

Committee V
The Emotions: Focus on Inter-Male
Aggression and Dominance Systems
130

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**DOMINANCE SYSTEMS AND PRIMATE ADOLESCENCE
AN EVOLUTIONARY APPROACH**

by

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Discussion Paper

on

Ritch C. Savin-Williams's

DOMINANCE SYSTEMS AMONG PRIMATE ADOLESCENTS

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1

Professor Savin-Williams' excellent presentation is a comprehensive summary of his ten years long well known research on dominance hierarchies among human adolescents. The summary however is much more than the survey and reanalysis of 16 papers. This time he integrates his research on humans into the wider framework of primate research and thereby he opens the possibility of cross specific comparison and draws lines for a sound theoretical framework for both his own and other researchers' work on adolescent dominance hierarchies.

His boldness started when he drew the attention of social psychologists that it is not sufficient to ask their subjects questions about how those subjects act and behave, but the subjects must be observed acting and behaving because people usually act differently from what they say about their own behavior. His daring statement in his first sentence that humans are animals will sound antagonistic not only to developmental psychologists, but to social scientists in general. It will probably evoke the greatest consternation from sociologists and social-cultural anthropologists who still guard the crumbling walls of the Durkheim-White-ian fortress of human uniqueness.

The relevance of his topic can hardly be exaggerated. Modern human life is basically a life in dominance hierarchies: we spend most of our waking hours in such hierarchies from corporate industry to government administration, from supermarkets to department stores, from the elementary school to the university and even our clubs, associations, churches let alone hospitals are hierarchically organized displaying a wide variety

of dominance systems. This is much more than Dumont's Homo hierarchicus and modern adolescents can hardly find a more important system to adjust to than dominance hierarchies. As soon as they are out there in the "real life" they immediately become part of a dominance hierarchy whether in college, in the office, the factory or in the army.

Therefore it is vitally important that we fully understand the significance and essence of those dominance hierarchies in human life in general and in modern human life in particular. Lack of such understanding may lead us to haphazard symptomatic handling of many social problems having their highest concentration among adolescents whether those problems reveal their complications during those stormy years of adolescence itself or they emerge later in adulthood.

Having said all that I would like to offer some comments on specific parts of Savin-Williams' paper. Since I hope that this excellent paper will in the future be available to the scientific community by publication, my comments will be focused mainly on suggestions of additional material and mainly additional points of view.

I think that the crucial part of nonhuman primate evidence can greatly be extended and organized not only along taxonomic lines. Because I think that dominance systems in primates are at least corollary if not an integral part of mating systems and largely a part of ecological adaptations, I suggest that an ecological typology would be more fruitful for the understanding of the evidence. Here are some examples. Although gibbons are apes and marmosets platyrrhine monkeys, they both are arboreal monogamists and this last fact has more influence on their dominant systems than their place in the primate taxonomy. They are closer to each other in their dominance systems than

either marmosets to howler monkeys both in the same suborder, or gibbons to chimps again both in the same suborder. Moreover langurs are too wide a taxon to be dealt with as a single group when the relevant variable is dominance hierarchies. There are langurs that live in multimale groups and langurs that live in a strict harem system. In such a harem the statement: "During puberty, as a male matures in size and strength, he asserts himself first over low-ranking females, and then as a young adult, over low ranking males" makes no sense since adolescent males live in a separate male group and have no access to females at all except if and when they are successful to take over a harem.

The primate evidence is largely focused on male behavior whereas excellent new material is available on female dominance hierarchies (Hrdy 1981). Whether there is a separate hierarchy for males and another for females or there is an all encompassing one is extremely important for the understanding of both non-human and human dominance hierarchies. As I hope to show later the impact of females on male hierarchies and vice versa is crucial. One such instant is mentioned by the author who indicates that a macaque male status is largely determined by the rank of his mother during juvenile and early adolescence. But, he adds, later after puberty physical strength, abilities and assertiveness become more influential. But physical strength, abilities and assertiveness are not independent of mother's status. A dominant mother's son has more access to food, and therefore stronger, more self-assured and therefore more assertive, than the son of a subdominant female. Differential status placement has certainly not been invented by human primates, be it as prevalent among them as it may.

Also, later the author points out the status of the mother is bequeathed to the female offspring, but not on the male offspring and he summarizes:

"While rank seldom gives breeding priority to the male offspring...

cohesiveness, travel arrangements, peaceful existence and food gathering." But again are group leadership and food gathering - to say the least - irrelevant to breeding success? The closing statement on female assertiveness is to my knowledge contrary to recent evidence.

Whereas in the nonhuman primate evidence my comments focused on organization of the material and suggested some additions, I have nothing to add to the rich material on humans, a result of the author's long standing research. Here my comments will be directed more to the theoretical interpretation.

The chapter Theoretical Review relies on an impressive series of authors who would not easily agree among themselves on a theoretical platform: Lorenz and Tinbergen represent the group selectionist of classical ethology, whereas McGuire and Alexander - and certainly Tiger (though he did not say so in his 1968 Men in Groups) would prefer individual selection. But it is important to decide which basic assumption is accepted. If we accept the group selectionist position we may be pushed toward a naive functionalism. An example: "These mechanisms (of dominance hierarchy J.S.) have evolved to reduce the harmful effects of aggression without negating its useful aspects such as protection from predators, population regulation and habitat utilization." (page 13). Nobody would doubt that dominance hierarchies do these things and have these effects on the group. That does not mean however that they had evolved in order to do these things. They have evolved as a result of vectorial interaction of individual animals the behavior of which became wired by evolution in order to adapt to the physical and social environment ultimately to assure self replication that is reproduction. The vectors of individual behaviors are different in power and usually but not always contrary in

direction. Not always, because kinship altruism and sometimes reciprocal altruism. The outcome of this series of vectorial interactions is the dominance hierarchy which may or may not have the above mentioned beneficial effects on the group. Thus if a baboon group faces a leopard, the group is maintained with its dominance hierarchy. But if it is confronted with a lioness, the group disintegrates and each individual animal tries to save itself. The integration of the individual into the group is nothing mysterious, it is the outcome of the evolution of behavior of these social animals not deviating from the well known cold calculation of natural selection. The animal the behavior of which is flexible enough to be aggressive at the right place and in the right time will survive and reproduce, the one that is either too timid or too aggressive will die or be outreproduced.

This approach seems to me more fruitful and more parsimonious than the group selectionist one, in yet another important feature of dominance hierarchies: intersex differences. Both in human and nonhuman primates we witness a conspicuous difference between male and female hierarchies. Savin-Williams' summary of those differences is exceptionally revealing:

"The female pattern of expressing or recognizing authority in a indirect fashion is considerably more conducive for developing and maintaining close knit relationships than is the more competitive and direct assertion of power by males" and later "There is female flexibility, temporally as well as situationally." (page 29)

A somewhat different pattern emerged of my research on female hierarchies in a kibbutz (Shepher and Tiger 1978:246) the difference stemming mainly of the fact that those hierarchies are of adult women in task

oriented groups. I found that female hierarchies are problematic structures, very different from male hierarchies. There is wide reluctance to accept authority and rather strained relations among the individuals. Authority is concentrated in one single usually menopausal older female per work group and there is usually no gradation of authority.

Why should female dominance hierarchies be so different of male hierarchies?

The answer - I think - is to be found again in the individual selectionist evolutionary thinking. I suggest the following line of explanation:

1) The only single criterion of life is self replication. All living things replicate themselves through different mechanisms: division, halving, self fertilization and sexual reproduction.

2) Since evolution is genetic change its main vehicle is reproduction. The living individual's adaptation is aimed at replicating itself that is its genes, i.e. reproduce.

3) Individuals in sexually reproducing animals must combine their genes with those of another individual to create a zygote; an offspring. The reproductive strategy of the individual will be determined by its proportional contribution (investment) in the future offspring.

4) In mammals parental investment is highly asymmetrical: males always invest less than females. Consequently females become a limiting factor of male reproductive success. Mammal males will tend to be polygynous, mammal females would opt for the mating system that promises the best male investment in the future offspring.

5) The ultimate function of male dominance is reproduction though the proximate functions may be several: food, status, power. The striving of the mammalian male for reproductive success will be checked by other males and by the number of consenting females. An ecological situation that calls for high male investment in offspring will result in a monogamous (in humans very rarely polyandrous) mating system, otherwise the system would be polygynous. Eighteen percent of primate species are monogamous, the rest polygynous. In humans 29% of the cultures are monogamous, less than 1% polyandrous, the rest polygynous.

6) Consequently male dominance hierarchies would be aggressively oriented, well graded, triangular and stable. They would be more prominent in polygynous species than in monogamous ones. Dominance would be a central point in male life because the price at stake is very high: access to the ultimate limiting factor of reproductive success: consenting females. Variance of male reproductive success will be high reflecting the triangular dominance hierarchy.

7) Female dominance hierarchies will be manipulatively oriented, flat, nongraded and unstable. Females are interested in guarding the precious product of their high parental investment by nesting themselves among supportive kin and in soliciting and preserving male parental investment. Hence the manipulative orientation of female dominance systems. Female variance of reproductive success is low reflective of the flat hierarchy.

All this seems to contradict the author's statement:

"Given the ethological studies conducted to date, the genetic advantage of a particular status position is a matter of speculation." (32) The problem is methodological: in the nonhuman primate case calculation of

reproductive success is extremely difficult mainly because of the inability to demonstrate paternity and the difficulty of multigenerational follow up research. In the human case other difficulties arise especially in modern mass society (in small hunter-gatherer and horticultural groups the evidence does not leave place for speculation). Most of the data in mass society refer to birth rates and it is obvious that birth is only part of the story. In a yet unpublished paper D.R. Vining, Jr. (1983) of the University of Pennsylvania declares: "In short, until evidence is presented to the contrary, I think we can take it as one of the universals characterizing modern culture that social and reproductive success are inversely related." While I do not think that Vining's data demonstrate convincingly what he says, he himself finds an explanation why and how this contradiction came about. Whereas usually culture follows biological predispositions, there is drift in cultural evolution not less and sometimes more than in genetic evolution. And because cultural evolution is Lamarckian and works through group selection the impact of such a cultural evolutionary drift is both more rapid and more comprehensive than the impact of genetic drift in biological evolution. Two such drifts - I claim - brought modern society to the brink of extinction: The invention of hormonal birth control and the invention of nuclear weapons. The first contradicted the epigenetic rule of parental investment and therefore separated between social-cultural and reproductive success. It ultimately can (and I think does) undermine human mating systems and can result in a demographic extinction. The second created a means of destruction against which the genetically evolved solution of dominance hierarchies are powerless. If we could have a world dominance hierarchy, the horrible spectre of nuclear holocaust would probably

disappear. Without it the threat of the extinction of the human species is too obvious.

Adolescents, growing up toward adult social and biological roles are primed to act according to epigenetic rules that have evolved through millions of years of the coevolutionary process. If and when they grow up they will have to face a new cultural environment with the pill and the nuclear bombs and missiles. Let us hope that they will do a better job than their parents and grandparents.

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