

A S C A P N E W S L E T T E R

Across-Species Comparisons And Psychiatry Newsletter
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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: ASCAP issues have often featured the concept of R (resource holding potential). Biology borrowed the idea from economists (ASCAP #4).

Talking one day with my son, Ben Gardner, who knows TV, I learned about "Friday the 13th: The Series." As he told me about a particular diabolical device, I sat up and asked detailed questions. I was preparing a departmental presentation on managing a patient with borderline personality disorder (next issue) and was struggling to best explain R.

A bargain with the devil produced a recycling machine: if a person got pushed into it, the other end spewed forth a number of crisp 1967 \$1 bills, proportional to that person's absolute or substantive R (JSPrice, ASCAP 16): An R machine! (Unhappily for research, reversing the process is hard.) In ASCAP #4, we quoted from J. Maynard Smith that for inclusive fitness game theory, a single scale for measuring different outcomes is needed. In long time scale biology, Darwinian fitness provides such a unitary dimension. On a short time scale, could absolute R function so?

In Kroll and Bachrach's example below, we may see the two candidates for such single dimensions juxtaposed: genetic mathematics of inclusive fitness versus R. Are the two mutually compatible? In traditional language, does this relate to ultimate versus proximate causation?

Journal Quotes: For how many of you was the concept of "G protein" mentioned in ASCAP #6 foreign? If your interest was piqued, there are current review articles in Science and Nature; the latter (2) begins: Cells communicate with each other by .. signal molecules, such as neuro-transmitters, hormones and growth factors, ..detected by specific re-ceptors on the plasma membrane of the responding cell. Stimulation of a receptor by its agonist initiates a cascade of biochemical processes that produce an intracellular signal, which ultimately causes a change in the behaviour of the cell .. secretion of an enzyme, contraction or initiation of cell division.

One class of receptors, including the phototransducing molecule rhodopsin, the muscarinic acetylcholine receptor and the P-adrenergic receptor, operates by activating a membrane-bound transducing protein termed a GTP-binding or G protein..

..Since many cells contain ..very similar G proteins, an important question is how signals remain specific as they cross the cell membrane.

As ASCAP considers the full dimensions of a basic science of psychiatry, we consider such cellular-molecular as well as whole organism facets of behavior. How the two domains interrelate and interact will be eventually required knowledge

Letters:

May 4, 1988

"Mate Selection in the Service of Human Evolution" by Steven and Leon Sloman [was] accepted for publication by the Journal of Biological and Social Structures. It was nice having something accepted that was written together with my son.

May 17, 1988

In about ten days I am off to China. I thought I would give you .. feedback about the APA meeting.

..the panel on evolutionary biology organized by Randolph Nesse was so well attended that late comers, like myself, had a lot of trouble getting in. This indicated to me that there is an increasing recognition on the part of our colleagues that this is an up and coming area. Randolph, himself, presented on the evolutionary relevance of some of the well known psychoanalytic mechanisms of defense. I might say that I was extremely impressed with his familiarity with the field and he seems to have a good working relationship with a number of the leading authorities in the field. However, I did have some reservations about the specific topic in that psychoanalysis is highly inferential. Leon Sloman Clarke Inst of Psychiat

May 9, 1988

..The ASCAP Newsletters have been most inspiring and directing for me.

For now I will make only two comments. First, new words should be useful and not devoid of connotation (feeling). They must work linguistically if they are to be both useful and survive. They must evolve from other similar words or sound categories or they will be poorly functioning and selected out. Care must be taken that words do not become institutionalized by their appearing in print before the creative and selective forces can operate. I feel some of the new words may have

personal validity but not linguistic integrity. I will try to be more specific after reviewing the newsletters once more.

Second, I was flattered that you mentioned my attendance in Ann Arbor. However, I was surprised to read that my ideas (3) and Dr. Hamilton's ideas are oppositional. I suspect that .. a second look [would] find that selection by sexually transmitted diseases is a special case of Dr. Hamilton's more general ideas.

..[Interested in your] paper which reported ideas on the etiology of bipolar illness. I have [felt too]... that it is a communication disorder. Relationships induce episodes. Perhaps histories I have taken from my manic-depressive patients .. will help you.

In the same light, I would like to recommend a book which ... impresses me as being very important. (4) It is essentially an associative model of linguistics and cognition. Freud must be grinning from ear to ear. Linguistics are finally catching up to Freud's insights.

Another .. book: Communication and Social Order by Hugh Duncan. Ronald S. Immerman, Cleveland Clinic

Brains versus genes and genes won. (abstracted from manuscript entitled Evolutionary Biology and Early Medieval Dynastic Decisions by Jerome Kroll and Bernard Bachrach, UMinnesota, Minn, MN)

Can an evolutionary biology model apply to historical phenomena? Here we hope to illustrate, through an extended family history how historians can do so: inclusive fitness theory predicts a correlation between closeness of kinship and level of altruistic behavior, however measured. (5)

Hamilton (6) suggested that evolutionary determinants of behavior are influenced by the fact that relatives may possess identical genes. This explained an anomaly for evolutionary

theory, that behavior patterns exist that fail to increase the reproductive fitness of a particular individual displaying them, such as altruism, defined as behavior that raises the fitness of a conspecific but lowers that of the actor. Thus, the overall fitness of the actor's genome continues through its redundancy in the genomes of related benefactors.

Decisions of five generations of the Angevine dynasty in Normandy from the 10th to 12th centuries constitute this pilot study, because we know in detail the degree of relatedness of all members of one extended family and can juxtapose this against their participation in supporting or subverting the survival and aspirations of the core family. Fulk the Red, the founding father (died ca. 942) was followed by the family's steady expansion of territory, power and influence. Through advantageous marriages, placement of loyal family members into important episcopal sees, avoidance of internecine warfare, treaties, castle building, and occasional wars, the Angevin house rose from a small dependent state to dominate western France. (7)

The particular succession decision examined here was that of Geoffrey Martel who died childless in 1060 after three marriages. He was the only son of Fulk Nerra, Angevin Count from 987 to 1040, and had a half-sister Adele and a full sister Hermengard-Blanche, each of whom had two sons, his four nephews. He left the family holdings to the sons of Blanche, Geoffery the Bearded and Fulk IV or Fulk le Rechin, not to the sons of Adele, Bouchard and Fulk. In the following we will seek to understand determinants of this decision. The sociobiologic idea would have it that the reason for his decision stemmed from sharing 1/4th of his genome with the favored nephews and only 1/8th with the others. But we

will review the atmosphere of the decision more closely, however, for the possibility that other factors known to have influenced members of such aggressive families figured here. Can patrilineal factors, strategic locations of the landholdings, personal reasons relating to quality of the intra-family relationships, or "quality" of personalities to be the inheritors better explain Geoffery's decision?

Patrilineal factors: Adele was the daughter of Fulk Nerra from an earlier marriage than the one that produced both Geoffery and Blanche. Clearly there was no difference from the patrilineal view point between the two sisters. Indeed, recent arguments that matrilineal elements in this era were insignificant for succession reckoning are contradicted by this example. (8)

Strategic locations of the landholdings: Geoffery Martel's grandfather and father had pursued aggressively a territorial policy that emphasized the strategic importance of Vendomois to the Angevin heartland. Vendomois was contiguous to the heartland borders and commanded its northeast frontier. It was the dominant town on the river and was exceptionally important to the economic life of the region.

Another region that could have figured in this decision making was that of Chateau-Landon crucial to the eastern part of the rich Orleanais. However, this lay 250 kilometers east of Geoffery Martel's capital, was little valued for trade issues in western France.

If Geoffery Martel had based his decision on landholding strategy, therefore, he would have given the heartland to Adele's sons because they held the Vendomois whereas Blanche's held Chateau-Landon.

Personal reasons relating to quality of the intra-family relationships: He had an excellent relation-

ship with Adele but a poor one with Blanche, whose promiscuity caused scandal and brought disrepute to the family. (9)

Indeed, Geoffery Martel had taken Blanche's younger son, Fulk le Rechin, from her in order that the dowager countess could herself raise him at the Angevine court. However, this was apparently no great success because this Fulk demonstrated "deficits and excesses of character." Later he became known as "The Malevolent" indicating how he was perceived by his contemporaries.

Personality qualities of the inheritors: Apparently more is known about the negative qualities of Blanche's kids than the positive features of Adele's. But in addition to the unpleasant features of Fulk le Rechin already mentioned, the old man clearly did not trust him at all. Usually the "majority age" was recognized by the Angevins as 15 years, but Geoffery Martel waited until this Fulk was 19 and Geoffery was on his deathbed before this was granted. (10) Geoffery the Bearded was later adjudged insane by his contemporaries and had likely shown premonitory signs in his youth. (11) Later Fulk the Malevolent imprisoned him.

Inclusive fitness hypothesis: In making his dynastic decision, Geoffery Martel acted to maximize his genetic representation in future Angevin generations without knowledge of chromosomes, genes or the mathematics of population genetics and in clear opposition to policy guidelines that others of his family had been known to operate by.

Comment: Usually in matters where ultimate and proximate causation are at issue, both can be seen as operative, but at different levels. The hypotheses alternative to Kroll and Bachrach sociobiologic thesis are each proximate explanations; put otherwise, if we could know in detail

what Geoffery Martel had thinking, the proximate version of Hamiltonian mathematics of inclusive fitness would include something like the conscious thought: "I chose Blanche's sons because they are more fully related to me." From hindsight, we now see clearly that the family's overall R was not augmented by the old man's deathbed decision. Interestingly, however, R issues were at the core of of at least two of the alternative proximate hypotheses: the family's strategic holdings and the personal qualities of the inheritors (the latter works in that the personality and psychiatric illness characteristics of Blanche's sons did not later help the family's assets.)

The postulated alternative explanations essentially argue that since this bias towards R did not successfully sway the dying old man's decision, the genetic closeness-relatedness explanation is the better one.

Forgetting about inclusive fitness and R for the moment, I found the story gripping in a manner similar to stories I hear from patients and found some other proximate explanations emerge in my mind as I thought increasing about this dying old man who had to make these decisions. We know so little about his personality and the nature of his preoccupations. Some psychiatric hypotheses occurred to me (defined roughly as some ideas that occurred to me, a psychiatrist.) Understand of course, that the following are proximate causation ideas.

The two psychiatric hypotheses generally classified are:

1. Geoffery's psychodynamics. Did Geoffery Martel possess more affiliation with Blanche's sons than was prudent for family R, such as for "irrational" reasons.

- a. Did the fact that Geoffery the Bearded possessed the same name as the old man figure in his dynastic decision? So Geoffery the Bearded

was showing premonitory signs of illness; how might these have been evident to the old man? Or indeed, might he have been blind to them? Or might he have stubbornly resisted the suggestions of others that such existed; or if they did, did he state "No matter. I don't care. Who is master here?"

b. Did the fact that Fulk le Rechen had lived with him influence the old man's decision making? (despite exposure to F.'s lousy character - which may have seemed to the possibly benevolent father figure a persistence of being youthful, the real reason for delaying until 19 to confer majority status). That is, was he identified with the youngster despite (or indeed, because of) the bad-acting?

2. Geoffery's mental status.

a. What was the terminal illness and did he have an organic mental disorder? How might he have been influenced by others surrounding the bed? How had been the decision-making process for him and his court? What was the tone of the deathbed scene? Agonic, hedonic? Who made catathetic and anathetic statements and how did these affect his feelings and judgement?

b. Was Geoffery tainted by the same bad genes that his full sister's children seemed to possess? Why did he have so many marriages for example? Was he psychotic or sociopathic and therefore less capable of exhibiting good judgement (as defined with respect to R) than others in the lineage? Did he, that is, have an endogenous psalic that influenced his production and reception of the above mentioned signals that exist in any exchange, human or otherwise?

Again, these are fantasies related to proximate causation that went through my mind as I worked this fascinating article into shortened shape for ASCAP. Geoffery didn't need to

know about chromosomes or genes, however, to know that Blanche's kids whatever her and their problems were more closely related than were Adele's - however nice the latter may have been. That closer relationship might have been influenced in some way by whatever conscious or unconscious calculations go on; certainly, any of us do compute many when it comes to estimating R in ourselves and others.

I hope that Jerry and his colleague do not take offense at and feel these comments to be catathetic. Once into the mystery, and finding it very stimulating, I found that my psychiatric training and experience had me constructing fictions about what might have happened proximally.

For those desiring to enhance R with old issues, let us know.

ASCAP #8 (July 15) will present a practical extension of using R-calculations for managing a patient and will abstract Hank Slotnick's computer simulation of a behaving single "animal."

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 neologises that hopefully will help implement these goals are those of:

- 1) Michael S. A. Chance: "hedonic" and "agonic" refer to the tone of groupings of conspecifics (members of a same species) i.e., relaxed and fun-loving versus tense and competitive. First initiated with CJ Jolly in 1910, this term is referenced fully in ASCAP #1, Footnote 1.
- 2) John S. Price: "anathetic" and "catathetic" describe conspecific communications. Catathetic messages "put-down" whereas anathetic signals "build-up" the resource holding potential (R) of target individuals.
- 3) 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 with psychiatric disorder and normality (human and non-human), ie, alpha psalic seen in manics, high profile leaders and dominant non-human animals. Eight psalics are named alpha (A), alpha-reciprocal (AR), in-group omega (IGO), out-group omega (OGO), spacing (Sp), sexual (S), nurturant (N), and nurturant-recipient (IE).

All of the above new or renewed terms are initiated or elaborated in Chance, MSA (Ed) Social Fabrics of the Mind, due out in 1988, published by Lawrence Erlbaum Associates, Hove and New York.

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4. Lakoff G: Women, Fire and Dangerous Things: What Categories Reveal about the Mind Chicago: U.Chicago Press, 1987.

5. Trivers R (1985) Social Evolution, Menlo Park, California, pp 41-4.

6. Hamilton WD (1964) The genetical evolution of social behaviors, parts I and II. J Theoretical Biol 7: 1-52

7. a. Halphen L (1906) Le comte d'Anjou au XIe siecle, Paris

b. Gulliot O (1972) Le comte d'Anjou et son entourage au II siecle, 2 vols., Paris

c. Bachrach BS (1986) Some observations on the origins of Countess Gerberga of the Angevins: An essay in the application of the Tellenbach-Werner Prosopographical Method Medieval Prosopography 7.2. pp 1-23.

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9. a. Beech G (1964) A Rural Society in Medieval France: The Gatine of Poitou in the Eleventh and Twelfth Centuries, Baltimore, p. 49.

b. Marchegay P (ed) (1900) Cartulaire de l'abbaye de Ronceray d'Angers, Paris and Angers, No. 64.

10. Ibid, 3A, p 134

11. Ibid, 3A, p.148