THE ACCIDENTAL ENTREPRENEUR: CAMPBELLIAN ANTINOMIES AND ORGANIZATIONAL FOUNDINGS

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ABSTRACT

New organizations are founded every day. This paper explores the phenomenon of organizational emergence using the framework, language, and ideas found in Donald Campbell's work on evolutionary epistemology. Using Campbell's blind-variation-selective-retention (BVSR) model, coupled with his writings on creativity, experimentation, playfulness, clique selfishness, and altruism, we create two "Campbellian antinomies" (apparent contradictions) to explain why most organizational foundings are simple reproductions of existing forms rather than innovative creations.

"The great heterogeneity and the tremendous numbers of variations make almost inevitable the 'accidental discovery' of any strongly adaptive form…." Donald T. Campbell (1965: 37)

In the fall of 1994, Steven was in his second and final year of the MBA program at the Stanford Graduate School of Business, and things were going well. Over the summer, he had worked as an intern at McKinsey, and they had offered him a permanent job for the following year, after graduation. He was also engaged to be married, and he and his fiancée were making coast-to-coast trips nearly every week to see each other and plan the wedding. As a break from his regular class work in the fall, he had arranged with two friends to take an independent studies course with Associate Dean Parker to develop a business plan for a new venture. The venture involved an innovation in the marketing of insurance products, using a Web site that allowed consumers to comparison shop between identical features of the policies they were considering. In his previous job, as an analyst at an investment-banking firm, Steven had been involved in mergers and acquisitions in the insurance industry, and had learned something about its practices. He thought he saw a way of creating a better product, but for the moment it was just something to do as an intellectual challenge.

When the team turned in their project, they were surprised when the Dean told them that they were yet not finished. He said the idea had some promise, and that they ought to shop the idea around to get reactions from possible funding sources. The Dean's positive feedback piqued Steven's curiosity, and he followed up on an introduction to some New York City funding sources that the Dean arranged. The investors were impressed, and were ready to commit some funding up front, although not enough to guarantee the startup's survival for more than a year or two. In spite of this reasonably

good news, when the spring semester began Steven's two colleagues dropped out of the project, with one deciding to take a job with a consulting firm and the other deciding to pursue more graduate work. Undaunted, Steven persisted in developing the plan, but now he needed to assemble a new team. He turned to an old college roommate and long-time friend who was a computer wizard, bringing him on to serve as the management information systems expert. Through his fiancée, he found the second person for his team -- a person in his late twenties who was a marketing whiz and bored at his current job.

As the new team worked on the project, Steven finally decided to tell McKinsey that he was going to continue planning the new venture, rather than go to work for them. They were quite generous in their response, saying that they would wait for him if he wanted to pursue the idea further, and to check back with them if he changed his mind. In June, 1995, he graduated from Stanford, in July he was married, and in August he received his first measure of money from the investors, out of the $2.1 million they had pledged. He found a site in Alexandria, Virginia, hired his first employees, and the firm was launched.

We draw several lessons from this story. First, entrepreneurship often happens when people are on their way to something else. Activities coalesce, and people find they have become entrepreneurs. Second, truly innovative start-ups are often the result of creative experimentation with new ideas by outsiders to an industry. Experience guides the choice of a domain for exploration, but indifference to industry routines and norms gives an outsider the freedom to break free of the cognitive constraints on incumbents. Third, nascent entrepreneurs often encounter discouraging events along the way, but many persist and find ways around the obstacles. In their persistence they often have a

little help from their friends, acquaintances, and work associates. Fourth, regardless of their ambitions and skills, the fate of nascent entrepreneurs is still ultimately subject to external selection forces, such as demand, trends in technological regimes, and the actions of outsiders with legitimacy and money.

Our Objectives and Plan

Our goals in this paper are rather modest: we want to pay homage to Donald Campbell and his work, and we want to draw on his ideas to build a simple model of innovative entrepreneurship. We pay homage to Campbell because of his influence on the field of evolutionary organizational studies. We try to invoke the spirit of Campbell by approaching the problem in a way we think he would appreciate, making liberal use of quotes from his work and creating an eclectic mix of ideas from diverse sources. In developing our model of innovative entrepreneurship, we draw on Campbell's ideas from his writings on evolutionary epistemology, creativity and experimentation, playfulness, altruism and clique selfishness, and more generally from his blind-variation-selective-retention (BVSR) model. We use the term "nascent entrepreneur" to refer to persons thinking about starting a new firm and involved in activities that could result in a new organization, distinguishing them from "entrepreneurs" who have actually created an operating entity (Reynolds and White, 1997).[1] We focus on explaining the degree to which nascent entrepreneurs, in creating new ventures, remain faithful to, or depart from, the established order of things.

Our paper is structured as follows. First, using a strategy often adopted by Campbell, we list six empirical facts and puzzles characterizing entrepreneurship, choosing those that have a reasonable degree of empirical support. Second, for the sake

of readers who may not be familiar with Campbell's work, we review his BVSR model. Third, we link the six puzzles to Campbell's BVSR model through a discussion of a reproducer-innovator continuum of organizational foundings. Fourth, drawing upon Campbell's writings, we create two Campbellian antinomies (apparent contradictions) to explain why people fall at various points along the reproducer-innovator continuum. Finally, using the Campbellian antinomies and the reproducer-innovator continuum, we return to the six puzzles and interpret them using the BVSR model.

Six empirical facts and puzzles regarding entrepreneurship

Our six facts and puzzles are drawn from a review of the entrepreneurship literature, with some based upon extrapolations from existing work and others more firmly grounded in replicated studies. We chose them because they resonate with themes in Campbell's writings, and because they represent the kinds of data that energized him in his debates with critics and doubters. The facts and puzzles reveal significant gaps in our understanding of organizational foundings, as well as answering the question organizational and entrepreneurship theorists might well pose, "if we're so smart, why can't we find the '*one right way*?'"

1. In science, the arts, and even many spheres of everyday life, we find strong evidence of creative human endeavor (National Endowment for the Arts, 1997). In contrast, among entrepreneurs and the new ventures they create, we mostly find mundane replications of existing organizational forms (Aldrich and Fiol, 1994; Gartner, 1985; Low and Abrahamson, 1997).

2. Entrepreneurship is often discussed as an isolated, solo event, but research on entrepreneurship suggests that many people are implicated in the founding of new ventures (Reynolds and White, 1997). Some are founding team members, some are investors and employees, and others play a variety of supporting roles.

3. Some people appear much better at creating new firms and insuring their survival than others, as they own multiple firms and have been involved in multiple start-ups (Starr and Bygrave, 1992; Starr, Bygrave, and Tercanli, 1993). However, the knowledge of these habitual entrepreneurs has proven very difficult to codify.

4. The gestation period of start-ups is lengthy and fraught with delays, in spite of the good intentions of the founders and the cost of procrastination. The average time for building a start-up is about one year, but the range is substantial (Reynolds and White, 1997). In the computer software industry, Van de Ven et al. (1989) found the process took about 4 years.

5. The more activities people engage in, the greater the chances of their starting, <u>but</u> also the greater their chances of quitting the process altogether (Carter, Gartner, and Reynolds, 1996; Gatewood, Shaver, and Gartner, 1995). The highest likelihood of persisting in "thinking about" starting a business, but not actually starting it, occurs among people who are less active than other nascent entrepreneurs.

6. Venture capital firms make their living from their investments and devote great

effort to screening new business ventures, and yet only a small portion of the firms they fund are successful (Gifford, 1997; Gorman and Sahlman, 1989). A great many fail, and of those that survive, many of them achieve, at best, an average rate of return on the capital invested. They appear unable to find a predictive template.

Two intriguing themes run through these puzzles. First, most entrepreneurs create organizations that look pretty much like all the other organizations in their population. Only a few create organizations that depart, in significant ways, from the current order of things. Second, the behaviors involved in getting any new venture up and running appear surprisingly difficult to master and codify, even for experienced hands.

BLIND-VARIATION-AND-SELECTIVE-RETENTION (BVSR)

One of Campbell's seminal contributions, especially for organization theory, was his selection model based upon the analogy between "natural selection in biological evolution and the selective propagation of cultural forms" (Campbell, 1965: 26). There are three major components to this model:

1. The occurrence of *variations*: heterogeneous, haphazard, "blind," "chance," "random," but in any event variable. (The mutation process in organic evolution, and exploratory responses in learning).
2. Consistent *selection* criteria: selective elimination, selective propagation, selective retention, of certain types of variations. (Differential survival of certain mutants in organic evolution, differential reinforcement of certain responses in learning).
3. A mechanism for the *preservation,* duplication, or propagation of the

positively selected variants (the rigid duplication process of the chromosomegene system in plants and animals, memory in learning) (emphasis ours, Campbell, 1965: 27).

Campbell believed that the three conditions listed above, taken together, resulted in "evolution in the direction of better fit to the selective system" (Campbell, 1965: 27). Campbell went so far as to state that no fit or order would occur if any of the three components were missing. This proposition was based upon his belief that: (1) the possibility of all three components occurring simultaneously was minimal and (2) changes in environmental fit or order were, correspondingly, rare (Campbell, 1974a). One explanation for his "rare occurrence" belief is the tension he posited between variation and retention processes. He explained: "variation and retention are at odds in most exemplifications of the model. Maximizing either one jeopardizes the other. Some compromise of each is required" (Campbell, 1974: 27).

Campbell used aspects of his selection theory to explain vision (1956a), problem-solving (1956b), creative thought (1960), and socio-cultural evolution (1965, 1979). Much of this work was done using what Campbell called his BVSR dogma (Campbell, 1960, 1974b, 1982a, 1990a), summarized as follows:

1. A blind-variation-and-selective-retention process is fundamental to all inductive achievements, to all genuine increases in knowledge, to all increases in fit of system to environment.
2. The many processes that shortcut a fuller blind-variation-and-selective-retention process are in themselves inductive achievements, containing wisdom about the environment achieved originally by blind variation and selective retention.

3. In addition, such shortcut processes contain in their own operation a blind-variation-and-selective-retention process at some level, substituting for overt locomotor exploration or the life-and-death winnowing of organic evolution.

Although Campbell's BVSR dogma may appear somewhat tautological in nature (fit selects the learning which leads to further fit), it is a useful tautology (Scriven, 1959). Among other things, it leads us to ask interesting questions.

But, why use the term 'blind," as opposed to "random," to describe the generation of variations? Campbell did not want to confuse the statistically precise process of randomization with less precise variation mechanisms. Additionally, he wanted to capture the "accidental" nature of variation. Thus, he wrote:

> "'Deliberate' or 'intelligent' variations would do as well as 'blind,' 'haphazard,' 'chance,' 'random," or 'spontaneous' ones. They might be better insofar as they could be pre-selected. But they might be worse in that they could be restricted to the implications of already achieved wisdom and would not be likely to go beyond it. One of the services of terms like 'blind' and 'haphazard' in the model is that they emphasize that elaborate adaptive social systems… could have emerged, just as did termite societies, without any self-conscious planning or foresightful action. It provides a plausible model for social systems that are 'wiser' than the individuals who constitute the society, or than the rational social science of the ruling elite. It provides an anticipation of powerful 'inadvertent' social change processes in our own day which may be adaptive in unforeseen or unwanted ways" (Campbell, 1965: 28).

In Campbell's BVSR model, the cycle of variation, selection, and retention is repeated endlessly, as systems move toward greater fit with their environments. Most of

the observed changes are rather small, serving mainly to perpetuate the existing order rather than displace it. We turn now to a closer consideration of the degree to which entrepreneurial outcomes also reflect a bias toward reproduction rather than innovation.

INNOVATOR/REPRODUCER CONTINUUM

The six puzzles we listed focus on the behaviors exhibited by individuals engaged in entrepreneurial endeavors and the type of entrepreneurial endeavors created. We will return to the issue of behaviors in a subsequent section. For the moment, we focus on the nature of the foundings themselves. Although the popular press portrays the typical entrepreneur as someone like Bill Gates of Microsoft, in fact the overwhelming majority of entrepreneurs are people starting small “reproducer” organizations. Reproducer organizations are defined as those organizations started in an established industry that are only minimally, if at all, different from existing organizations in the population. Most startups are reproducers. In contrast, the number of entrepreneurs creating innovative new firms that could potentially open up new niches or even entirely new industries is very small. Yet, as we have seen in the example of Steven and insurance sold over the Web, it can, and does, happen. We will use the term “innovator” organizations to refer this type of organizational founding, regardless of whether the venture actually succeeds.

As shown in Figure 1, the continuum of organizational foundings has “reproducer” organizations at one end and “innovator” organizations at the other.[2]

Insert Figure 1 about here

Using Campbell’s BVSR model, we attempt to explain why new ventures are found

along the length of the continuum but are mostly clustered at the reproducer end. First, we define the terms reproducer and innovator, using organizational knowledge to differentiate between them. Second, we use two Campbellian antinomies to explore why people fall at various points on the continuum. Following that discussion, in the next section we return to the puzzles and interpret them through the lens of Campbell's BVSR environment.

Organizational knowledge is defined as "the patterns of cognitive associations developed by the organization's members," or the behavioral outcomes that result from patterns of cognitive associations (Fiol & Lyles, 1985: 805). We define "innovators" as those entrepreneurs who, through the development of new knowledge and consequent new organizational form, either transform an existing industry or create a new one. In the language of Anderson and Tushman (1990), innovative entrepreneurs have created competence-enhancing or competence-destroying innovations by departing from current knowledge. Although Anderson and Tushman do not label it, the implicit baseline in their scheme of organizational innovation is the absence of innovation. We extend their scheme by explicitly including a category of "reproducers," defined as those entrepreneurs who bring little or no incremental knowledge to the industries they enter. Reproducers create organizations in established industries by copying the received form and thus do not challenge the status quo.

Using the distinction between reproducer and innovator as developing incremental or new organizational knowledge, respectively, we can expand the reproducer-innovator continuum into the form of a ledger. We have labeled the ledger "Campbellian Antinomies," as shown in Table 1. In the ledger, we present two antinomies we have gleaned from the relevant 40-plus papers (of over 200) that Campbell

authored. We have only listed a subset of them in the reference section, to save space.

Insert Table 1 about here

We use the term “Campbellian antinomies” to honor Campbell’s influence over the ledger, as all of the concepts and terms are his, and to represent the inherent paradoxes between the reproducer and innovator sides of the ledger. The term “antinomy,” defined as “a contradiction between two apparently equally valid principles or between inferences correctly drawn from such principles” (Webster’s New World Dictionary, 1966: 39), describes the tension facing nascent entrepreneurs who could be reproducers or innovators. The two antinomies are (1) obedience to cultural routines, norms, and habits versus creativity/experimentation and play/make-believe, and (2) altruism versus egoism.

We selected these antinomies for two reasons. First, we believe that the contradictions represented by both antinomies clearly relate to the process of organizational founding. Second, the antinomies inform many of the behavioral and biological evolutionary processes to which Campbell devoted many of his papers.

Obedience to Cultural Routines, Norms, & Habits

Campbell was very clear about the overwhelming effects of culture and cultural routines on evolutionary processes. In describing the relationship of individuals to groups, he repeatedly mentioned the pressures toward conformity and cultural rigidity inherent in social processes. He wrote, “the social glue that holds...groups together has structure-maintenance requirements that limit and bias the portrait of the world such

social groups sustain" (Campbell, 1979: 184). Campbell sometimes used the scientific community as an example of a self-perpetuating community constrained by social processes that often stifle individual variations. "Social processes in science can be seen as increasing or ensuring objectivity through providing a curb to individual 'subjective' biases or delusions. The 'objective' or the 'real' becomes that which can be seen also by others. The logical positivist requirements of 'intersubjectivity' or 'intersubjective verifiability' make explicit this social role" (Campbell, 1979: 181-82).[3]

He described the role of the individual in the social system of science as follows:

> "Not only is science conducted in the context of the elaborate social system of science, but its products 'scientific knowledge' or 'scientific truths' (or even more relativistically, 'the accepted theories of physics as of May 11, 1977') are *social products*, incompletely specifiable in the beliefs of any one scientist or the writings in any one book. This remains true even for specialized areas and restricted topics. No matter how small the area, scientific knowledge is achieved in spite of minor disagreements, ignorances, and misunderstandings on the part of every one of its leading participants. This is analogous to the situation in a language, where, for the vast bulk of the working vocabulary, all speakers have some idiosyncratic usages and no one speaker adequately represents the language; where each individual speaker is soon replaced, yet the language persists as a coherent whole in spite of this. So too, each individual scientist is as replaceable as is any one cell in the body. The major innovations in any one epoch are independently invented by several persons, as sociology-of-science studies show" (Campbell, 1979: 182-83).[4]

Campbell stressed the pervasiveness of cultural routines, and individuals' obedience to such routines, in his discussion of habits. Habits are the bedrock upon which evolutionary processes have been built, and in his discussion of the "evolutionary

puzzle of instinct," also called the "Baldwin effect," Campbell noted that:

> "Baldwin … proposed that for such instincts, learned adaptive patterns… preceded the instincts. The adaptive pattern being thus piloted by learning, any mutations that accelerated the learning, made it more certain to occur, or predisposed the animal to certain component responses would be adaptive and selected[,] no matter which component responses or in what order affected. The habit thus provided a selective template around which the instinctive components could be assembled… In the habit-to-instinct evolution, the once-learned goals and subgoals become innate at a more and more specific response - fragment level" (Campbell, 1974: 425-426; reprinted in 1982a: 93).

We see in this discussion the importance of contextualizing learning as a "habit-to-instinct" cycle, structured by the environment. Learned adaptive patterns do not occur in isolation but rather are a result of the socio-cultural environment in which the individual (i.e., animal) is immersed. Campbell used this argument to drive home his point about the constraints placed on individuals by their environments. If learning is grounded in a set of environmentally conditioned "learned adaptive patterns," individual initiatives are severely fettered.

In contrast to the cultural conformity induced by social processes, Campbell identified creativity, experimentation, play, and make-believe as behaviors through which individuals "disobey" ingrained cultural routines, norms, and habits. The tension between conformity and creativity can be seen in the following quote: "There is, perhaps, always a potential conflict between the freedom to vary, which makes advance possible, and the value of retaining the cultural accumulation" (Campbell, 1965: 35). We turn now to a description of these "deviant" behaviors.

Creativity/Experimentation & Play/Make-Believe

Why should we experiment? What value does creativity or make-believe have for organizational foundings? Campbell argued that the more "movement" or "experimental activity" an individual is engaged in, the greater the likelihood that innovative knowledge will result. Campbell believed that all creative thought has a BVSR component (Campbell, 1990b: 9) and that creativity is "a prime example of such a short-cut process using fallible vicarious selectors. Not at all do I deny the importance of creative thought. But I insist upon an explicit model for how it operates and require that this model fit in with radical selection theory" (Campbell, 1994: 31).[5] The following quotes, on the importance of creativity/experimentation and play/make-believe, are taken from Campbell (1982a):

> "Truth is brought about through the 'fundamental process of experimentation.' The highest functions of thought are thus to be looked upon as experimental" (Campbell, 1982a: 92)

> "Play is a generalized native impulse toward the exercise of specific and useful activities. It is itself a functional character which has arisen by the selection, among the individuals of a very great number of animal forms, of variations toward the early and artificial use of their growing powers. It is a natural and powerful tendency in vigorous and growing young; in fact, it is an impulse of extraordinary strength and persistence, and of corresponding utility" (Campbell, 1982a: 90).

> "On the psychological side, a corresponding advance has been made in the interpretation of

> the state of 'make-believe,' which accompanies and excites to the indulgence of play. Make believe…leads to a sort of sustained imagination of situations, treated as if real - a playful dramatization' - in which the most important principles of individual and social life are tentatively and experimentally illustrated. Play thus becomes a most important sphere of practice, not only on the side of the physical powers, but also in intellectual, social, and moral lines" (Campbell, 1982a: 90-91).

Playfulness and experimentation are thus natural impulses that have been wired into humans because of their utility. However, the full expression of these tendencies is opposed by another set of impulses -- humans' tendencies to defer to the beliefs of others. Indeed, obedience to cultural routines can be powerful enough to intimidate individuals with dissenting beliefs. Campbell called unwarranted deference to others' beliefs "conformity-induced pseudo-confirmation" (1993: 37) and noted the consequent loss of innovation:

> "Tremendously important in the establishment of both common-sense and scientific knowledge is consensual validation, the confirmation of observations by other persons… There are two aspects to this process: On one hand, each person must describe the world as uniquely seen from his own particular point of vantage. On the other hand, each must take seriously the reports of others as to what they see… These two essentials run counter to each other. Insofar as systematic biases have been observed…{there is} a tendency to contaminate one's reports in the direction of agreement with what others are reporting and thus to fail to report what is uniquely available from one's own perspective. The agreement achieved represents *pseudo-confirmation*" (Campbell, 1993: 37).

Thus, we see the reproducer/innovator tension; individuals are torn between following the path of acceptance (i.e., least resistance) or the path of deviance, experimentation, and

innovative risk.

How powerful are conformity inducing forces? Campbell often noted the tension between "doubt" and "trust" in social systems, arguing that trust in the existing order played a critical role in stabilizing the system (Campbell, 1978, 1987). The greater the propensity to doubts about current practices, the more likely individuals are to deviate and thus potentially destabilize the order. Although he could cite no experimental evidence in his favor, Campbell estimated the ratio of "trust to doubt" at about 99 to 1 (Campbell, 1986a). He arrived at that estimate using his own playful shortcut through the thicket of inductive logic thrown up by more data-driven theorists.

An alternative path to the non-conformist, innovative creation of new organizational knowledge is found via ignorance of existing cultural norms. Circumstances may occur where individuals simply do not know what the prevailing conformity inducing forces dictate. We mention at the beginning of this chapter that *entrepreneurship often happens when people are on their way to something else.* For individuals who are outsiders to an industry or community of practice, the serendipitous, accidental emergence of a new organization will occur without knowledge of existing norms and practices. If an individual were ignorant of the norms, rules, and practices that dictate organizational forms within an industry or population, then conformity would be purely accidental. For these individuals, and the organizations they found, ignorance or blindness to (seen as deviance from) the norms of the population would be the root cause for creative, innovative organizational emergence (Cliff, 1997).

Altruism

Campbell's second antinomy is the tension between altruism and egoism. He believed that all individuals experienced a tension between innate altruistic tendencies

towards the social community or "in-group" and a set of opposing tendencies involving egoistic/nepotistic drives. Campbell's (1986a) article proposed that this tension or conflict, at its most fundamental level, exists between cultural and biological behavioral tendencies.

> "Previously (1975) my acceptance of the individual selectionist point of view for us vertebrates (but not for social insect cooperators) led me to dramatize self-denying altruism as a purely cultural product. Now, due to Axelrod, I am ready to credit our biological-dispositional inheritance with containing what some biologists call a "facultative polymorphism" on the selfish/cooperative dimension. Just as all male macaques have innate repertoires for both dominance and submission available for use in male-male encounters, so too biology may give us both cooperative and opportunistic-cheating proclivities, which may be differentially developed depending upon conditions (e.g., rural vs. urban) or cultures, but which remain ambivalently available in all of us. This facultative polymorphism could be the product of individual-level selection" (Campbell, 1986a: 795).

These inherent ambiguities, given the cultural pressures for "altruistic conformity" and the overwhelming majority of individuals who do, in fact, behave altruistically, result in unevenly distributed benefits/outcomes. Those who cooperate get less, whereas those who compete get more:

> "While group selection no doubt occurs, its effects are undermined by individual selection. For example, individuals may sometimes have genes that lead to effective, group-survival-enhancing, self-sacrificial altruism. The chances of survival of the group as a whole are improved because of their presence. But the net benefits of this group-selection are greatest for non-altruists. For the altruists, their group-selection gains are reduced by the risks they run. No such costs, but only the benefits, accrue to non-altruists. Thus the relative

> frequency of non-altruists increases in the group in future generations… I summarize the problem by the phrase 'genetic competition among the cooperators'" (Campbell, 1994: 24).

The tension between "what's best for the group as a whole" (altruism) and "what's best for the individual" (egoism) is not uni-dimensional. Campbell argued that conformity to group norms is a form of self-preservation. He used the term "clique selfishness" to describe this in-group protective behavior: "If we turn the phrase from 'reciprocal altruism' to 'clique selfishness,' we note that the internally altruistic groups are exploiting unorganized persons, or organized out-groups… Each in-group can plausibly accuse the other group of clique selfishness and use this accusation to mobilize their own in-group solidarity" (Campbell, 1991a: 107). The positive value that clique selfishness has for group maintenance and survival results in a rather high level of psychological ambiguity, as tendencies supporting both cooperative and competitive behaviors persist within individuals:

> "To abbreviate a much longer argument (c.f., Campbell 1982a, 1983) for human complex social coordination that is achieved in spite of (rather than through eliminating) genetic competition among the cooperators, moral norms curbing ruthless intelligent individual optimization are rational selfish individual preferences as to how others behave. If the social organization is intact and if the collective goods are substantial, it is also rational to conform to such norms oneself if that is necessary for maintaining group membership. We probably have innate ambivalence (facultative polymorphism) on this score: an available repertoire of cooperative group solidarity and another one of individual optimization at the expense of the group" (Campbell, 1986b: 360-61).

Having argued for the presence of altruistic tendencies in humans and their social

systems, we next review the other side of the ledger -- the pressure producing facultative polymorphism for individuals engaged in innovative, self-seeking behaviors -- the "maximize my own benefits first and foremost" mindset.

Egoism

An ongoing conflict exists between a social system's best interests and the interests of its members. This conflict will be particularly salient when the individual is a creative, entrepreneurial member interested in challenging the dominant paradigm. "Even though the primary message of my chapter requires a continual ongoing conflict between behaviors that optimize organized groups and behaviors that optimize an individual's personal and nepotistic interests (which I pose as a conflict between the products of biological and cultural evolution), I do not want to deny that our biological history… has been increasingly social" (Campbell, 1994: 29). Based on this apparent dichotomy, with each of the poles having deleterious effects (pure egoism leads to destruction and pure altruism, as mentioned in our altruism section above, results in non-adaptation and eventual extinction), Campbell argued against promoting pure egoism:

> "In all social communities, narcissistic people with competitive egocentric pride are a problem. Cooperative people who defer to the majority, who get along and go along with others, and who hold the team together, get preferential treatment even if they are less competent" (Campbell, 1979: 194).

For Campbell, egoism, or "competition among the cooperators," results in secrecy and self-serving behaviors.

Campbell illustrated his point with an example of competition among scientists to be the first to report an innovative discovery:

> "Our predicament as social animals who must achieve our sociality without inhibition of genetic competition among the cooperators (Campbell 1975), and as social animals with a fundamental disposition to individual and clique selfishness, puts us in a special predicament insofar as public belief assertion is concerned. Were science designed only to guide our own behavior, then the value neutrality of our scientific conclusions would be complete. The model of the world best-suited to implementing our own values would also have the validity optimal for guiding others with different values. However, the fact that we are in varying degrees in competition with those others provides a motive to keep our knowledge, of our beliefs, private. This motive to achieve secrecy is inevitably characteristic of applied science, social or physical, industrial or national" (Campbell, 1982: 335).

Competition for primacy thus drives scientists underground in their laboratory practices, but recognition for their achievements requires disclosure to the world. Disclosures, in turn, allow other scientists to learn about the discovery, and the shared knowledge -- if replicated and validated -- creates a new baseline for subsequent work.

SELECTION RULES: CAMPBELLIAN ANTINOMIES & ENTREPRENEURSHIP PUZZLES

Thus far the quotes we have used from Campbell represent four different levels of analysis: individual, group, community, and population. In the following discussion of relationships among Campbell's antinomies, the BVSR environment, and our six entrepreneurial puzzles, we employ the firm as the unit of selection. Entrepreneurial variations in behaviors and activities, if successful, create a bounded entity that stands or falls as a unit. Campbell noted that "If, after all of this internal, structural selection an adult, fertile phenotype is produced, this phenotype is then subject to an *external* natural selection. Of all these many selective systems, only this last can involve an improvement

in the fit of the organism to the environment, an increase in the 'knowledge' which the genome carries in the external world" (Campbell, 1979: 185). Selection of an entity does not imply that all of its components, taken in isolation, are viable. This is particularly significant to our discussion, given the underlying tension between variation and selection pressures.

To understand differences across entrepreneurial foundings with respect to variation and selection, we must first appreciate the complexity of the BVSR environment. Campbell believed that the environment was fluid and dynamic, and within this environment, adaptive and maladaptive organizational forms co-existed. "The 'wisdom' produced by biological and social evolution is retrospective, referring to past environments. It is only adaptive to the extent that these environments remain stable. Yet the rigid preservation systems essential for the process of evolution, also provide for a retention of these systems long beyond their usefulness" (Campbell, 1965: 35). We see, therefore, that at any given moment, both adaptive and maladaptive firms inhabit local environments -- the enigma is that we can't tell which is adaptive until the environment selects out maladaptive firms. The simultaneous existence of adaptive and maladaptive organizations is one of the inherent complexities of the BVSR environment:

> "Evolutionary theory - biological or cultural - does not automatically produce a 'Panglossian' picture of perfect rationality or adaptedness. Indeed its theoretical resources can be assembled to understand and predict systematic dysfunction, and it may well be this potentiality that might most modify economic theory were the merger to be carried further" (Campbell, 1986: 358).

One aspect of BVSR environmental selection we have ignored to this point is the required level of persistence on the part of nascent entrepreneurs (Gartner, Bird, and

Starr, 1992). Campbell noted that environmental complexity and uncertainty implied a minimal chance of success for most new entities. Even highly focused, intentional behavior by motivated nascent entrepreneurs must contend with environments that reveal their structures only grudgingly. Repeated trials, over the lives of many nascent entrepreneurs, may be the only way to learn what environments have to offer:

> "There is bound to be a lot of the purely fortuitous or non-transferably specific in the life or death of a single biological individual or social system or culture item. For a systematic selective criterion to make itself felt above this 'noise level,' there must be numerous instances involved, and a high mortality rate" (Campbell, 1965: 31).

Persistence does not guarantee selection, but it keeps variations alive long enough for them to experience many different selection environments.

We now turn to an examination of the six entrepreneurial puzzles listed at the beginning of this chapter. Our goal is to provide interpretations of the puzzles, using Campbell's BVSR dogma and his antinomies, linking Campbell's theories to the literature on entrepreneurship. Our interpretations are not meant to be exhaustive or conclusive in nature. Instead, we hope that they will serve as a catalyst for further theoretical and empirical explorations. We repeat the puzzles, in greatly simplified form, for ease of exposition.

<u>Puzzle #1</u>: Most new organizations merely reproduce existing forms, rather than creating new ones.

Campbell's description of the cultural routines, norms, and habits that restrict creative human activity may, in fact, be more relevant during the period of organizational

founding than succeeding periods. The tension between retaining cultural accumulation and an individual's "freedom to vary" is often resolved by forceful adoption of existing processes. Not only is it easier for entrepreneurs to follow accepted "recipes for success," but resource providers also frequently require it (Aldrich and Fiol, 1994; Suchman, 1995). Such recipes provide templates for the mundane reproduction of existing organizational forms. As Romanelli (1998) pointed out in her chapter for this volume, to the extent that entrepreneurs blindly assume that copying from existing organizations will work, they fail to explore alternatives that might be more effective.

Innovation requires the ability to challenge, and often disregard, dominant cultural routines. Challenging the dominant paradigm is an overwhelming obstacle for many entrepreneurs. For example, resource requirements for founding, via loans or venture capital funding, may result in coercive isomorphism (DiMaggio and Powell, 1983) in which a new firm is forced to adopt a taken-for-granted form.

In-group pressures are a related reason we might observe a disproportionate number of reproducer organizations over innovator organizations. Individuals following the safer, more supported, in-group routes establish organizations in existing accepted industries. By contrast, we would expect to see innovator firms being established by individuals engaged in the less accepted, egoistic/nepotistic practices. Because they don't know the norms of a population well enough to be conceptually constrained by them, perhaps only outsiders can make radical breaks with tradition.

Finally, as described in an accompanying chapter by Miner, Raghavan, and Haunschild (1998), heterogeneous organizational copying or imitation may differentiate between reproducer and innovator organizations. Miner et al. argued that copying and then implementing an eclectic mix of routines from other organizations might result in

either increased or decreased adaptation. Using their terms, we believe that most firms are founded via simplistic imitation practices, resulting in reproducer organizations, but that foundings created using an extraordinary mix of routines may occasionally blossom into innovative organizations (see Gartner, Mitchell, and Vesper, 1989).

Puzzle #2: Most new ventures, even small ones, involve more than just the nascent entrepreneur during the startup process.

The altruism/egoism antinomy sheds light on this puzzle. The practitioner literature typically portrays entrepreneurial ventures as one-person foundings, but recent research suggests otherwise (Reynolds and White, 1997). Even though entrepreneurs may start their journey working alone, most successful entrepreneurial ventures require cooperative input from a variety of individuals. Entrepreneurs who try to manage their organizational founding as a single-person venture, rather than trading on their in-group status, forgo an array of potentially valuable resources. Campbell's discussion of the security/protection resulting from in-group membership highlights the value of maintaining a cooperative network during organizational foundings.

However, involving other people in a founding carries some costs. The more people involved, the greater the pressures on nascent entrepreneurs to follow well-understood routines and practices. What might have become a radically innovative approach to producing or selling a product/service may be so diluted by multiple contributions that it devolves into a replication of the familiar. Nascent entrepreneurs thus face a dilemma: cooperative behavior facilitates resource acquisition and boundary construction, but egoistic/nepotistic behavior may be necessary to preserve the radical nature of the proposed venture. Because most new ventures involve groups rather than

solo individuals (Reynolds and White, 1997), they face pressures pushing them toward the "reproducer" end of our continuum.

Puzzle #3: Habitual entrepreneurs are highly visible icons in many industries, and yet their valuable knowledge has been difficult to codify and diffuse.

Why is success not contagious? First, success across multiple start-ups requires repeated acquisition of tacit knowledge about local environments. Such knowledge is needed for an understanding of the influential customs, routines, norms, and habits that guide local environmental selection criteria. Deep understanding of tacit knowledge has the potential to mask egoistic drives as altruistic tendencies. Certainly, one of Campbell's strongest propositions relates variation to environmental fit (if there is fit, selection will follow) and one aspect of fit is local adaptation. Campbell argued that the peculiarities of language often obscured tacit knowledge, impeding people's efforts to transmit their local knowledge (Campbell, 1991b). Thus, successful entrepreneurs may not possess the language to codify their approach. If every speaker has an idiosyncratic usage and no two speakers use the exact language pattern, then every speaker is constrained by the fit between her/his communication and the interpretations of others.

Second, the altruism/egoism antinomy may also shed light on this puzzle. Highly competitive business environments display what Campbell described as "the problem of competition among the cooperators." Why would successful entrepreneurs share their templates for success when they know full well that others replicating the templates would instantly become direct competitors? Our biologically (and culturally) determined competitive drives may be strong enough to inhibit codification of knowledge by successful entrepreneurs.

Puzzle #4: In spite of the best-laid plans, the gestation period of start-ups is lengthy and fraught with delays.

Constructing a new entity takes a long time because nascent entrepreneurs make a lot of mistakes, pursue many blind alleys, and repeatedly retrace their steps. Why are mistakes and blind alleys so common? The direction in which "adaptive" lies, on the reproducer/innovator continuum, is not readily apparent to most nascent entrepreneurs, and so they are vulnerable to the social conformity pressures spelled out by Campbell's antinomy. Lacking strong evidence to the contrary, the path well traveled looks pretty good to nascent entrepreneurs, and they do what others have done. However, because of local differentiation, much of what once worked no longer does.

Luckily for many nascent entrepreneurs, pressures for obedience to traditions and habits have not completely driven out tendencies toward experimentation and playfulness. Some deviant behaviors actually work. The result, over time, is a mix of startups containing mostly conformists or near-conformists, who eventually got it right, plus a few innovative deviants whose activities were rewarded. In the BVSR model, emergence as a coherent entity ultimately depends, of course, on fitness, and fitness is the interactive product of what nascent entrepreneurs offer and what local environments accept.

In addition, the process is lengthy only if some nascent entrepreneurs doggedly persist in their intentions to start a new firm. Discouraged entrepreneurs who give up quickly are of interest primarily if continuing entrepreneurs learn something by observing the dropouts. But learning from others is difficult without insider information. Environmental complexity and uncertainty create situations that take time for founders to

learn and unravel. Repeated trials are required, over weeks and months, and may be the only way to place oneself in a position to be selected (Gartner, Bird, and Starr, 1992).

Puzzle #5: The more activities people engage in, the greater the chances of their starting, but also the greater their chances of quitting the process altogether.

Experimentation and persistence pay off for nascent entrepreneurs, although the payoff may be an early exit rather than a startup. Campbell praised the virtues of experimentation by claiming that the "highest functions of thought" are experimental. In uncertain environments, playfulness and experimentation within the dark corners of an industry may reveal secrets not available to culturally obedient founders.[6] We can also see, in Campbell's writings, the value of persistence. Those entrepreneurs who actively pursue organizational founding, regardless of what they do, will have a better chance of creating a firm than those entrepreneurs who remain relatively inactive.

With respect to the type of activities engaged in, the dynamic nature of the environment allows entrepreneurs to design any number of alternative paths to success. What works at one time may not work at another. Moreover, the degree of constraint between start-up activities is remarkably low. In one study of correlations between indicators of 14 different start-up activities, 60 of the 91 possible correlations were below 0.2 (Carter, Gartner, and Reynolds, 1996; Gatewood, Shaver, and Gartner, 1995). Apparently, nearly anything goes, and effective mixes of activities exist in many different combinations.

Puzzle #6: Venture capital firms appear unable to find a predictive template for picking firms in

which to invest.

This puzzle captures Campbell's overall message for those interested in organizational foundings. There is no predictive template that will guarantee success. Given the composition of the environment, containing both adaptive and maladaptive organizations, coupled with its fluidity, any template that would guarantee success would: (a) only apply to the local environment (local culture-specific) and (b) be applicable at only one point in time (what's adaptive today may be maladaptive tomorrow). Venture capitalists would seem to be well placed to design a predictive template because they are in the business of designing them for evaluating business plans. Nonetheless, they haven't been able to do this for their own investments, because no such generic template exists. Campbell's BVSR model explains why. The environment is far too fluid and contains complex antinomies that obviate any potential for developing "the right answer" or " the template for success."

SUMMARY AND CONCLUSIONS

Based on his BVSR dogma, Campbell's message to organizational and entrepreneurship theorists is clear: there is no *one right way* to found an organization, nor is the pathway necessarily straight. The fluidity and dynamism of the environment create a situation where success (i.e., founding) results from the interaction between organizational configuration and local environmental selection mechanisms. Because selection mechanisms are neither instantaneous nor perfect, adaptive and maladaptive firms co-exist in every local environment. Only through post-hoc analysis of what worked can we begin to understand the environmental selection mechanisms in place during any given period. Our understanding of what worked, however, will be

constrained by the language in which we communicate and the vision derived from our past experiences.

We have used the terms *reproducer* and *innovator* to label differences among entrepreneurs and the types of organizations they found. Stated simply, reproducer organizations are severely constrained by the boundaries and institutional norms imposed by existing organizations, and they are dangerous models because they are a mix of adaptive and maladaptive forms. Innovator organizations face not only legitimization issues but also rigorous selection forces that may be impossible to overcome. The activities nascent entrepreneurs engage in, as outlined in the Campbellian antinomies ledger, provide one overarching message for potential success: do something.

IMPLICATIONS

Evolutionary theorists haven't paid enough attention to entrepreneurship and the reproducer/innovator continuum (Aldrich & Fiol, 1994). Instead, evolutionary research has primarily focused on monumental discontinuities that only occur once or twice during a population's life cycle (Anderson & Tushman, 1990). Researchers need to turn their attention to nascent entrepreneurship and the founding process at the organizational level of analysis, not only to understand more about the processes and activities leading to organizational emergence, but also to complement existing population-level theories.

More dynamic analyses of firm emergence and the founding process would strengthen all aspects of organization theory. We need methods for tracking founding processes, and thus we must find nascent entrepreneurs when they are just beginning to construct their ventures. One way of tackling this empirically is through random-digit dialing surveys of the entire adult population. Currently, the multi-university Entrepreneurship Research Consortium (ERC) is conducting such a longitudinal survey

in an attempt to capture what happens during the gestation period when nascent entrepreneurs are only *thinking* about organizational foundings.

EPILOGUE

As for Steven, the entrepreneur with whom we began our story, over the Fall of 1995, he continued to grow his firm. He mostly hired software engineers, but he also employed a few marketing specialists and sales people. As the company grew, and as he searched for insurance companies as clients for his site, the tens of thousands of dollars per month from his investors no longer seemed like enough to sustain the firm through its early years of planned losses. On one of his trips to California, to look for strategic partners, the Intuit Corporation learned about his firm and asked if he were interested in being acquired. Over a period of several months, Steven and his partners hashed out the advantages of remaining independent and hoping for an early IPO (initial public offering), versus being acquired. Eventually, the choice became clear - be acquired or risk losing everything. In June of 1996, Steven and his partners sold the firm to Intuit for $8 million. His investors were handsomely rewarded for their 9 months of support.

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Table 1: Campbellian Antinomies

REPRODUCER **Constructing Incremental Organizational Knowledge**	**INNOVATOR** **Creating New Organizational Knowledge**
Obedience to Cultural Routines, Norms, Habits	Creativity/Experimentation & Play/Make-Believe
Altruism	Egoism

Figure 1: Organizational Founding Continuum

NOTES

[1] Our paper applies Campbell's ideas to entrepreneurship as a method of organizational emergence. For a discussion of Campbell's ideas as they relate to variation among existing organizations, see Romanelli's chapter in this volume.

[2] Our reproducer/innovator continuum parallels March's (1991) exploiter/explorer discussion of organizational learning.

[3] As McKelvey notes in his chapter (this volume), Campbell, in his later years, moved beyond logical positivism and supported the scientific realist school (critical realism) that replaced positivism.

[4] For a complete listing of the supporting cites provided by Campbell, see his article "A Tribal Model."

[5] For a complete description of Campbell's BVSR dogma, as applied to creative thought, see Campbell (1990b).

[6] We thank Bill Barnett for suggesting the expression "dark corner" to refer to unexplored but potentially profitable niches in a market.