease, or remain the same, as a result of an interaction. In broad outline (details are in Kemper¹²), the following will ordinarily result: Elevation of one's own power will lead to a greater sense of ease and security, as will decline in the power of the other. Elevation of the other's power will lead to fear/anxiety, as will a decline in one's own power. The effect of no change in power for either self or other is complicated by the state of anticipatory emotions. The biological roots of Carter's and of Kemper's binary distinctions are underpinned and redefined by formulating the work as agonistic and hedonic.

Studies of children's social behaviour

Evidence from Western Industrial Society for an individual's social predispositions to fall into one of his two categories is most likely to be found in children's groups, as these will have been formed more through face-to-face interactions in the family and especially with the mother before additional cultural influences have shaped the individual's character. Fortunately, there are a cluster of studies made by ethologists in England and France which supply information comparable with those supplied by the ethological studies of the social structure of non-human primates and also found in **the** characteristics of hunter-gatherer society. The most extensive of these comes from the school led by Hubert Montagner at the Laboratory of Psychophysiology Faculty of Science, Besancon, France^{14,15} and the English group, prominent amongst which is the work of Vernon Reynolds and A. Guest from the Department of Biological Anthropology, University of Oxford.¹⁶

Montagner spent six years studying by ethological methods "*how the young child of one to six years organizes his behavioural and physiological responses when confronted with questions that are posed to him by various natural or cultural environments imposed on him*". Children from 2 to 3 years old, and from 14 to 24 months, were systematically and continuously observed and filmed 1, 2 or 3 hours per day every week, from October to June in a day care centre, when they were left by their present mother or placed in free activities with their peer mates. They were also observed and filmed every 2 or 3 days, of every week, in situations that gave rise to competition for a reduced number of objects that were usually attractive and sought after. Children from 3 to 6 years were seen in 2 kindergartens in the same situations.

How do the acts and vocalizations of children follow one another when the child begins, maintains and ends communication with another child? Before being analytical and determinist, the first approach was functional, multifactorial and probabilistic. In this way the investigators isolated the most probable action sequences of each child in a communication

situation. Thus they were able to show behaviour that *links and appeases* and behaviour that brings about aggression, *breaking of contact*, retreat or escape. Within these two main groups of behaviour sequences they examined the ontogeny of certain motor sequences and constructed behavioural profiles already noted in children between 2 and 3 years.

Non verbal exchange sequences

A. Linking and appeasement behaviour

(a) *Offering*. It is often by an offering behaviour or a simulated offering that a child of 2 to 3 years establishes or re-establishes contact with other children. This behaviour causes the receiving child either to stop crying, to accept the presence of the offerer, or there is a sequence of appeasing acts (see b) followed by one child imitating the other, or a return to exchanging appeasement acts or reciprocal imitation after a conflict, or a channelling of the threat.

Offering and offering simulation are already frequently found when children of 14 to 20 months and up to 2 to 3 years play together, especially when they are in a competitive situation.

(b) *Linking and appeasement acts*. The stroke, kiss, certain bodily contacts such as taking another child by the hand, or putting his head on another's shoulder, bending the head sideways on to the shoulder, sideward movements of the body, swinging and waddling, jumping and hopping, turning round oneself, smiling and offering, form sequences and regulate the establishing and maintenance of non-aggressive communication between children from 2 to 3 years.

B. Behaviour which brings about refusal, breaking of contact or aggression

(a) Absence of response to offerings and to soliciting sequences

The child who has received a refusal or who has not received a response to his offering or soliciting has a tendency to isolate himself, to threaten or become aggressive towards this child he has solicited or another child.

(b) *Threatening behaviour*. The desire for an object, competition and conflict bring about behavioural sequences which have a threat value and which bring about acts of the same kind: the receiver abandoning the desired object, turning the top of the body away, retreating, escaping or fleeing.

Behavioural profiles of each child

The same division between linking behaviour and behaviour which breaks the links is found in the *behavioural profiles*.

... leader types, who are also dominant, express themselves in non-ambiguous sequences of appeasement acts...

Those who make the closest linking sequences, become leaders who attract the largest number of other children around them initiating play activities. These *leadertypes*, who are also dominant, express themselves in non-ambiguous sequences of appeasement acts which become more and more complex from 2 to 3 years; their offerings are frequent and spontaneous aggression is rare. There are also *dominated* children who do not participate in competitive activities, but who have leader behavioural sequences when they approach another child or see another child approaching them and who are followed by a smaller number of children. These two types are the likely progenitive profiles of later *hedonic adults* - placed here in the position of leaders because they are the most relaxed (see later for stress hormone profiles) and because using appeasement, showing and linking behaviour they find themselves surrounded by other children.

Then there are four agonistic profiles made up of various mixtures of aggressive and flight behaviours. These are the progenitive profiles of *agonic adults* once they acquire the power to inhibit this instantaneous expression. Finally there are those whose behaviour is to escape social involvement who become isolated or keep apart from the others. This

enables them to relax, as confirmed by their stress hormone profiles and some can re-affiliate to participate in social activities if approached by another child.

The factors which influence the establishment of these profiles clearly arises in the home as was discovered by evaluating parental influence using three methods:

- (1) Analysing the welcoming behavioural sequences of both parents when they came to collect the child at the child care centre, at the end of the afternoon.¹⁷
- (2) The quantification of the behavioural sequences of the parents when in the morning and late afternoon the parents were together or separately with the child in the dressing room to get them ready to enter the day care centre in the morning and to go home in the afternoon. This way we can calculate for each parent a coefficient that amounts to the following ratio: Frequency of appeasement sequences divided by Frequency of threats and aggressions.
- (3) The study of the child's behaviour on Mondays at the child care centre and on Mondays and Thursdays at the kindergarten (in France Wednesday is a holiday for school children) according to the modifications that had taken place in the family during the week-end (child care centre and kindergarten) and on Wednesdays (in the kindergarten). Questionnaires were used to obtain information concerning the social and physiological events that took place within the family during the week-end and on Wednesdays.

There is a high positive correlation between the appeasement/aggression coefficient of the dominant children and the appeasement/threat and aggression coefficient of the mother. There is no correlation with that of the father.

Each time an important variation appeared in the mother's coefficient, a variation in the same direction in the child's coefficient also appeared. From one month to another, certain children always have a coefficient higher than 2. In a general manner the appeasement/aggression coefficient and the differentiation of the behavioural profile of the child are directly linked to the type of relationship that the

family, and in particular the mother, develops with the child aged between 1 and 3 years.

Stress hormone excretion rhythms

Using urine samples collected both in the home and at the day centre estimates were made of the excretion rates of 17-hydroxycorticosteroids (17 OHCS) and of cortisol both measures of the level of stress.

These two chemicals rise in amount early in the day between 7 and 9 am in all children, but fall by 11 am in children with leader type profiles. On the other hand those with agonistic profiles remain high throughout the day falling back only between 18 and 20 hours; or they fluctuate throughout the day.

Isolated children's 17 OHCS excretion rate rise very high in the morning, but after being isolated falls rapidly in the second half of the day.

Contact body postures

Reynolds and Guest observed 12 children in a group from which they built up a catalogue of contact body postures which fell into Associative, Aggressive and Solo forms listed below.

List of social behaviour units recorded:

1. *Associative*. Arm round neck, embrace, hug, kiss, lean on, link hands, pat head/face/back/bottom, tickle, touch hand/arm, touch elbow/shoulder, touch face/hair/mouth/ears/eyes, share object.
2. *Aggressive*. Bite, bump into, dig in ribs, grab/tug, hit, kick, fight, pinch, punch, push, twist arm, wrestle, slap, fight over object.
3. *Solo*. (a) Solitary: stand alone, sit alone. (b) Groom self: bit hand, rub eyes, rub genitals, run hand through hair, scratch, bite nails, chew lips, comb hair, pat hair, pick nostrils/ear, pull ear, suck hand/hair. (c) Display self: dance, chest thump, grimace with tongue out, jump up, skip and hop, stamp, toss head, wave arms, display object. (d) Vocalisation: hum/sing, grunt, squeak, talk to self.

These categories are broadly comparable with those found by Montagner described above and Associative and Aggressive categories are the progenerative

items of behaviour for adult Hedonic and Agonic personalities respectively.

Conclusion

Thus we see that the two socio-mental modes appear in the difference between *appeasing and linking behaviour* (the hedonic mode) and behaviour which brings about *aggression, breaking of contact, retreat or escape* (agonistic mode). Children operate agonistically and not agonically as they have not yet developed the necessary inhibitory mental powers to convert agonistic behaviour to agonic. *The addition of the central nervous inhibitory activity establishes the agonic linking mode of the adult.* It should be noted how important the establishment of social links are to the child as the absence of a response to offering and soliciting sequences immediately brings about a swing into an agonistic response.

Circadian and Weekly Rhythms in *Corticosteroid* excretion levels confirmed the separation of the children's behaviour into one or other type.

Psychiatric studies

Having once grasped the nature of the two modes it is possible to see that three psychiatric authors provide evidence compatible with the discovery if not the clear formulation of the two modes. As early as 1943, A. H. Maslow, a follower of Eric Fromm, was convinced that the exclusion of psychological features of individuals, from attempts to understand society has distorted our view. Attention too exclusively to economic, political, social and other cultural forces has failed to recognise that human psychological types permeate all of these.¹⁸ His study revealed that the *authoritarian* type is basically insecure; regarding "most or all other human beings as challenging rivals who are seen as either superior and feared, resented, bootlicked or admired; or inferior and therefore to be scorned, humiliated and dominated. The *authoritarian* person expresses hatred and hostility against some definable outgroup, usually specified by historical aspects of the culture e.g. anti-catholicism, anti-semitism or colour prejudice; making a scapegoat over which to assert his superiority. This is the *agonic personality*. He contrasts this type with the *democratic* person who

tends to respect other people as being different rather than better or worse. He is able to perceive and appreciate differences. He is also more task oriented. This is the *hedonic personality*.

George Vaillant summarised the evidence of an investigation into the long term health of a batch of men graduates from Harvard University started by the Grant Study in the late 40s.¹⁹ Briefly he found the subjects of the study divided into those who responded to crises by (1) *finding solutions and meeting challenges* (hedonic personalities) and those who (2) *adopted various psychological defense mechanisms* (agonic personalities) of 3 types.

Pearce and Newton followed the lead of Harry Stack Sullivan who first formulated an inter-personal theory of human personality.²⁰ They examined veterans of the 2nd World War and concluded that the "individual is what his experience has been" and that the "self system" of the personality is divided between "the integral personality" (hedonic mode) and the "security apparatus" (agonic mode).

Practitioner's evidence

There are those in industry who have conducted an analysis of their own experience and have found a corresponding bimodality.²¹ Finally, there are those who have written telling me how the concept of the Agonic/Hedonic bimodality has assisted them in their research (Alain de Vulpian²²) and in the reorganization within the Federal Industries Metal Group of Canada (Hurst^{23,24}). Finally, a similar reorganization was brought about in a sheltered workshop manufacturing disability aids.²⁵ Wedgewood-Oppenheim has also provided a working classification of organizational cultures with the aid of the bimodal concept which helped to guide the reorganisation.²⁵

[Editor's Note: The abstract by Raleigh and Brammer bears on Dr Chance's points as does the new book *Talking to Prozac* by Peter Kramer.²⁶]

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ARTICLE: Is ISS an immobility reflex?

When I was reading Trauma and Recovery by Judith Herman¹ I came across a section entitled "Constriction". She says *"when a person is completely powerless, and any form of resistance is futile, she may go into a state of surrender. The system of self-defense shuts down entirely. The helpless person escapes from her situation not by action in the real world, but rather by altering her state of consciousness. Analogous states are observed in animals, who sometimes 'freeze' when attacked. These are the responses of captured prey to predator or of a defeated contestant in battle"*. She later says *"sometimes situations of inescapable danger may evoke not only terror and rage but also, paradoxically, a state of detached calm, in which terror, rage and pain dissolve. Events continue to register in awareness, but it is as though these events have been disconnected from their ordinary meanings. Perceptions may be numbed or distorted, with partial anaesthesia or the loss of particular sensations... The person may feel as though the event is not happening to her, as though she is observing from outside her body, or as though the whole experience is a bad dream from which she will shortly awaken. These perceptual changes combined with a feeling of indifference, emotional detachment, and profound pulsivity in which the person relinquishes all initiative and struggle. This altered state of consciousness might be regarded as one of nature's small mercies, a protection against unbearable pain. A rape survivor describes this detached state "I left my body at that point. I was over next to the bed, watching this happen... I dissociated from the helplessness. I was standing next to me and there was just this shell on the bed" ... "These detached states of consciousness are similar to hypnotic trance states. They share the same features of surrender of voluntary action, suspension of initiative and critical judgement, subjective detachment or calm, enhanced perception of imagery, altered sensation, including numbness and analgesia"*.

On reading this I thought firstly of the article by

Klemm "Identity of sensory and motor systems that are critical to the immobility reflex" in which Klemm discusses the brain mechanisms (see Abstracts & Extracts section).² One explanation advanced was that it is a predation-induced fear, but one argument against a causal role of fear was that some tame birds were susceptible and some wild birds were not. Furthermore, it is readily produced in animals with complete brainstem transections caudal to the hypothalamus and all other components of the limbic system, which are generally accepted as the neural substrates for fear and, finally, a fear-reducing drug chlorpromazine, did not interfere with the duration of this response but rather enhanced it markedly. The fear hypothesis, therefore, is not well supported by the data.

When with Russell Gardner and Kent Bailey in Toronto, I raised the question of whether the phenomenon that Herman describes could have any relationship to the phase of "acceptance" which generally follows the "Involuntary Subordinate Strategy". "Acceptance" may or may not be accompanied by submission to the adversary. "Acceptance" refers to the psychological adjustment which enables one to give up one's unattainable goals. You (Russell Gardner) pointed out that "voluntary acceptance" as described by John Price and yourself involves the neocortex. To you that means that people are able to avoid conflict by being able to decide that there is very little chance of their winning. I have argued that there is a high likelihood that the "acceptance" will be preceded by what may be a very minimal feeling of inadequacy or helplessness which helps to trigger the "acceptance", that is to say that a very weak Involuntary Subordinate Strategy (ISS) may be sufficient to trigger "acceptance". In that case what seems to be voluntary may be triggered by an involuntary mechanism. A crucial question for me is what mechanisms turn off the ISS. The ISS is designed to bring conflict to an end and helps to bring aggression under control. Is it logical to assume that there is another mechanism geared to turn

off the ISS? Is this a mechanism that helps us to deal with painful feelings by pushing them out of our mind? Though we may experience a fairly strong ISS, when we suffer a major setback it would not, one hopes, be all that common for us to experience the degree of helplessness and hopelessness that the rape or incest victim might feel. We are accustomed to thinking of the predator response as being geared to responding to attacks from members of other species. Herman suggests that it may occur in

response to attacks by member of one's own species. Could the immobility reflex have the adaptive function of helping us cope with the extremely painful feelings associated with a powerful ISS? In practice this short-term adaptation often generates psychopathology which has long term maladaptive consequences.

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by R Gardner, Jr.

ARTICLE: **Response to Sloman**

The shivering response metaphor of John Price has captured what I had learned from you and him about voluntary (versus involuntary) yielding, e.g., your city employee patient with an ISS after a post-election firing. When you discerned that the firing authority could legally do so, you counseled her that instead of continued fruitless fighting, she voluntarily give way and work on a good severance settlement. She did so with profit.

The shivering model holds that one on a low body level shivers with the cold, but that one can forestall the shivering by upper body means (?neocortical thought): turning up the heat, warm clothes. This useful metaphor has helped me explain to patients how various involuntary reactions can be handled by conscious planning. If the pattern is clear, put on the mental equivalent of warm clothing, including the thoughtful abolition or forestalling of bad cognitions (Tim Beck's version of this idea).

You mention weak ISSs that might allow acceptance responses to commence. Is this like Freud's signal anxiety which theoretically functions to get defense mechanisms underway? Defense mechanisms once better than overwhelming anxiety are newly evoked with only a small version of the dreaded stimulus.

If you are correct, then the shivering model might be modified as follows: if cold stimulates the body, a *bit* of shivering in turn could activate a vascular re-

sponse. In parallel with the immobility acceptance, shall we say that the peripheral vascular bed constricts to preserve internal heat so that further shivering is not necessary. Of course, neither reaction depends on neocortex.

But I'm pretty sure that in fact shivering and vasoconstriction coexist and are not sequential. Likewise, in my patients, the Herman constriction and the ISS are simultaneously present or occur in bewildering combinations as treatment unfolds.

Jean Goodwin, UTMB expert on severe child abuse and adult psychopathology, formulated the **BAD FEARS** acronym: B = borderline personality disorder, A = affective disorders, D = dissociation, F = fears persist as in post-traumatic stress disorder, E = eating disorder, A = alcohol and other drugs misused, R = revictimization, and S = somatization.

Rarely are severely traumatized patients spared any of these. Indeed, though immediate survival by detached acceptance may be helpful at the moment of trauma, they seem to cripple for later life. Rather than escaping the difficulties of ISS, patients have very complex behavior patterns. Partly they seem to disconnect from the rest of experience with easily reinvoked "immobility acceptances" so that experiences aren't integrated with each other. Sufferers do not have continuous personal storylines and are accordingly perturbed.

ARTICLE: Crossfire versus downfire: Interpersonal vs interindividual theories of depression

The JAMers' interpersonal views of depression

Thomas Joiner is a UT Austin-trained psychologist now in UTMB's Department of Psychiatry and Behavioral Sciences who has furnished me an article authored by Joiner, Alfano and Metalsky (JAM) concerning research on interpersonal relating juxtaposed to depression (see abstract replicated below as part of this essay). An interpersonal theory of depression was first provided two decades ago by Coyne. This has produced supportive data, but some not consistent with expectations. Thomas and his two colleagues present and adapt a theory of Swann on self-enhancement/self-consistency that they think help explain inconsistencies in this data (a shorthand allusion to their explanation is "crossfire"). I believe data may also be explained by involuntary subordination theory in an explanation called "downfire."

These five authors (who represent a number of others; we'll call them JAMers for now) who have developed their ideas and data independently from the involuntary subordination basic plan idea forwarded first by John Price in 1967 and variously elaborated by him and many of us in ASCAP over the years and which has resulted in offshoot publications in refereed journals.¹ Those representing this view will be the ASCAPians in this contribution.

Believing that idea-furtherance and creativity waxes best in a brain-storming atmosphere, I thought that it might be worthwhile to stimulate an ASCAP discussion with this other group by alluding to his article and the tradition of thought and data-production of these workers. Hopefully, perhaps, Thomas and other JAMers will become interested in the discussion as well.

I am interested in pursuing this essay to preserve a "hedonic symmetrical" tone in the sense used by John Price in his response to my challenge to explain the Houston Oilers (March, 1994, ASCAP, p8). John stated there that he "had not realised how complex the hedonic symmetrical basic plan is. No

wonder it took so long to evolve." Also see the extraordinary series of essays by Michael Chance in this and contiguous issues.

Components in assuring this tone with the JAMers and ASCAPians include attempts at humor and a gamelike atmosphere with a full tilt at a debating game. Some wag stated that the reason that academic politics are so vicious is that the stakes are so low. This, hopefully, will be unvicious with stakes that are in fact rather high: how does one view human behavior and how does science in such matters get done?

Differences between the domains of JAMers and ASCAPians

First to discuss the seemingly minor terminological dispute reflected in the title of this essay, ASCAPian basic plan thinking doesn't limit the theory to *human-only interpersonal* relations but instead emphasizes *interindividual* relations which could include interactions between conspecifics of many species. A focus on individuals does not preclude attention to the people we primarily discuss but it does highlight continuities amongst many species {*comparing* species rather than *contrasting* them in this case). John Birtchnell's book is entitled How Humans Relate which implies that there are other creatures that can relate too; he just focuses on people. Note that Michael Chance started with monkeys.

Far less Olympian, the JAMer psychologists reason closely from data and tend to be careful about speculation. Their data comes from subjects close to them: mildly depressed college students *not* psychiatric patients or/and ethological observations. They use self-report data, depending therefore on the students' introspective review of themselves. But therein lie some problems.

Theirs are psychologically, not communicationally, focused ideas, more like Freud and his mental

mechanisms than like Harry Stack Sullivan mentioned in a recent issue by Mauricio Cortina, who focused upon the communications *between* people. Freud eschewed the brain (though he was a 19th century expert in it, writing productively on aphasia in 1891, for instance. He was even asked by his psychiatrist mentor Meynert to give a series of lectures usually given by Meynert himself. Freud refused, feeling that he could not live up to Meynert's ideal). Instead, he turned his head from them assuming that the mental architecture that he tried to construct would be enough, focusing on himself or on the person on the couch in front of him. So it was good enough for a time, perhaps, but now on the edge of the 21st century, top-up is not good enough: we need top-down and bottom-up conceptualizations and research to relate to the brain and biochemistry as we deal even with the mild depression of college students.

A quote from Sullivan from his book The Psychiatric Interview gives his different focus: "[M]y definition of the interview [entails] that this communication is a two-group, and in that suggestion there certainly is a faint measure of irony. While it is practically impossible to explore most of the significant areas of personality with a third person present, it is also true that even though only two people are actually in the room, the number of more or less imaginary people that get themselves involved in this two-group is sometimes really hair-raising."¹

This is a rich statement. His allusion to hair-raising is interestingly keyed to *interindividual* comparisons in that dogs and other animals are more likely in fact to raise their hair than are people. His allusions to other, imaginary people, refer to the story-lines that people construct rather automatically and unthinkingly. He (and we all) knew that present interactions reflect past ones. Further, "*In fact two or three times in the course of an hour, or more, whole new sets of these imaginary others may also be present in the field.*"

Where is the basic action of the two models? Is it in the person's *mental* system? The JAMer's student-subject *has a motive and a need and uses*

the other person to help it get met. This is different from being a group member who reacts to the communications of others, whether in the present depending on the characteristics of the other person, or in the past as well, such that memory dictates the present. The traditional site of action for much *psychological* research is instead in the mental and psychological. Its core is introspection and is very human-centered. It reflects the Cartesian split between body and mind and opts for mind, assuming (like Freud in the early 20th century) that this would be sufficient.

The contrasting ASCAPian site of action derives more from ethology and psychiatry (despite the *psych* in psychiatry) including the power of psychiatric drugs which reflect brain action. It resides in communications between Sullivan's two-group participants on the one hand, and within the participants' brains on the other hand. It is more like the object of an ethological study rather than the data of introspective person and is a world-view that fits modern science better: individuals acting and their molecules behaving at the same time provides more easily replicable data than do assessments of motives inferred from self-reports.

Curiously, in an aside, are selfish gene theorists more JAMian than they are ASCAPian, albeit disguised a step or two away from the mind? They identify intensely with how the genes operate. They *think* about how what seems to be apparent adaptation is extremely important, whereas the actual apparatus is unimportant. I sometimes wonder if the intense debates on the site of core action (gene vs body vs group) are in fact debates on a site of thought.

But now, having scaled the ASCAPian heights of grand thought, let us return to data and ordinary reality: what does the paper by JAM say and how can the information be understood? I next reproduce the abstract of the article as this gives the reader the overview of JAMer thinking. Following sections provide a close reading (with interspersed commentary) of the body of the manuscript with an attempt to produce cross-tradition linkages via the questions

raised and discussed.

Abstract

Joiner TE Jr, Alfano MS, Metalsky GI: Caught in the crossfire: depression, self-consistency, self-enhancement, and the response of others. *J Soc Clin Psychol* 1993;12:113-134.

Abstract: We proposed and tested an integration of Coyne's interpersonal theory of depression with work on the interplay between self-enhancement and self-consistency theory. Students' levels of depressive symptoms, reassurance-seeking, and negative feedback-seeking were assessed at Time 1 and their same-gender roommates' appraisals of them were assessed five weeks later. In line with our conceptualization, we found that depressed students reported engaging in more self-enhancing reassurance-seeking *and* more self-consistent negative feedback-seeking than nondepressed students at Time 1. In addition, as predicted, it was the combination of negative feedback-seeking, high reassurance-seeking, and depression which placed subjects at greatest risk of negative evaluation by their roommates. Implications of our conceptualization and results for future work on interpersonal aspects of depression are discussed.

From the article: Coyne's interpersonal theory
Coyne's theory dating from the mid 1970s "posits that mildly depressed individuals seek reassurance from others to alleviate their doubt as to whether others truly care about them."

Note the attachment theory emphasis. In the Birtchnellian schema this is seen as the horizontal emphasis on closeness and distance (versus the vertical dimension Price and others emphasize). With a conciliatory focus, John Price has noted that the vertical is ancestral to the horizontal, but John Birtchnell has emphasized in reply that there may be nothing more ancient than approach and approach avoidance (horizontal axis).

Restating Coyne's idea then, his notion has it that the depressed students wanted to diminish distance in that they wanted more care. There is no mention of mild depression possibly being a signal to another

person of a recognition that the depressed person may feel him/herself to be losing and the other is winning and that they wish to resign from the struggle without a fight (i.e., "involuntary subordination" and Birtchnell's vertical dimension).

JAM's focus is a different focus than that of construing the depressed student in a communicational propensity state: in this conception, because of the state, he is more or less likely to say or do certain things of signal value to others. Motive (s/he "wants" to be closer) is always inference, but a state is less so; it can be defined with greater precision.

JAM in their introduction point out that Coyne's reassurance wish theory ran into trouble, because "Although others initially respond with reassurance, the depressive's doubts resurface and compel him or her to seek further reassurance, thus establishing a downward spiral" - moreover, Coyne proposed that the depressive seems to induce negative affect in significant others which, when it rises, causes the depressive to indeed be rejected.

JAM then list 18 subsequent studies that confirmed the rejection hypothesis (though 4 studies showed disaffirming results); 16 studies showed that depressives elicited negative affects in others. JAM note that a "contagion" effect does not account for why depressives elicit rejection from others. They address this in their own research, asking, "Why are depressives rejected by significant others?"

Moderator variables

Moderator variables are constructs in psychological research that qualify the magnitude of the depression-rejection relationship and are exemplified by self-disclosure, self-blame, aid-seeking, helping behavior, and aggressive-competitive responses or discrepant power relationships. The latter two, of course, are of greatest interest to the ASCAPIans who view depression in the context of agonistic reactions. Hokanson shows up most frequently amongst these authors.² However, JAM state that no consistent moderator variable has emerged from this line of inquiry.

Self-enhancement (S-E) theory stems from Jones in the 1960s and was joined by Swann's self-consistency (S-C) theory in the 1980s. S-E posits that people want others to treat them positively; S-C says people want that others should treat them in ways that confirm their self-concept. This includes even negative self-concepts, so that one who thinks badly of him or herself may elicit reactions that confirm the badness. Schrauger in 1975 and Swann 12 years later "proposed that cognitive and affective reactions to self-relevant feedback are not always congruent and, in the case of people with

negative self-views, are incongruent.... affectively pleasing but cognitively disaffirming.... [on the other hand], negative feedback is both affectively aversive but cognitively confirming." JAM use the term "cognitive-affective crossfire" to "conflict between relatively analytical, self-descriptive processes on the one hand and emotional reactions on the other." Hence their title and their explanation of the conflicting results for the research stimulated by Coyne's hypothesis.

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by R Gardner, Jr.

REPORT: ISHE meeting

Report on the biannual meeting of the International Society for Human Ethology (ISHE), Toronto, Ontario, August 2 through 7.

A number of present (and plan-to-be) ASCAPIans attended ISHE in Toronto, most prominently perhaps, our President-Elect, Leon Sloman, who organized a series of talks on the involuntary submission strategy, now fondly called ISS. What Leon has done in Toronto is quite exceptional and exciting: he has called it to the attention of investigators from other disciplines, especially and namely, cognitive therapy and sociology, and they guardedly - "we need more data" - but excitedly are putting forth new concepts that integrate other schemas with that of the ISS. Thus, Steven Swallow showed how Beck's cognitive triad and the troubled cognitions of depressed people are seen as complementary rather than opposed to the ISS; Cathron Hilbon-Gibbs has integrated the schemas of Bowlby. It all went swimmingly until, in one line of questions from the Scotsman human-zoologist-working-in-psychology Eric Selzen somewhat irritably queried why ISS should be considered ethology at all. Leon reasonably replied that his motive concerned the origins of the theory in John Price's observations of other species: if there were phenomenological similarities, perhaps there was genomic and neuronal similarity as well.

A primary reason that I went to Toronto was to hear Iraneus Eibl-Eibesfeldt (fondly called "Eibl," I learned, indicating the affection which he holds in the field) and he didn't disappoint. He has authored the tome of Human Ethology and some consider him to be the founder of the field.¹ I hadn't realized until his plenary address that before focusing on humans, he was the one who had discovered as a fish-ethologist that small cleaner fish help large groupers clean their teeth and oral cavities of parasites and debris, just as some birds do for crocodiles. We have all by now, of course, learned of this phenomenon. His observational capabilities set the stage for launching the field of human ethology.

I met for the first time the new ISHE president, the extraordinary Bill Charlesworth from the University of Minnesota, who had studied with Eibl and Konrad Lorenz before turning his attention to cooperation and competition in school-aged children on whom he has spent some decades of research. He didn't talk much about that, but those who knew his work mentioned it in ways that made me wish that he had. Charming, humorous, words and concepts rushing from him but in always understandable and interesting language, he is somewhat discouraged about academia and education. He feels that psychology

bypassed an important observational phase in its development and rushed too quickly into its analysis and conceptual phases, a kind of garbage-in, garbage-out view of the field.

Ranking after Leon's ASCAPian-relevant mentoring work at the University of Toronto, one of the most exciting developments of the conference for me was a new acquaintance with Daniel G. Freedman from the University of Chicago - indeed soon to retire from there. I had known Daniel X. Freedman who was chairman of psychiatry at the same university but not much about Daniel G., although I recalled that he had been influenced by John Paul Scott of the genetics of dog behavior fame (both had been involved in an selfish gene-skeptic symposium at HBES along with David S. Wilson several years ago). As we have outlined in these pages before, Daniel X. in his youth was affected by John Paul too: Scott's first college teaching job was in Daniel X.'s home town in Indiana and he knew him as an adolescent.

But it turns out that Daniel G. has been the mentor and head of an intellectual group populated by current figures in the ISHE: Glenn Weisfeld from Wayne State University (ISHE Newsletter editor and ASCAPian), Carol Weisfeld from University of Detroit Mercy, and Nancy Segal from University of California Fullerton, who is well known for her twin research and who is rejoining the ASCAPian fold. See the first page for her need to find control subjects for her twin studies: people raised in the household who are not genetically connected and who are/were in the same grade. These might include families where the previously childless mother got pregnant as soon as the new baby was adopted or where two children were adopted at roughly the same age. Potential subjects may be adult and indeed quite mature. Participation in IQ testing and other matters are what is involved. It can happen anywhere (subjects don't have to travel to California) and Nancy assured us it doesn't take much time.

At a most enjoyable dinner during the conference, Carol Weisfeld told us about when she had been a

third grade teacher prior to graduate school and one of her 8 year old students had been disinhibited to an extreme; instead of doing some group assignment, he would openly read Penthouse magazines. Carol spoke of him to Glenn who wondered aloud about frontal lobe problems, so she asked the family whether anything had ever happened to the boy's head: it turned out that when only months old, the child had been impaled through his eye by a tree branch. There was great concern for saving the eye (which happened) but apparently more than that was damaged. He continued being a holy terror with other schoolchildren. The following year Carol learned from his then teacher that all the other boys were fearful of him, preferring to stay in the classroom with the teacher than to be on the playground with his uninhibited and unpredictable aggression. We talked of the recent publicity given Phineas Gage mentioned in the July ASCAP and in the 20 May 1994 issue of Science. In 1848, a pointed tamping iron was arrowed through his prefrontal cortex by an explosion. He survived with altered character.

Back to Daniel G. Freedman: he told in his address of his research with Bowlby's concept of "internal working models" for relating to others, that commenced with his work with J.P. Scott. Relating depended on developmental experience differently with different breeds of dogs, showing the importance of genetic factors. He told of how internal working models (which seemed very like guiding personal storylines to me) can cause troubles in marital relations. For instance (he was self-disclosing) he was someone very nurtured when young which meant that he naturally expected it, but also - to avoid being smothered - he adopted a somewhat aloof manner. His wife, on the other hand, is a person who desired demonstrated affection resulting in part from her place in the family (compare with Michael Chance's "linking" behaviors). The Freedmans are very close to one another, but their internal working models interfere at times until they talk and deliberately arrange that their mutual needs are accommodated. Most impressive for me, however, was how the internal working models of the mentor carried over the intellectual generations into, for instance, the nurturance provided by the

Weisfelds in the presentations made by a number of their students to the group at large. This makes me optimistic about the future, despite recognition of Bill Charlesworth's concerns.

Similar intellectual lineages were evident from the Europeans present. The Max Planck Institutes have been highly effective, and now Karl Grammer is fostering the Ludwig Boltzmann Institute in Vienna. Amongst other things they study urban ethology. Karl provided exciting information on new data reduction techniques using computers that map observed courting relationships that work or don't work in both Europe and Japan. He measured a number of actions defineable as "bursts" and then measured their number, duration, speed, and size. He concluded that small, slow, short events reflect real female interest and that males can and do perceive this.

An exciting Viennese study featured Klaus Atzwanger's measurements of walking speed in six

parts of Vienna. In interviews afterwards, the subjects were asked their height, weight, and social status (using standard demographic variables). For women there was some correlation with body size, but not for men. For males and not females, the overwhelming determinant of walking speed was status: the higher the status, the faster the walk. In the audience, some wondered about the true top rankers: in monkeys, apes and men, such often move *less* not more. When the serotonin system was discussed by Roger Masters and Michael McGuire was discussed, the emphasis was on the quiet dominant, not the fast moving one. Perhaps, Klaus wondered, such dominants weren't on the Viennese streets. Some audience members wondered if other parts of the world were studied, where dynamic, upwardly mobile women were seen to walk, and whether there would emerge a correlation for females as well.

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ABSTRACTS & EXTRACTS...

Raleigh MJ & Brammer GL: Individual Differences in serotonin-2 receptors and social behavior in monkeys.

Klemm WR: Identity of sensory and motor systems that are critical to the immobility reflex ("animal hypnosis").

Holman SD & Hutchison JB: Is sexual-aggressive vocal communication related to asymmetric mechanisms in the brain?

Karni A, Tarne D, Rubenstein BS, Askenasy JJM & Sagi D: Dependence on REM sleep of overnight improvement of a perceptual skill.

Osorio D & Bacon JP: A good eye for arthropod evolution.

Rosen DH: Inborn basis of the healing doctor-patient relationship.

Raleigh MJ & Brammer GL: Individual differences in serotonin-2 receptors and social behavior in monkeys. Society for Neuroscience Abstracts 1993:19:P592.

Pharmacological studies suggest that enhancing serotonergic function promotes affiliative behavior and reduces impulsive, injurious aggression in primates. The present investigation examined the

relationship between spontaneously occurring differences in affiliative behavior (grooming and proximity to other), aggression (rate and likelihood of escalating to a more severe form) and serotonin-2 (S₂) receptors in 16 adult male vervet monkeys (*Cercopithecus aethiops sabaues*). The number (B_{max}) and affinity (K_d) of S₂ receptors were determined in 13 cortical and subcortical areas. The number of S₂ receptors in the posterior orbitofrontal cortex, medial frontal, and amygdala, was inversely related to aggressive behavior ($r = -.74, -.63,$ and $-.61$ respectively). S₂ receptor number in the posterior orbitofrontal, hippocampus, amygdala, and temporal pole correlated with the likelihood of being in proximity to and being groomed by other ($r > .63$ for each comparison). Multiple regression indicated that the number of S₂ receptor sites in the posterior orbitofrontal cortex and amygdala explained intersubject variation in affiliative and aggressive behavior. In combination with lesion studies, these observations suggest that there are regional differences in the contributions of serotonergic systems to the inhibition of aggression and expression of prosocial behavior and implicate the posterior orbitofrontal cortex and amygdala as regions particularly involved in the expression of social behavior.

Klemm WR: Identity of sensory and motor systems that are critical to the immobility reflex ("animal hypnosis"). The Psychological Record 1977;1:145-159.

The immobility reflex (IR) is a unique behavioral immobility state that occurs in a variety of vertebrate species; the phenomenology of the IR has been the subject of many investigations for many centuries (reviewed by Chertok, 1968; Gallup, 1947a; Gilman & Marcuse, 1949; Klemm, 1971a; Ratner, 1967; Svorad, 1956; Volgysei, 1966). Despite the sustained scientific interest in the IR, relatively little emphasis has been given to elucidation of the physiological mechanisms. This present review will, therefore, attempt to stimulate further research on IR mechanisms by presenting an analysis of the sensory and

motor mechanisms that cause IR, as they are now understood.

Many of the problems associated with this kind of analysis converge in the seemingly elementary task of naming the state. Some of the early names (animal hypnosis, death feint, playing possum, mesmerism, and others) are seldom used any more because they are anthropomorphic. One of the more common contemporary terms, "tonic immobility," focuses appropriately on the cardinal sign of the state, its immobility. However, since the immobility is spontaneously terminated within a few seconds-to-minutes, one could argue with equal logic that an equally valid descriptor is phasic immobility, a term which has been paralleled by the name "paroxysmal inhibition".

I prefer the term "immobility reflex," which not only has the advantage of behavioristic description but also fosters thinking along lines of the neurophysiological bases. As should become manifest subsequently, the IR does exhibit most of the characteristics of a reflex, albeit a complex one, as classically defined: it is a reversible, involuntary, unconditioned, and stereotypical response to specific kinds of sensory stimulation (commonly manual restraint, especially with inversion).

Although the IR is generally considered to have a common underlying physiological basis in the higher species that are susceptible, it is possible that the mechanisms are different in certain species. Therefore, I emphasize that most of the data from which conclusions are ... drawn were derived from vertebrates, especially frogs and rabbits, and to a lesser extent, rats and chickens.

Holman SD & Hutchison JB: Is sexual-aggressive vocal communication related to asymmetric mechanisms in the brain? Aggressive Behavior 1994;20:223-234,

In Mongolian gerbil males, a reliable asymmetric relationship has been discovered between a stereo-

typed ultrasonic vocalization and the volume of a discrete nucleus within the preoptic-anterior hypothalamic area, the sexually dimorphic area, *pars compacta* (SDApc). The steroid-sensitive ultrasonic, emitted at high levels during courtship interactions, is associated with the absence of aggressive encounters and appears to be necessary for the formation and maintenance of pair-bonds with females. Interactions between unfamiliar, non-pair-bonded adult male and estrous female gerbils result in male aggression, reduction of male ultrasonic calling, and disruption of normal female dart-male follow sociosexual sequences. Castration further reduces ultrasonic calling, inhibits normal sociosexual sequences, and increases aggression in interactions between unfamiliar compared to pair-bonded individuals. Both brain structure and lateralization of vocal function in males depend on the action of sex steroids during sexual differentiation and in adulthood. Thus, the gerbil provides a new model to study steroid-dependent lateralization of brain mechanisms of vocal behavior mediating aggressive-sexual relationships.

Kami A, Tanne D, Rubenstein BS, Askenasy JJM & Sagi D: Dependence on REM sleep of overnight improvement of a perceptual skill. Science 1994;265:679-682.

Several paradigms of perceptual learning suggest that practice can trigger long-term, experience-dependent changes in the adult visual system of humans. As shown here, performance of a basic visual discrimination task improved after a normal night's sleep. Selective disruption of rapid eye movement (REM) sleep resulted in no performance gain during a comparable sleep interval, although non-REM slow-wave sleep disruption did not affect improvement. On the other hand, deprivation of REM sleep had no detrimental effects on the performance of a similar, but previously learned, task. These results indicate that a process of human memory consolidation, active during sleep, is strongly dependent on REM sleep.

Osorio D & Bacon JP: A good eye for arthropod evolution. BioEssays 1994; 16(6):419-424.

Insect and crustacean lineages diverged over 500 Myr ago, and there are continuing uncertainties about whether they evolved from a common arthropod ancestor or, alternatively, they evolved independently from annelid worms. Despite the diversity of their limbs and lifestyles, the nervous systems of insects and crustaceans share many common features both in development and in function. Cellular and molecular embryology techniques reveal good evidence for homologies in the developing segmental ganglia. In the visual system, this seemingly common programme of insect and crustacean CNS development culminates in common adult neural function. Comparisons of the cellular anatomy and physiology of animals as diverse as flies and crayfishes indicate that the neural circuits in the lamina of their optic lobe have been inherited largely unchanged from a common ancestor with good compound eyes.

Rosen DH: Inborn basis for the healing doctor-patient relationship. The Pharos of Alpha Omega Alpha Fall 1992;S5(4):17-21.

I hypothesize that there is an inborn "hard" scientific basis for the healing doctor-patient relationship, which complements the so-called "soft" art of healing. In other words, there is an innate or archetypal basis for the healing bond, which is built upon a biology of acceptance, empathy, and hope. Support for this supposition comes from analytical psychology, ethology, and developmental psychology. I suggest that "hard" science and "soft" art are two halves of a whole, or two sides of the same coin. This presumption has immense importance for self-healing, which is fundamental to doctors successfully establishing and maintaining healing relationships with patients. Furthermore, the science and art of the doctor-patient relationship seen as a whole must be the bedrock of medical education and the healing process, which is, after all, why our profession [of medicine] exists. G3

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