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

Across-Species Comparisons And Psychiatry Newsletter
Volume I, No. 13, 15 December 1988

> Phantasy abandoned by reason produces impossible monsters; united with her, she is the mother of the arts and the sciences and the origin of their marvels.
>
> F. Goya Modified by Anthony Storr (1)

(c/o Russell Gardner, 1.200 Graves Building (D29), University of Texas Medical Brand, Galveston, Tx 77550)

For the philosophy guiding this newsletter, see footnote on p. 7 [2]. 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: Holiday greetings to all of you! As a token of the season, this issue presents to you first a treat, a quote from Francois Jacob, on evolution as a tinkerer not an engineer; second, ASCAP provides its year-end "Prospects and Self-Evaluation;" thirdly, this issue's very important essay, by Kalman Glantz and John Pearce, Toward a Theory of Intrapsychic Conflict. renders into evolutionary terms concepts used daily by psychotherapists.

A background to the treat: I recall reading out-loud Jacob's wonderful, brief and lucid book when traveling by auto in the south with daughter Martha in 1983 while on sabbatical. The passage quoted here caught roe then with special force. Going yesterday to an exhibit of modern sculpture, much of it from found objects, brought it again to mind, as did son Ben's comment that "Childhood should be added to, not forgotten." All this summed to make me feel that this passage of Jacob's book would be a pleasant Xmas message for ASCAP friends, transmitting intelligent good will for the New Year!

From: Jacob, F (1982): The Possible and the Actual, NY: Pantheon Books, pp 34-44.

"In contrast to the engineer, evolution does not produce innovations from scratch. It works on what already exists, either transforming a system to give it a new function or combining several systems to produce a more complex one. Natural selection has no analogy with any aspect of human behavior. If one wanted to use a comparison, however, one would have to say that this process resembles not engineering but tinkering, bricolage we say in French. While the engineer's work relies on his having raw materials and the tools that exactly fit his project, the tinkerer manages with odds and ends. Often without even knowing what he is going to produce, he uses whatever he finds around him, old cardboards, pieces of string, fragments of wood or metal, to make some kind of workable object. As pointed out by Claude Levi-Strauss, none of the materials at the tinkerer's disposal has a precise and definite function [3]. Each can be used in different ways. What the tinkerer ultimately produces is often related to no special project. It merely results from a series of contingent events, from all the opportunities he has had to enrich his stock with leftovers. In contrast with the engineer's tools, those of the tinkerer cannot be defined by a project. What can be said about any

of these objects is just that "it could be of some use." For what? That depends on the circumstances.

"In some respects, the evolutionary derivation of living organisms resembles this mode of operation. In many instances, and without any well-defined long-term project, the tinkerer picks up an object which happens to be in his stock and gives it an unexpected function. Out of an old car wheel, he will make a fan; from a broken table a parasol. This process is not very different from what evolution performs when it turns a leg into a wing, or a part of a jaw into a piece of ear. This point was already noticed by Darwin and discussed in the book he devoted to the fertilization of orchids [41... Darwin showed how new structures are elaborated out of preexisting components, which initially were in charge of achieving a given task but became progressively adapted to different functions. For instance, the glue that originally held pollen to the stigma was slightly modified to affix pollen masses to the body of insects, thus allowing cross-fertilization by insects. Likewise, many structures that make no sense as features subservient to some end and which, according to Darwin, look like "bits of useless anatomy," are readily explained as remnants of some earlier functions. So, concludes Darwin, "if a man were to make a machine for some special purpose but were to use old wheels, springs and pulleys, only slightly altered, the whole machine, with all its parts, might be said to be specially contrived for that purpose. Thus throughout nature almost every part of each living being has probably served, in a slightly modified condition, for diverse purposes, and has acted in the living machinery of many ancient and distinct specific forms."

"Evolution proceeds like a tinkerer who, during millions of years, has slowly modified his products, retouching, cutting, lengthening, using all opportunities to transform and create. The formation of the lung in terrestrial vertebrates, as described by Ernst Mayr [5], provides a clear example of this process. Lung development started in certain freshwater fishes living in stagnant pools lacking oxygen. They adopted the habit of swallowing air and absorbing oxygen through the walls of the esophagus. Under such conditions, enlargement of the surface area of the esophagus conferred a selective advantage. Diverticula of the esophagus appeared and, under continuous selective pressure, enlarged into lungs. Further evolution of the lung was merely an elaboration of the same theme: enlarging the surface for oxygen uptake and vascularization. Making the lung with a piece of esophagus sounds very much like making a skirt with a piece of Granny's curtain. ...

"It is probably at the molecular level that the tinkering aspect of evolution is most apparent. What characterizes the living world is the basic unity that underlies its tremendous diversity. The living world contains bacteria and whales, viruses and elephants, organisms living in polar areas at -20°C and others living in hot springs at 70°C. All these creatures, however, exhibit a remarkable unity of structure and function. Similar polymers fulfill similar functions. The genetic code is the same and the translating machinery very nearly so. ... once life had started in the form of some primitive, self-producing organism, further evolution had to proceed mainly through alteration of already existing compounds. But these new proteins could be only variations on previous themes. ... When DNA sequences are compared, large segments

of genetic information turn out to be homologous, not only in the same organism, but also among different organisms, even among those that are phylogenetically distant. What distinguishes a butterfly from a lion, a hen from a fly, or a worm from a whale is much less difference in chemical constituents than in the organization and distribution of these constituents. ... Among neighboring groups, chemistry is the same. As emphasized by Allan Wilson [6], differences between vertebrates are a matter of regulation rather than of structure. ... The one-dimensional sequence of bases in the genes determines in some way the production of two-dimensional cell layers that fold in a precise way to produce the three-dimensional tissues and organs that give the organism its shape, its properties, and as Seymour Benzer puts it, its four-dimensional behavior [7]."

ASCAP Prospects and Self-Evaluation.

Speaking of the fourth dimension, ie, life-form over time becomes behavior, let's consider the behavior of ASCAP-making over time. One year ago the first ASCAP issue went out: I had new computer software, the season was pre-Christmas, and I wished to solve the problems of 1) having few persons locally to talk to about the coordinated issues of evolution and psychiatry, and 2) desiring to communicate with multiple such persons who were far away. The solution was this newsletter. Results were brisk responses from like-minded persons that meant to me a continuing effort was worth the energy and time. And it persists in seeming so still! Indeed, let me announce that we have a very interesting contribution from The Birmingham Group to lead off our first issue of Vol 2 (15 Jan 89.) Further, in the Feb 89 issue (2,#2), Ricarda Mussig will present an ethologic explanation of why the first drawings of children stereotypically represent the human body as a round-topped tree ("kugelbaum") with a big head, which is long compared to the lower body.

Both hers, and this issue's featured essay, were initially presented at the U Mich's Evolutionary Psychology and Psychiatry (EPP). This meeting, in late October, was the second Ann Arbor meeting this year for those with ASCAP interests; an April event was called Evolution and Human Behavior. As planning for EPP commenced, ASCAP's mailing list expanded, beyond the initial friends.

As this issue winds down vol 1, the time seems opportune to review reactions to it. What is the project's best and its worst?

The crisp, friendly - sometimes heated! - exchanges were the "best." Colleagues shared excitement and ideas — some felt strongly and contributed to the idea pool, often but not always with contributions around the common theme. A particular group in England (The Birmingham Group) has begun to meet regularly about ASCAP issues. I'm envious; I wish that that Birmingham were as close as Birmingham, AL (though Martha and I got lost there!) or even better, Houston. Oh, to be but a train-ride away! Not that their ideas are immune from critical commentary, but then that is the brainstorming pleasure of it all.

ASCAP has met criticism. Its "worse features" seem reflected in comments that it is hard to read with concepts hard to understand. Sometimes this was conveyed gently, as "I'm glad you put the definitions each time in the footnotes because I keep forgetting," and sometimes very directly: "It's not simple, too hard to understand. I find I don't bother to read it." Some don't like neologisms; neologisms seem an affront, "making things more complex than they need to be." I'll exemplify this point with psalics. One person asked: "...Could what you

are interested in be more simply described as 'animal communication and psychopathology'?" Or, "Neologisms are bad enough. A neologism that has two meanings is impossible." One critic felt angry at what he experienced as presumption: "Only Nobel Prize winners are qualified to come up with integrating concepts like that." Oh dear! Relax. Play a bit. Or, mixing anathesis and catathesis, I quote Steve Martin: "Excuuuse me!"

Also, the across-disciplinary nature of the subject matter may have contributed to difficulties in understanding. Contributions or excerpts have ranged from allusions to "G proteins" affected by lithium which are cellular second messengers [8] to determinants of dynastic decisions in medieval France (inclusive fitness vied with conventional psychiatric formulations in that essay!) Those who know about norepinepherine and hypothalamic peptides may not know, nor be interested in, inclusive fitness, and others deeply into direct patient contacts, ethology or artificial intelligence may be less caught up by either and further not see it worth their while to learn.

Perhaps prose condensation didn't help either. This might have been another reason for recalling Jacob's piece for a holiday greeting: He writes clearly, simply, and doesn't hesitate to teach with repetition. He helps us learn his concepts plainly but elegantly, as with the use of imagery. (I like that also about John Price's prose, much appreciated throughout 1988.)

Returning to Jacob, he emphasizes <u>mechanisms</u> of how the ethologists' bauplan, the basic organism blueprint, must have come about. That's clear enough for most of biology, but when the idea extends to the biology of communication, it seems a hard idea. I conclude that, for most, human communication must feel very different from that of non-humans.

Let me correct one critic above: the bauplan concept of psalic is <u>not</u> a "double-meaninged" concept; rather the concept is a single (if novel) idea; the teaching of this was meant to be aided by the two acronyms, aimed at clarifying different facets of the same fundamental concept.

So, without denying the validity of the critical feelings, I believe still that important messages haven't yet been conveyed, but that these are nonetheless important messages. If I felt that the idea had been understood but then rejected on firm grounds, ASCAP could easily take a different trajectory. But not just yet. I feel these notions are heuristically interesting and potentially productive of data. Dr. Jacob's repetition about the communality of life forms needs doing with mechanisms of across-species communications. When other daughter Beccy was small, I read to her continually; now she reads a lot to her son, sometimes what I had read to her, but usually not. She doesn't feel constrained by how things had been worded, exactly, back then.

Well, tune in next month and next year. And you-all send along some conclusions of your own!

<u>Toward a Theory of Intrapsychic Conflict</u> by K Glantz & J Pearce (9)

• • •

<u>Freud's theory of intrapsychic conflict</u>. According to S Freud, intrapsychic conflict is the central fact of development, a basic feature of mental processes in normal and pathological individuals. Infantile rages, narcissistic strivings, unacceptable wishes and Oedipal desires have to be repressed so the individual can function as an adult. The Id has to be controlled by the Ego and the Superego.

<u>Later Theories</u>. Later theories of psychotherapy, (behaviorism; humanistic psychology; object-relations;

systems theory; etc) have tended to emphasize the role of the environment in generating psychological distress. While this was a sorely needed corrective, it is naive to believe that given a perfect environment, humans would be perfectly happy. Indeed, evidence indicates that extremes of safety, comfort, wealth, opportunity or privilege are psychologically damaging.

The role of evolutionary biology.

Evolutionary biology makes it possible to develop a new theory of inherent conflict, one that is much more than in accord with what is known about the brain and mind (no "psuedo-organs," for example), yet accounts for many of the "defenses" of psychoanalytic theory. Furthermore, the evolutionary perspective allows for the integration of the role of the environment.

We list 8 factors below that contribute to intrapsychic conflict. (Other factors may certainly exist. Keep us posted on any thoughts.)

Factor 1. Parent-offspring conflict. The interests of parents and offspring coincide for the most part, but diverge in some particulars and are therefore never identical. So parents cannot be expected to act always in the best interests of their children. Hence, childhood will always be marked by some degree of conflict, and this conflict will mark the child in some way, generally be exerting a negative influence on the child's conception. Presumably, the negative influence upon the child's conception of self comes about for the following reasons: a) the child is born with a capacity to feel guilt, shame and envy (to assure its ability to function in the hunter/gatherer band)

b) The parents' self-interest (if not incompetence) will cause these emotions to become attached to various aspects of the child's self image.

Factor 2: Self-interest vs reciprocal altruism. Children are born with predispositions to reciprocal altruism as well as to individual self-interest. That these interests are sometimes in conflict hardly needs to be stressed. Children (and adults) are sometimes forced to make decisions which either (a) cause them to hurt someone they are close to; or (b) cause them to hurt themselves. These inevitable decisions can have adverse effects on self-esteem.

Factor 3: Cortical override. In human beings, the cerebral cortex has taken control of many functions that in other animals are carried out by older parts of the brain. Furthermore, through inhibitory circuits, the cortex can interfere with many functions that are still carried out by other portions of the brain. Hence, humans easily find themselves in approach/avoidance conflicts. This factor is closest to Freud's notion of the super-ego control over the id.

Factor *4:* Conflicts stemming from opposing impulses *WITHIN the* reproductive strategies of the genders. In the transition to humanity, the importance of paternal investment increased dramatically. Hales who were willing to provide it were selected for. As a result, men are divided within themselves about their commitment to family life. The increased importance of paternal investment also affected human females. In selecting mates, women must often choose between (physical and mental) attractiveness and potential investment. Unlike earler females, they cannot choose merely on the basis of signs indicating good genes.

Factor 5: Conflicts BETWEEN *the male* and female reproductive strategies. Hen have an interest in maximizing their mating opportunities and in controlling the sexual activity of their mates. Women have an interest in monopolizing paternal investment. These conflicting interests often

force indivuals to make decisions that either limit their mating opportunities, or hurt their spouses. Decisions in either direction can feed back negatively on self-image and self-respect, and build conflict into all heterosexual relationships.

Factor 6: Self-deception. Self-deception facilitates deception of others and thus can act to an individual's advantage. However, individuals deceiving themselves are likely to encounter the interpretations and attributions of others, and these will be different. The contradictions are bound to create confusion and hence inner conflict ("Am I really like they say I am?" "Why is it that they don't believe me?" etc).

Environmental factors. Human beings are adapted to life in hunter/gatherer (pre-agricultural) socieities. Presumably, this means that the damage caused by the intraspychic conflicts described above were limited (prevented from adversely affecting survival and reporduction) in that environment. In other environments, the conflicts can presumably be exacerbated. We have listed several ways in which the current environment may be creating what might be called "surplus conflict."

Factor 7: Changes in child-rearing practices. Children today are raised in ways (too numerous to mention) which differ dramatically fromthe way children were raised in hunter/gatherer societies. There are several reasons for this:

a) American society provides adults with many opportunities for personal satisfaction which compete with the satisfaction provided by proper care of children. There is now much more to gain from the pursuit of selfish interests.

b) Societal pressures adversely affect certain segments of the population, creating stress which is transmitted to the children.

c) Child-rearing is generally conducted in private, shielding the parents from the moderating influences of the group (band).

Factor 8: The random play of culture. Culture has allowed the expanded cerebral cortex to develop ideas—models of reality, self, other, etc.--that diverge dramatically from those which were prevalent in hunter/gatherer society. The cortex, having become conscious of itself, tends to value its own activity (logic, rationality, the soul) over the rest of the organism. Some examples: a) the idea that there is an individual soul which lives on after the body; b) "love me for my mind, not my body."

Defenses. As Mel Slavin (10) has suggested, repression may be useful in helping a child avoid conflict with its parents. By temporarily storing information (about the true interests of the parents) out of awareness, the child can remain temporarily unaware that they may not be acting in his/her very best interests. But since the information is repressed, rather than being forgotten, it can be retrieved later, when the child is able to use it. (Splitting in this light can be understood as a failure of repression.)

Denial may be useful in warding off attributions by others that would cause people to doubt their own motives and hence abandon a fruitful course of action.

Projection may be useful to figure out what others are feeling or doing, whether one wants to empathize with them or outwit them.

Summary. The impossibility of making choices that satisfy all impulses and predispositions feeds back on the concept of self, creating confusion, self-doubt and low self-esteem, with their attendent panoply of symptoms.

Essays (both from abroad!) for the next two issues (Is 1 & 2 of Vol 2) are described on page 3.

Old issues available on request.

1. Storr A: Solitude: A Return to the Self. New York: The Free Press, 1988, p.67

2. ASCAP 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 teed new words to define and illustrate lew dimensions of comparisons across species. We expect that work in natural history biology combiied 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 low. Compare to pathogenesis in diseases of internal Medicine.

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

a) Michael R. 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 1)79, this term is referenced fully in ASCAP #1, Footnote 1.

b) John S. Price: "anathetic" and "catathetic" describe conspecific communications. Catathetic messages "pit-down" whereas anathetic signals "build-up" the resource holding potential (R) of target individuals.

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 conjecturely 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 (AS), in-group omega (IGO), out-group omega (OGO), spacing (Sp), sexual (S), nurturant (N), and nurturant-recipient (MR).

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

3. Levi-Straass C (1962): La Pensee Sauvage Paris: Plon

4. Darwin C (1886): The Various Contrivances by which Orchids are Fertilized by Insects NY: D. Appleton.

5. Mayr E: From molecules to organic diversity. Fed Proc Am Soc Exp Biol 1964;23:1231-1235.

6. King MC, Wilson AC: Bvolution at two levels in humans and chimpanzees. Science 1975;188:107-116.

7. Benzer S: The genetic dissection of behavior. Scientific American l973(Dec issue):24-37.

8. Second messengers carry messages from the cell membrane to the cell nucleus.

). Originally presented in a poster session, Evolution, Psychology and Psychiatry Conference, Ann Arbor, Michigan, 29 Oct. 1988.

10. Slavin M: The origins of psychic conflict and the adaptive function of repression. Psychoanalysis and Contemporary Thought l985;8:Issue #3