

ical characteristics. If individual self-actualization and the concomitant desired organizational outcomes do not occur, what is the explanation? Is it that the manager's actions were ineffective or faulty or that the employee had only a limited potential to self-actualize and therefore could not benefit from the manager's benevolent actions? Will failures in obtaining "desired organizational outcomes by cultivating a context consistent with the natural inclinations that influence human social action" be attributed to inadequate cultivation or to the undesirable natural inclinations of employees?

We now consider Maslow's hierarchy outdated. However, it is almost always the first theory presented in textbook chapters on motivation, and its basic ideas live on in the concept of intrinsic rewards in expectancy theory. But which of the two theories do students remember? Which of the two theories do managers use? Biology does matter, but will managers make use of the ways in which it matters, or will they just remember that it does matter?

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Dallas Cullen
University of Alberta

On Maslow, Monkeys, and Evolution

In her commentary Professor Cullen points out that in our article introducing socioevolutionary thinking to management theorists (Pierce & White, 1999), we overlook a very significant antecedent: Abraham Maslow's early work on non-human primates (1935, 1936a,b, 1940). Like Maslow's, our work on socioevolutionary theory is grounded in studies of nonhuman primates (Chance & Jolly, 1970). We thank Professor Cullen for drawing this intriguing precedent to our attention.

Professor Cullen also asserts that Maslow's well-known theory of motivation was based upon his earlier animal studies (1943). If so, this would be especially interesting, because most contemporary primatologists (Boehm, 1999; Stanford, 1999) believe the behaviors of monkeys can help inform the behaviors of humans through the evolutionary link with a Common Ancestor. However, Maslow seems conflicted on this point. In his seminal article he argues, "There is no reason whatsoever why we should start with animals in order to study human motivation" (1943: 392). And he cites no animal studies (including his own work) in support of his theory of human motivation. Yet, in an earlier article Maslow argued that nonhuman primate research was a way to better understand "general humanness" (1937: 487), and he drew direct parallels between human behavior and the behavior of nonhuman primates in his other work (Maslow, 1937, 1965). Given the magnitude, scope, and utilization of his primate studies, they no doubt influenced his thinking about human motivation (Cullen, 1997). His primate research connects his theory of motivation, at least tentatively, with evolution.

Rather than debate Maslow's Darwinian credentials, we believe it is more interesting to examine if his theory of motivation is consistent with contemporary evolutionary thinking about individual and social behaviors. Much has happened since the publication of Maslow's theory. Rigorous thinking about the relationships between evolution and (social) behaviors accelerated beginning in the 1960s (Hamilton, 1963; Price, 1970; Trivers, 1971; Wilson, 1975). Putting behavioral theories into a contemporary evolutionary frame proves an interesting and instruc-



tive exercise. Because of its roots in nonhuman primate behaviors, Maslow's theory is an excellent candidate for such an endeavor. In the limited space remaining, we will endeavor to reinterpret Maslow's work from an evolutionary perspective.

To begin, evolution is not directly concerned with needs, motivations, or any other cognitive apparatus. Evolution selects for behaviors. Needs (or proximate psychological mechanisms, a term preferred by evolutionary psychologists [Cosmides & Tooby, 1997]) are only of interest in evolution to the extent that they influence behaviors. Even more important, not all types of behaviors are of interest. Only heritable behaviors that confer *survival advantages* upon an individual or group are meaningful in evolution. Consistent with selfish gene theory (Dawkins, 1976), a survival advantage is any heritable behavior that increases the (relative) frequency of the gene or genes related to that behavior in subsequent generations. Clearly, gene frequency has much to do with reproductive success: mating and the survival of offspring. Early primatologists, including Maslow (1936a,b), recognized mating competition as an important aspect of group life. But most primate researchers of this era were attempting to explain group stability, cooperation, and competition. Although the reproductive drive was acknowledged, heritability, gene frequencies, and survival advantages were not featured.

In his hierarchy Maslow recognized the importance of basic physiological and security needs; behaving in ways that fulfill these basic needs enhances each individual's continued existence. Since the dead and infirm produce few offspring, such behavior enhances the prospects for reproductive success and, consequently, gene survival. Ensuring that basic physiological and security needs are met is entirely consistent with evolutionary thinking.

The need to belong, and behaving in a way that keeps the group—family kin-group, hunter-forager community—together, also have potential survival advantages. Inclusive fitness theory (Hamilton, 1963) using gene frequency arguments made it clear why there can be survival advantages for closely related individuals to live together and help one another. However, there also may be advantages to living in a group or community that includes nonkin (Trivers, 1971). If so, then a desire or

need to belong to a group may be an aspect of our common evolutionary heritage and a basic part of human nature. Again, a belonging need is consistent with current evolutionary thinking.

Maslow closely associated esteem with dominance. Maslow's dominance-feeling (or -seeking) individuals had higher levels of emotional security, self-confidence, and self-esteem (1937, 1940, 1942). From an evolutionary perspective, attempting to achieve dominance entails certain benefits—increased access to mating opportunities and other resources—and certain costs—risk of injury or death by challenging the incumbent dominant. More self-confident, assertive (and perhaps aggressive) individuals are inclined to assume these risks and reap the benefits, thus increasing the frequency of the self-confidence (or self-esteem) gene in subsequent generations. But Maslow (1943) failed to recognize that given free rein, the dominance drive, the unfettered pursuit of self-esteem and the esteem of others, would destroy the group. Thus, an offsetting social behavior (or need) coevolved: a willingness to submit or be subordinate. This tendency could be characterized as a respect (or esteem) for others, particularly those in positions of dominance (or authority). Indeed, nonhuman primates live in hierarchical groups, in which both dominant and subordinate behaviors contribute to group cohesion and stability (Boehm, 1999). Respect for hierarchical position allows groups to form and function. So there is a substantial basis in evolutionary thinking for an "esteem" need, although an evolutionist would find it an odd choice of words.

But the evolutionary benefits of esteem—self-esteem and esteem of and for others—may run even deeper in human groups. Maslow equated esteem with "independence and freedom" (1943: 381)—a need not to be dominated. Christopher Boehm (1999), an evolutionary anthropologist, has proposed that egalitarian human hunter-forager communities evolved a reverse dominance hierarchy. He believes that group members do not like being dominated, precisely because it denies them access to food and mating opportunities. Further, *Homo sapiens*, with their greater cognitive capacity and language abilities, were able to form coalitions and agreement amongst group members to sanction dominating behaviors, thereby preventing any one from dominating the group, and thus establish

an egalitarian ethos. Protobehaviors of this type have been observed among chimpanzees, our closest primate relative (de Waal, 1992). It has also been observed that human hunter-forager groups are almost universally, assertively egalitarian (Knauff, 1991; Woodburn, 1982). During ancestral times, egalitarian group members could benefit from acquiring and sharing large food items with one another and, thus, have a survival advantage over more hierarchical groups. A need for the esteem of others may be rooted in the survival advantages inherent in this egalitarian ethos.

Constructing an evolutionary argument for self-actualizing or self-fulfilling behaviors is problematic. Evolutionary thinking is heavily skewed toward individual self-interest. And to the extent self-actualizing behaviors are selfish, resulting in higher status and thus increased reproductive success, they fit with evolutionary thinking. However, contemporary interpretations of self-actualization have much to do with going beyond one's self: being extremely prosocial. Campbell's early thinking on the evolution of human prosocial behaviors suggests some interesting avenues (Campbell, 1983). But the linkage between ultrasocial behaviors, based upon altruistic self-actualization needs, and evolution is still being explored and debated.

Our brief review of Maslow's needs hierarchy suggests the lower-order needs (physiological, safety, and belongingness) are consistent with traditional evolutionary thinking. Current thinking suggests esteem needs also have roots in evolution. It remains to be determined whether self-actualization needs can be reconciled with evolution. So even though Maslow's theory of human motivation was not directly derived from evolutionary theory, it is generally consistent with it. Maslow's background in nonhuman primate research allowed him to glimpse some essential elements of human nature and formulate a theory broadly (although incompletely) consistent with that nature.

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Roderick E. White
Barbara Decker Pierce
Richard Ivey School of Business