

ASCAP NEWSLETTER

Across-Species Comparisons And Psychiatry Newsletter Volume 1, No. 5, 15 April 1988

A new scientific truth does not triumph by convincing its opponents but rather because its opponents die, and a new generation grows up that is familiar with it. Max Planck

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For the philosophy guiding this newsletter, see footnote on p. 5(1). Newsletter aims:

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

Notes: This issue is dedicated to Mary Frances and William Schottstaedt both recently retired from UTMB. Mary Frances has waded through manuscripts on intraspecific communication and despite their foreign language and concepts, her comments were always anathetic (1b). For her colleagues as well as for her students, she is a much-to-be-missed teacher. Fitting the emphasis boxed above, she has been a steadfast advocate for the younger generation at various stages of professional development.

Some time ago she mentioned work done three decades ago by husband William on renal changes associated with what ASCAP calls communicational states. This month's essay features one of these papers as in it human subjects demonstrate the bodily effects of agonistic versus hedonic communicational tone (1a). From such findings, Mary Frances speculated that eventual understanding of how lithium helps in mania may relate to sodium regulation because lithium and sodium share metabolic similarities.

This issue's emphasis on organ function as well as on the next generation of investigators makes highly

suitable the timing of a letter from Herbert Weiner, respected teacher and leader of psychosomatic medicine, past-president of the American Psychosomatic Society, past-editor of Psychosomatic Medicine, and investigator of the pathogenesis of peptic ulcer and other illnesses affected by psychosocial factors.

Previous readers of ASCAP will note a change in the box above: instead of featured neologisms (see footnote 1), the Max Planck quote from Carl Gustavson's bulletin board seemed particularly appropriate after the Ann Arbor meeting on Evolution and Human Behavior (EBH) sponsored by UMich with Randy Nesse's quiet sure guidance. Randy and the EBH group provided a number of younger colleagues from a variety of disciplines with the same opportunity to speak as that accorded well known established figures (e.g., MT McGuire & I Marks). Younger scientists, clinicians and graduate students expressed enthusiasm for viewing psychopathology via evolutionary adaptive mechanisms.

Snapshots of some of these younger colleagues include that of Jim Dillon, UMich, who noted that children with attention-deficit hyperactivity disorder (ADHD) may have had this behavior genetically favored; to render his idea in ASCAP language, ADHD may be evidence of abnormally expressed alpha psalic (1c).

Kalman Glantz, evolutionarily aware psychologist of Cambridge, Mass, studies chronically ill street persons and conjectures that many are demoralized ADHD kids grown larger.

Jim Kennedy, 4th yr. Yale resident, has a degree in molecular biology and also just published on dominance in group psychotherapy (2).

Ron Immerman from Cleveland wondered if sexually transmitted disease may reduce the transmission of genes of humans that display alpha psalic (ASCAP shorthand again) as they may render themselves sterile. (Point-counterpoint, William Hamilton of Oxford, Engl, known for inclusive fitness theory, noted that genetic mixing from sex millions of years ago may have made ancestral (and present) species more fit by better defense from disease: sex helps keep host organisms ahead of rapidly mutating infective agents. He separately pointed out that sexual selection includes selection for health.)

Robert Jensen, pediatrician from Minneapolis, studies family interactions of diabetic children including impact of family "tone."

Patrick Nickolettu, U.Chicago, strives to investigate evolutionary biology and psychopathology, but has not found such integration easy during Ph.D graduate study.

Henry Berger from Philadelphia works with families. Arman Asherian from Ann Arbor is a non-clinician interested in state-trait issues. Mark Walden, UMich, is caught by game theory and Webb Sentell from Vanderbilt wants to explore adaptive features of psychopathology. Others about whom I know less include Kathryn Hjorleifson from Toronto, Kathy Grenem, Liz Cook and David Godwing from Ann Arbor.

Letters to the Editor:

February 23, 1988

your new newsletter .. I think is going to be very interesting. I agree with you fully that we need some common language to describe human and animal behavior. After all, there is continuity. Did you by any chance read David Crew's paper

with Moore in Science? That is the kind of thinking we need in medicine and psychiatry. Along that line I hope I can send you a paper I recently wrote that tries to do something but not in the way you have.

...the field [discussing psychiatric politics] really needs some kind of intellectual leadership and a firm statement about the principles for which we have always stood. .. It is up to all of us to stop .. proclaiming that we are really doctors and [that we should] use a model that was outdated 150 years ago in medicine. If we don't, we will end up like the neurologists localizing lesions somewhere or other in a hypothetical brain that consists of a lot of schizophrenic and grandmother neurons. .. I appeal to you .. (and) .. the younger generation to give our field a little substance.

Herbert Weiner, UCLA, Calif.

Please do send your paper. In this brainstorming phase of our work, we especially need varied expressions of these ideas. If your paper, or a part/abstraction of it, would suit ASCAP, we would all be grateful. RG

January 28, 1988

I greatly enjoyed your new newsletter. It is a fine idea and provides a nice informal communication network ..example[s] of reciprocal altruism.

I have no specific comments on the bird peck equation, but send along a manuscript from another approach (3).

I will be on Nesse's evolutionary psychiatry panel on Mon afternoon (APA meeting, May, 1988, Montreal].

March 12, 1988

...once again enjoyed the newsletter. There is something positively medieval in the public (versus private) nature of correspondence via the newsletter. .. fine with me for you to abstract the medieval dynasty manuscript into the newsletter.

Jerry Kroll, U.Minn, Minneapolis

Communications and Renal Functions.

Excerpts (with editing) from:
Schottstaedt WW, GraceWJ, & Wolff HG:
Life situations, behaviour, at-
titudes, emotions and renal excretion
of fluid and electrolytes-II:
retention of water and sodium;
diuresis of water. J. Psychosom. Res.
(1956) 1: 147-159.

INTRODUCTION: These studies on
healthy individuals were undertaken
to define specific situations with
behavioral and emotional responses
associated respectively with
decreased and increased urine flow.

METHODS: Two types of studies were:
(1) long-term self-report data from
diaries covering 14 to 46 days on 5
healthy persons engaged in usual life
Urine samples included several hour
period lengths [details omitted].

(2) short-term observations for 2-4
hrs [for the Ss summarized, com-
municational setting was detailed].

When clearcut, the differentiation
of emotions, such as anger, fear, or
depression, is easily made by most
individuals. Differentiation of
feeling states sometimes offers con-
siderable difficulty, but individuals
can learn to make certain gross dis-
tinctions with fair reliability.
Thus, when approaching an examina-
tion, one may feel confident of his
knowledge and ability and certain
that he will perform adequately if he
is "on his toes." At such times he
may be aware of muscular tension; but
he refers to this feeling state as
"tension" even when unaware of any
muscular reaction. Such a grouping
of situation, behavior, attitude, and
feeling state constitutes pattern A

[A' occurred with freedom from
tension when the S was more relaxed].
The same person may, on the other
hand, approach an examination uncer-
tain of his knowledge and ability,
fearful lest he fail. At such times,
he will describe his feeling state as
apprehension, anxiety, or uneasiness.
This grouping is pattern B. The

situations may appear similar, but an
important part of the situation is
*the S's evaluation of his capacity to
meet it* (italics added).

Short-term observations occurred
over 2-4 a.m. hrs in a lab. Ss sat
throughout following overnight
abstinence from food and water.
After baseline observations, inter-
views included pleasant and diverting
topics or topics known to elicit sig-
nificant emotional responses. Be-
havior, attitudes, emotions, and
feeling states were evaluated by both
S and observer, the observer relying
on S's utterances, intonation, facial
expression, bodily movements, and
blushing, blanching, blood pressure,
and pulse rate. Urine specimens were
collected hourly and excretion rates
of water, sodium, and potassium were
determined before, during and after
each interview.

RESULTS: Pattern B was not men-
tioned in the results, but patterns A
and A' were seen frequently in the
long and short term studies.

What were A and A'? The short-term
study provided good descriptions.

S1 was a 34-yr-old nurse. An S
previously, she knew the setting
well. However, she also knew the
studies were connected in some way
with "emotions" and did not wish to
discuss personal topics with a
strange doctor. She said later that
she felt "alert" and "on guard" lest
something "be put over" on her.
During hr 1 she sat in the lab while
an unfamiliar physician walked in and
out about his duties. After specimen
collection, her own physician came
into the room. She said, "When I saw
him I felt a wave of relief pass over
me," and both she and the observers
were aware that she relaxed at this
point(A'). Both physicians remained
in the room during the succeeding hr,
spent in diverting conversation.

Despite the fact that S1 was fast-
ing and had had no fluid for more
than 12 hours prior to the experi-

ment, there was a striking increase in urine volume after the "freedom from tension." The increase in rates of sodium and potassium excretion brought these values into the normal range for "neutral" for this S. Pattern A had been accompanied by decreased water and electrolyte excretion and storage of fluid. Sudden freedom from tension was associated with release of fluid.

Table: Communicational State and Excretion

Subject	State	Hater*	Sodium**	Potassium**
1	A	0.5G	18	10
	A'	4.98	71	42
2	A'	3.16	111	39
	A	0.46	57	30
	Neutral	0.60	105	56

* = cc/min ** = microequivalents/min

S2, 47-yr-old secretary, complained of multiple aches and pains associated with generalized muscle tension. Her life was one of restraint and inhibition. She had worked over 20 years for a man she detested, without trying to find another job lest she get something worse. In addition, she was suspicious of all physicians and all test procedures. When she arrived at the lab in the morning, having fasted and drunk no fluid since the previous evening, she was told that due to unforeseen circumstances the test would be delayed for an hour. She was then left in a familiar room to read a magazine. She appeared at ease and said she felt "relaxed." Following this, she was taken into an unfamiliar lab setting, given an intracutaneous injection, and told this was a skin test which would have to be observed carefully over the next hour. During this period she sat rigidly in her chair, speaking only in response to direct questioning always in monosyllables. Her posture and movements made it appear to the observer

that she was especially alert, though she stated subsequently only that she felt "a little more tense" during hr 2 than hr 1. Excretion rates during the 3 hours of the experiment are tabulated. Decrease in fluid and electrolyte excretion was noted during the hour of "tense," restrained sitting. Excretion rates or all substances increased during hr 3, indicating the retention did not stem from body depletion.

Comment; In their METHODS, the authors struggled to capture differentiated feeling states that would translate somatically. They implied that the distinctions between A and B were subtle (see italics); from our present vantage point (and from the results also!), this was indeed correct. These distinctions implied more knowledge of, and control over, automatic processes than Ss do indeed show. The authors simplified along a human preparatory set dimension. Simplification is of course needed to summarize data and analyze it statistically. However, the idea that the principal dimension should be one common to multiple species was not then current, but awaited the neologistic approach of ASCAP's focus on intraspecific communication these many years later!

So to deploy this, let us focus less on the fine details of how the S experienced and discriminated feelings (subjective state) but rather on the communications each S received and how they perhaps "calculated" these in terms of R. Fortunately, the detailed descriptions of what happened provide excellent basis for conclusions about communications.

We begin with Price's classification of signals into 2 kinds according to effects on recipient-R; in these cases, this relates to how the Ss as signal receivers calculated the nature of R-related signals they were likely to get. Let us liken such signals to alphabetic letters shared

across species which can be combined in various ways by different species to form "words" of greater species-specificity. The fundamental task, then, becomes detection of "alphabet letters" and avoidance of becoming hung-up on human species-particulars, eg, language or discriminated affect.

So, how can phenomena presented above be recast as catathetic and anathetic signals (1b) and from there into other neologized concepts? That these concepts interrelate refers to efforts in ASCAP#1 and calls to mind to Paul Gilbert's questions in ASCAP#4; hostile dominance can be seen as composed of catathetic signals; these are not either-or concepts. Also, noting Ss to be receivers of signals, not just producers, focuses attention on psalics.

S1, fearful about sharing personal topics with a strange doctor, experienced his presence catathetically because she felt he might potentially ask her something. We conjecture she feared that he might reduce her R as he might cause her to be exposed and hurt. When her own doctor came, her relief can be understood as receiving anathetic signals (seeing and hearing him) that enhanced her R, i.e., made her feel stronger, more able to face threat. And the communicational tone changed from agonic to hedonic (1a).

S2 initially relaxed in a comfortable room; the familiarity and her magazine were anathetic signals. But changing locations and getting the skin test were catathetic signals that seemed to her to reduce her R, by rendering her vulnerable and potentially violating her body.

Thus, patterns A and A' refer to agonic or hedonic tone respectively. Further, both women carried to the situation an anxious preparatory set, in that they were cautious, wary and expected persecution. This mild variant of paranoia describes out-group omega psalic (1c), a communicational propensity state in which

catathetic signals are expected. On the other hand, when they relaxed, their psalics seemed more characteristic of alpha-reciprocal and/or nurturance-recipient psalics.

Reading this paper, I remembered Mike McGuire's concerns in ASCAP#3 and Paul Gilbert's essay in ASCAP#4 as their queries highlighted the anthropomorphization problem we face. Only now are we delineating dimensions in humans that also exist in non-humans and then comparing these to those emergent in humans only. Mental illness is usually conceptualized as human only and "standards of proof" are somehow needed to assure "rigor of investigation" when the behaviors and bodily processes of non-human animals are discussed or studied. At the EHB conference, I resonated with one discussant (I think Mildred Dickemann) who stated that evolution no longer needs proving; let's get on with the work ahead if proof is assumed (see above box)!

Refocusing the question from one of individual psychology to one of adaptive communication possibly relevant across species summarizes the import of this reanalysis of the Schottstaedt et al article. Of course, an N of 2 is too small for a definitive answer but the strength of effect on the few Ss we do have and the clarity of the interpersonal subtleties of the experimental situation are models for further investigation that needs yet to be done (given institutional review boards agree). The question, however, has become better defined.

Also, pathophysiology of "communicational" processes is not restricted to CNS system mechanisms. Here we see the kidney involved. With data that white blood cells (4) make pituitary hormones and that blood platelets possess receptors binding tricyclic antidepressants in conjunction with serotonin uptake mechanisms (5), we easily conjecture that much of body gets involved with what goes awry.

ASCAP #6 (May 15) will feature more from John Price and Paul Gilbert concerning R or resource holding potential, Emma's tale and psalics.

In ASCAP #7 (June 15), we will learn about how inclusive fitness calculations deployed with animals may pertain to humans, as from Jerry Kroll's example of a medieval dynastic decision.

For those who are new recipients of ASCAP but who wish to enhance their R with issues 1 through 4, let us know.

1. Philosophy and goal: High scientific importance rests on comparing animal behaviors across-species to understand better human behavior, knowing as we do so that evolutionary factors must be considered for understanding properly such behaviors. To accomplish these comparisons, very different new ways of viewing psychological and behavioral phenomena are required. This in turn explains why we need new words to define and illustrate new dimensions of comparisons across species. We expect that work in natural history biology combined with cellular-molecular biologic research will emerge as a comprehensive biologic basic science of psychiatry. Indeed, this must happen if we are to explain psychiatric illnesses as deviations from normal processes, something not possible now. Compare to pathogenesis in diseases of internal medicine.

Some neologisms that hopefully will help implement these goals are those of:

a) Michael R. A. Chance: 'hedonic' and 'agonic' refer to the tone of groupings of conspecifics (i.e., members of a same species) i.e., relaxed and fan-loving versus tense and competitive. First initiated with CJ Jolly in 1970, this term is referenced fully in ASCAPII, December 15, 1987, Footnote 1.

b) John S. Price: "anathetic" versus "catathetic" are new terms to describe a classification of communications between conspecifics. Catathetic messages are "pot-downs" whereas anathetic signals "build-op" the target individual.

c) Russell Gardner, Jr.: "psalic" is a 2 way acronym: Propensity States Antedating Language In Communication and Programmed Spacings And Linkages in Conspecifics. This describes communicational states conjecturally seen in psychiatric disorders and in normals (humans and non-human animals), such as alpha psalic seen in manics, high profile leaders and dominant non-human animals. The eight psalics are named alpha (A), alpha-reciprocal (AR), in-group omega (IG0), out-group omega (OG0), spacing (Sp), sexual (S), nurturant (N), and nurturant-recipient (NR).

All of the above new or renewed terms are initiated or elaborated in Chance, MRX (Ed) Social fabrics of the Hind, due out in mid-1988, published by Lawrence Erlbaum Associates, Hove and New York,

2. Kennedy JL, Mackenzie KR: Dominance hierarchies in psychotherapy groups. Brit J Psychiat(1986) 148: 625-31

3. Kroll J, Bachrach, B: Evolutionary biology and early medieval dynastic decisions. Unpublished manuscript.

4. Blalock JE, Bast KL, Smith EM: Neuroendocrine peptide hormones and their receptors in the immune system. J. Neuroimmunol (1985) 10: 31-40.

5. Barbaccio M, Gandolfi O, Chuang DM, Costa E: Modulation of neuronal serotonin uptake by a putative endogenous ligand of imiprimine binding sites. Proc Natl Acad Sci (1983) 80: 5134-8.