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2009

# Leadership and Discovery

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### Recommended Citation

Goethals, George R., and J. Thomas Wren. *Leadership and Discovery*. New York: Palgrave Macmillan, 2009.

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# Leadership and Discovery

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palgrave  
macmillan

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## *Introduction*

GEORGE R. GOETHALS AND J. THOMAS WREN

This volume in the *Jepson Studies in Leadership* series is based on a colloquium exploring Leadership and Discovery held at the University of Richmond's Jepson School of Leadership Studies in September, 2007. Scholars from a variety of disciplines presented papers on a range of topics focusing on some facet or another of the leadership of discovery. Our participants included astronomers, historians, psychologists, theologians, and one NASA astronaut—also a professor of aerospace engineering. These scholars made presentations and led discussions on topics such as collaboration and leadership in modern astronomy, dubious claims of a sudden autism epidemic, Lewis and Clark's "Corps of Discovery," George Orwell's social criticism, and many others. Some of these subjects fit conventional notions of discovery—in science, society, or nature—while others did not. Both kinds stimulated a great deal of reflection and conversation. To our great satisfaction, we found that this diverse set of papers raised and illuminated recurring issues about the very nature of leadership and the meaning of discovery.

Those with a historical bent will recognize the term "The Age of Discovery" to be the admittedly Eurocentric time when Europeans such as Christopher Columbus "discovered" the New World. Yet even a little reflection brings to mind many other "ages of discovery," be it the intellectual revelations of the Scientific Revolution of the seventeenth century, the physical and cultural discoveries of American westward expansion in the eighteenth and nineteenth centuries, or the new psychological understanding of self pioneered by psychologists in the twentieth century. Even the emerging social

consciousness of the plight of the less fortunate in society that has been a highlight of the past two centuries could, in a sense, be seen as the product of the “discovery” of the circumstances and experiences of some “other.”

For that matter, it could be argued that the twenty-first century deserves the rubric of The Age of Discovery as much, or perhaps more, than any of its predecessors. In our complex, diverse, and rapidly integrating world, novelty and discovery are the norm. Physical discovery still has its place, chiefly in our efforts to map and understand our interplanetary neighborhood and interstellar space. But intellectual discovery remains more robust than ever, as evidenced by the growing body of scientific revelations. So too does our understanding of self and others constantly expand as a result of what could be termed continuing “discovery” of the new and different.

What is it that allows us to link together such vast periods of time and such diverse realms as the physical, the intellectual, the psychological, and the social in this way? A brief excursion to Webster’s may help. Under the definition of what it means to “discover,” we find that it is “to gain knowledge of something previously unseen or unknown,” or “to notice or realize.” When considered in this light, we see that the notion of “discovery” embraces not only the active uncovering of the new, but also the more subtle insights gained from noticing or realizing that which has been before us all along. Thought of in this all-encompassing way, one begins to perceive that these seemingly different realms of the physical, intellectual, psychological, and the social are all of a piece: each is of course an important constituent part of the human condition, but what allows us to discuss them as an integrated whole is our dynamic engagement with each that is a part of our common human project. That is, it is not the *existence* of these disparate areas of the human condition but the *interacting* with them that allows us to begin to understand something about ourselves. And that interacting takes place in large part when we encounter the new or unexpected and try to make sense of it. This, too, is a decent definition of “discovery.” The claim here, then, is that studying the process of “discovery” in all its many manifestations holds out the possibility for us to learn important things about how we humans as individuals and societies move toward addressing our needs and aspirations.

This, in turn, brings us to a second construct that is central to our understanding of the dynamics of discovery. That construct is *leadership*. In contemplating the role of leadership in discovery it is important

to understand that “leadership” does not simply mean the actions of an elite individual or few. Rather, it is far more complex and inclusive: it is a mutual influence process among leaders and followers in which each participant harbors his or her complex motives and constructions of reality and operates as part of a collective in a complicated and ever-shifting environment to achieve desired goals. Within that wonderfully complex phenomenon we find *the leadership of discovery*.

Understood in this way, viewing discovery through the prism of leadership allows us to begin to identify commonalities across time and context, and indeed to zero in on the critical elements of the leadership of discovery. Armed with such an understanding, we as participants in the leadership of discovery can both hone the capabilities needed for success and sharpen our awareness of the pitfalls—moral and otherwise—of the endeavor. This volume hopes to be a step in that direction.

### Plan of the Book

As noted at the outset, the ten chapters in this volume explore many aspects of the leadership of discovery. There are a number of ways to organize them. We have elected not to group them in sections representing familiar academic disciplines—history, science, and so forth. Rather we have devised an organization that underlines the fruitfulness of multidisciplinary intellectual exploration and discovery. A set of general themes emerges from our colloquium, and contributions from different disciplines grapple with each one. We have decided, then, to organize our chapters into four sections. The first, *Defining the Leadership of Discovery*, comprises two chapters that consider the very nature of both leadership and discovery. Karen Kwitter’s chapter, “Discovery in Astronomy: *Ex Uno Plures*,” describes collaboration in astronomy across time in ways that are largely congruent with everyday understandings of both science and leadership. In contrast, Patrick Griffin’s chapter, “The Perils of Searching for Leadership and Discovery: The Case of Jamestown and John Smith,” challenges conventional understandings of leadership and discovery.

Our second section, *Leading Discovery*, consists of three chapters analyzing the challenges and leadership responses of three differing ventures of discovery. Felipe Fernández-Armesto debunks the heroic image of such early explorers as Christopher Columbus and Vasco da Gama, yet at the same time identifies contextual factors and personal

traits that allowed them to succeed. Daniel Thorp explores the highly honed abilities of Lewis and Clark in planning and organizing a major expedition of discovery, and their subsequent ability to interact productively with subordinates and those from other cultures. W. Henry Lambright looks to a more modern endeavor of discovery, the NASA space program. In particular, he analyzes the achievements and some of the foibles of administrator James F. Webb. His analysis contemplates how Webb's actions meshed well with his context and challenges, yet Lambright cautions us about the difficulty in replicating Webb's approach in today's leadership environment.

The third section, *Experiencing Leadership and Discovery*, considers three quite different chapters that have in common a focus on the thoughts and feelings of people engaged in one kind of discovery or another. David Dunning's chapter, "Self-Discovery," considers several psychological tendencies that contribute to errors in knowing ourselves, and how those tendencies can be combated. Jeffrey Hoffman's chapter on "Exploration and Discovery in Space," relates the intense emotions that can only be experienced in space travel. And then in "Leadership and Discovery," Gerrit Verschuur discusses some of the emotional challenges and risks that young scientists face in contesting prevailing orthodoxies.

Our concluding section, *Ethical Challenges in the Leadership of Discovery*, includes Morton Gernsbacher's chapter "A Conspicuous Absence of Scientific Leadership: The Illusory Epidemic of Autism" and Ronald Thiemann's "On Giraffes and Bank Accounts: Rethinking Discovery, Creation, and Literary Imagination." Gernsbacher engages our indignation about the way powerful persons and organizations, including the national media, have hyped false alarms about autism. Thiemann discusses the issues raised by George Orwell's *The Road to Wigan Pier*, and that book's efforts to engage readers' conscience about a real social challenge.

### Chapter Summaries

Our own groupings are based on only one of several themes in each chapter. Let us preview what follows by more fully introducing each chapter. Karen Kwitter discusses three different types of approaches to astronomical discovery spanning centuries, from Johannes Kepler's studies of the laws of planetary motion to the present day explorations of distant quasars. Kwitter calls these types of approach to discovery

synthesis, method, and exhortation. They increasingly involve collaboration and leadership. Kwitter highlights the role of both intellectual brilliance and broad-ranging leadership skills in creating effective scientific leadership in modern astronomy. The work of astronomer Wendy Freedman of the Observatories of the Carnegie Institution in Washington in studying the expansion of the universe offers a dramatic example of the creative and successful leadership of discovery.

Historian Patrick Griffin enters a caveat concerning our study of leadership and discovery. He cautions against injecting presentist concerns about leadership and discovery into historical analysis. Such framing only serves to distort the analysis of how and why things actually occurred. John Smith and Jamestown are a perfect example. Smith did not view the Jamestown expedition as one of discovery or colonization. Rather, Smith and Jamestown should be understood within their own worldview, a worldview that saw their experiences in Virginia as but a continuation of previous conceptions of “savagism and civility,” and a cosmology that sought to link “all civilized regions of the world.” This does not mean, argues Griffin, that we cannot glean leadership insights from the Jamestown experience. It only means that leadership analysis should be applied only after the essential historical work has been completed.

Felipe Fernández-Armesto discusses the enormous significance of the voyages of Christopher Columbus and Vasco da Gama in the 1490s. They initiated a transformation in the role of Europe in the world that has been as lasting as it has been profound. While our conventional images of both explorers depict them as gifted and intrepid leaders, that view is based mostly on romance. Fernández-Armesto discusses the many shortcomings in their leadership, including lack of relevant experience, equivocation, detachment, and lack of preparation. Both explorers were extremely lucky. They compensated with courage, and in Columbus’s case talents at self-promotion that enabled him to find financing for four voyages to the Caribbean. Fernández-Armesto argues that Columbus’s reputed perseverance is better understood as “pig-headedness.” His chapter underlines the complex combinations of agency and contingency that characterize much of the leadership of discovery.

Daniel Thorp’s chapter on Lewis and Clark’s Corps of Discovery provides an interesting contrast to the discussion of Columbus and da Gama. Their leadership is shown to be exemplary in many ways, yet their expedition failed to achieve its main objective, discovering a water route through North America to the Pacific Ocean. Of course, there was no such passageway to be found. Yet the Corps made known

to President Thomas Jefferson and other national leaders facets of the newly acquired Louisiana purchase that were of immense value. From a leadership perspective, one of the most compelling aspects of Thorp's analysis is the effective collaboration of Lewis and Clark as co-leaders of the Corps, and of their successful working relationship with President Jefferson on the one hand and local leaders, such as Sacagawea, on the other. They made mistakes along the way, but on the whole their leadership was exemplary.

Harry Lambricht's account of James Webb's leadership of NASA during the Apollo years resonates with some of the characteristics that Thorp sees in Lewis and Clark. In both cases the leaders showed an admirable and effective openness to suggestions from others, but were willing to make difficult decisions on their own, and make them stick, even if some of their followers thought they were making mistakes. Like Lewis and Clark, Webb was engaged with presidential leadership. But Webb had to deal with two presidents. His relationship with President Kennedy was tranquil compared to the tumultuous challenges of working with the mercurial President Lyndon Johnson. Lambricht also highlights, as does Fernández-Armesto, the interactions of persons and situations that contribute to the success of the leadership of discovery. He describes Webb's tenure at NASA as one of those rare instances where "the stars align, and a person, organization, and time come together and historic achievement is possible."

David Dunning discusses the many ego-enhancing errors that characterize our assessments of ourselves. First, we are not very accurate in predicting our performance. Others predict us better than we do ourselves. Second, our errors tend to be in the direction of seeing ourselves as better than we are by objective standards, or than others view us. He discusses the fact that our inaccurate self-assessments constitute a dual curse. Our inflated views of ourselves lead us to make poor choices. From a leadership perspective, Dunning suggests that other people, notably mentors, can be engaged to provide a little reality check. These reality checks can sometimes make us "sadder but wiser," but they are vital to discovering better who we really are.

Gerrit Verschuur underlines the importance of young scientists knowing themselves accurately. Doing science can be a rough business, and one had better understand the risks involved. Leaders in science, like others, "suffer from human frailties such as ego and pride." These are the precise frailties discussed by Dunning. Therefore young scientists have to be aware that their discoveries might challenge accepted dogma, whether it be religious or scientific. When there are paradigm



shifts, someone is the loser. Therefore “research becomes embroiled in politics.” Young people seeking discoveries must be careful what they wish for. Leaders in their areas of research may be open to new ideas, but more often cling to orthodoxies that can make the road to scientific discovery as rough as the road to self-discovery. Verschuur also highlights the importance of openness and risk-taking, some of the same qualities Thorp noted in Lewis and Clark.

Jeffrey Hoffman’s chapter focuses on the progress made by the Hubble Space Telescope in astronomical discovery, and some of the leadership that made that instrument as useful as it was. In particular, Robert Williams’s leadership in allocating Hubble time involved enormous risks, but they paid off handsomely. Hoffman also discusses how the politics of presidential leadership affected manned space exploration. President Kennedy strongly identified with the mission of NASA, and challenged scientists to land a man on the moon and return him safely to earth in the decade of the 1960s. President Nixon, Kennedy’s political rival, had no such commitment, and effectively threw away the capacities that had been developed during that decade. One of the unique contributions of Hoffman’s chapter is his descriptions of experiencing space exploration and discovery during, among other flights, the 1993 Space Shuttle mission to rescue and repair the Hubble telescope. He describes “spectacular and emotional moments” in space, including the joy and “psychological, emotional, and even spiritual dimensions” of weightlessness. While comparisons are difficult, we can imagine leaders of discovery in other domains being equally moved by their experiences.

Morton Gernsbacher documents a case of essentially unethical behavior by scientists and opinion leaders who inform the broader public about science. In this instance, politicians and the media have hyped an illusory autism epidemic. Broadening of the criteria of autism in 1994 meant that many more children would be diagnosed as autistic. But many commentators created near panic both by reporting false increases and by using tabloid-like language in characterizing the condition. A prominent Hollywood producer described autism this way: “imagine that instead of taking the whole child, only his mind is stolen and his body—the hollow shell of his being—is left behind.” While there were voices that were much more grounded in the real facts, leadership was lacking to make that story known. Leadership in science, Gernsbacher notes, is most conspicuous by its absence. We are all challenged by her account of this false epidemic.

Finally, Ronald Thiemann demonstrates how the leadership of discovery can have intentional ethical outcomes. His depiction of

George Orwell's *Road to Wigan Pier* describes how Orwell "led" fellow Englishmen to "discover" the social ills of the coal industry through the vehicle of "realistic narrative." In doing so, he consciously linked his creative work to social criticism. The lesson of Orwell, as Thiemann conveys it, demonstrates that the ethical leadership of discovery occurs not only in the activities of leaders and followers in more traditional leadership settings but also can be a conscious evocation that leads others, through the creation of a literary text, to "discover" social ills previously unknown to them.

★ ★ ★

Taken together, we believe that these papers on leadership and discovery open new windows of insight into both phenomena. The concept of "discovery" receives consideration from a wide variety of disciplinary perspectives in a unique amalgamation of scholarly studies that suggest its ubiquity as a part of the human condition. In turn, the construct of "leadership" helps us to see how discovery in its many forms poses similar challenges that require a thoughtful response if the group or organization is successfully to achieve its objectives. We will attempt to pull together and articulate some of these overarching themes in our concluding chapter. We hope that the readers of this volume experience the same high level of intellectual stimulation that the participants in the colloquium enjoyed in creating it.