Voices of Historical and Contemporary Black American Pioneers

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CHAPTER 17

Science in the Belly of the Beast: My Career in the Academy

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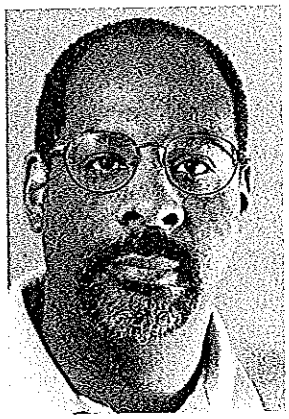

The Nature of the Beast

> *And I stood upon the sand of the sea, and saw a beast rise . . . having seven heads and ten horns, and upon his head ten crowns, and upon his heads the name of blasphemy.*
>
> —Revelation 13:1

I had a difficult time deciding to accept the invitation to write this article. It is true that I am probably the first person of African American descent[1] to earn a PhD in evolutionary biology,[2] be hired in a tenure-track position, achieve tenure, and finally be promoted to full professor. However, I have collected as many failures in my career as I have successes. This fact, I realized, probably makes me the right person for this task because I can honestly say I learned much more about academe through my failures.

Definitions are important. To recognize success you must first know what it is you want to accomplish. You must also know the nature of your opposition. Because all humans are self-interested, it follows that there is the potential for the interests of individuals to clash. In addition, societies

consist of groups of individuals that have various collective agendas. The dynamic between the interests of individuals and groups exists in all societal institutions, even in the sciences. Therefore, you must ask yourself a series of questions:

- What are my goals?
- How do they match the goals of the institution I plan to work in?
- What are the most appropriate strategies to achieve those goals?

These questions come to the forefront for anyone interested in pursuing a career in the sciences. One of the most cherished mythologies of the scientific community is its supposed objective neutrality concerning both its practice and applications. However, scientists are first and foremost human beings, complete with the entire range of personality and intellectual abilities we find in the general public (all right, maybe not the complete range, but certainly a peculiarly variable sample of those possibilities). In addition, scientists, as human beings, also display the entire range of moral and ethical characteristics we find in our society at large. This realization is even more crucial for African American professionals because our access to educational, professional, and economic opportunity are still stratified by "race"; and, at present, African Americans are among the most reviled groups in this society and more so in academe.[3] George Jones, Goodrich White Professor of Biology at Emory University, once lamented that a colleague told him, "Given a choice between a graduate applicant from a historically black institution and an applicant from China with exactly the same credentials, he would choose the Chinese student every time."[4] My experience supports Professor Jones's observation that many scientists operate with compromised moral and ethical reasoning abilities, especially when confronted with issues of race and social justice. This comment is not meant to discourage African Americans from pursuing careers in science. I have quite the opposite intention, and throughout my career I have worked to increase the representation of minorities in science. These problems exist in all spheres of American professional life. Rather, it is said that to be forewarned is to be forearmed; you must understand the nature of the beast.

African Americans presently are and have historically been greatly underrepresented in science, biology, and particularly in evolutionary biology. Professor Donna Norman's 2002 study of biology faculty at the

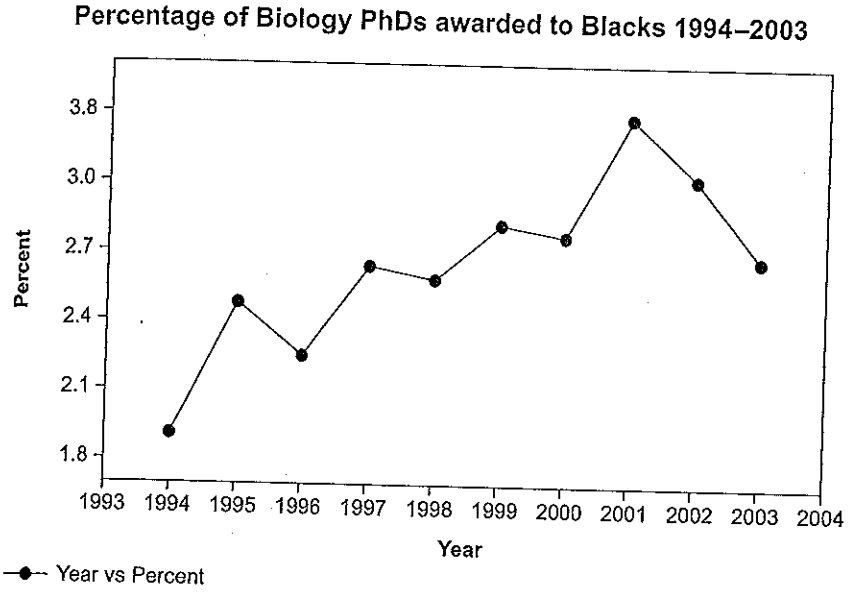

Figure 1 shows that there is a general trend of increase over the last ten years. However, the values never increased above 3.5%, meaning that blacks are still underrepresented in biology Ph.D.'s by three to five fold compared to their percentage in the US population. Source: NSF Science and Engineering Doctoral Awards, 2003; http://www.nsf.gov/sbe/srs/nsf05300/pdfstart.htm.

top 50 research universities found that only 1 percent of the faculty members in these departments were black. The survey was conducted by asking departmental chairpersons about the ethnic diversity of their department.[5] This figure is probably an overestimate of the African American representation in the science professoriate because people who are African or Caribbean immigrants, and who were not raised in or do not have ancestry in the United States, are often counted in this group.

The situation in the pipeline doesn't look much better. Figure 1 shows that from 1994 to 2003, the percentage of PhDs in the biological sciences awarded to "Blacks" never exceeded 3.5 percent of the annual total. Figure 2 shows these percentages in comparison to other minority groups; percentages for Blacks are orders of magnitude lower than percentages for Asian Pacific Islanders and are consistently lower than the percentages for Hispanics. In 1998, the National Science Foundation (NSF) ended its practice of holding a separate competition for minority

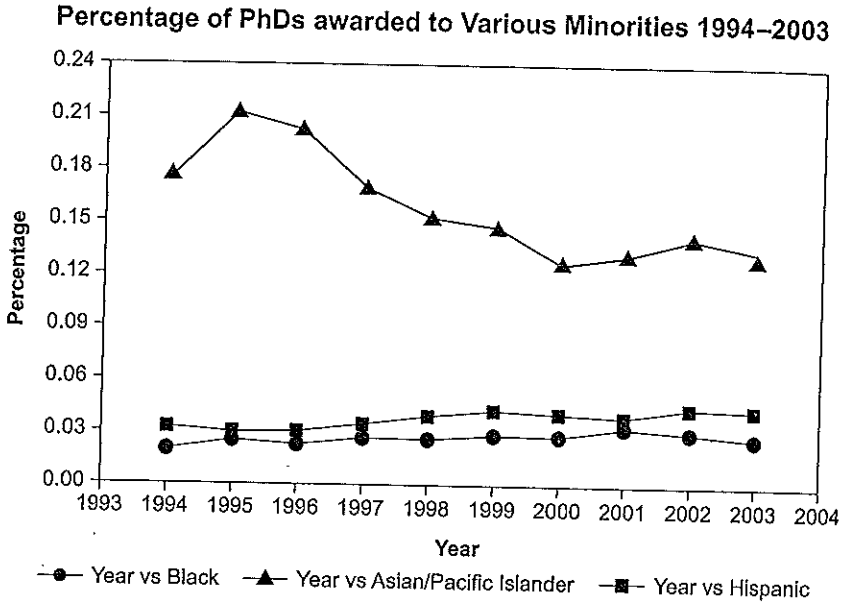

Figure 2 This figure shows that Blacks received a significantly lower percentage of biology Ph.D.'s (never greater than 3%) compared to Asian Americans and Pacific Islanders (between 21 and 13%). Hispanic degree completion was slightly but not significantly higher over this period. The percentage of Blacks and Hispanics increased slightly, while the Asian/Pacific Islander percentages fell substantially. Source: NSF Science and Engineering Doctoral Awards, 2003; http://www.nsf.gov/sbe/srs/nsf05300/pdfstart.htm.

student graduate fellowships. This was due to a lawsuit filed by a White student who claimed that the competition discriminated against majority students.[6] The situation within the pool of postdoctoral researchers is not promising either. Both the NSF and the National Institutes of Health (NIH) have been attempting to maintain programs designed to recruit and develop talented minority postdoctoral researchers, but these programs are also coming under fire.[7] Worse is the idea held by many nonminority scientists that at this level such programs are simply not necessary or wanted. This ideology is particularly related to the peculiar role postdoctoral researchers play in the scientific enterprise. In the main, postdoctoral researchers are employed to increase the research productivity of the host laboratory, which in turn means more grant support, promotion, and tenure for the hosting professor. Professors vary in the degree to

which they structure postdoctoral experiences so that a young researcher actually is capable of advancing his or her own career toward a university professorship. In self-interested terms, when postdoctoral researchers move to faculty positions, they become competitors for many of the same resources desired by the sponsor. When one adds into this volatile contingency the belief held by many White scientists that minorities are of inferior quality to White and foreign researchers, this hesitancy toward the existence of such programs and the lack of White participation in such programs become clear.

If all that I have written so far has not given you pause, a December 2004 article published in the *Stanford Law Review* should.[8] According to the author, Professor Robert Sander of the University of California–Los Angeles Law School affirmative action policies are hurting the people they were meant to help. He claims that Blacks admitted to the top-tier law schools get poorer grades, are less likely to graduate, and are more likely to fail the bar. His syllogism follows that Law School Admission Test (LSAT) scores accurately predict law school grades and graduation rates. He also posits that law school grades, in turn, predict bar passage rates and eventual income as a practicing lawyer. For example, he shows that the scores of Blacks admitted to the top-tier law universities would actually place them in mid-range public or private schools if there were no racial preferences in admission. However, he calculates that ending racial preferences in admission to law schools would have the counterintuitive impact of actually increasing the number of Black lawyers.

In the case of science, Graduate Record Examination scores do not correlate with graduation rates or subsequent professional accomplishment. However, it will not be long before the Sander argument finds its way into hiring and promotion procedures in a wide variety of disciplines. Thus, it is highly likely that in the foreseeable future, degree attainment, postdoctoral research opportunities, faculty hiring, promotion, and tenure for minorities are going to get tougher. Scientists, who are empiricists by nature, will argue that there is little evidence that affirmative action programs have helped African Americans enter science careers. They will also resurrect genetically based arguments concerning differences in cognitive ability between races or populations as an explanation, assuaging the claim that they are being racist. As such, the general climate of academe for African Americans is going to become more hostile, not less. Now, you know the nature of the beast.

Slaying the Beast: The Written Words

In his biography of Ernest Everett Just, a pioneering African American embryologist, Kenneth Manning describes what the early 20th century eugenicist Charles B. Davenport thought of Just's work. "Another Carnegie scientist, C. B. Davenport, thought Just was doing 'sound' work, but did not consider him to be a man of 'any exceptional brilliancy or initiative.' Though willing to concede Just's standing as 'the most prominent (if not the only) colored man' in zoology, he hardly meant it as a compliment."[9]

With this sort of history in mind, it is precisely at this point that one needs to revisit one's goals to decide if a career in science, particularly evolutionary biology, is the path one wishes to pursue. In 1977 these questions were in the forefront of my mind as I embarked on my graduate career. My goal was to become a professional scientist although I really had no idea how to go about it. I naively thought that my passion for learning about nature and for social justice were not at odds with each other. I also believed that the institutions I was entering to pursue my career goals were sympathetic to my needs. I soon found out otherwise. The African American graduate students in the program I entered had internalized the belief that they shouldn't be there. Many had no aspiration beyond a terminal master's degree. The atmosphere was such that European American students felt comfortable calling us "niggers" whenever they had a numerical majority. My experience suggests that although these attitudes have gone underground in today's science community, you cannot survive in this career unless you are willing to endure some amount of cultural isolation and ignorance on the part of your coworkers.

However, the best revenge for insult is success. You can still accomplish your goals, granting the general hostility of academe, if you employ the correct tactics and strategies. First and foremost, graduate students must finish their PhDs! You must be single-minded in this task. The best thing my adviser (Professor Leo Luckinbill, Wayne State University) did for me was insisting that I stop marveling at my own academic abilities, stop fooling around, get into the laboratory, and do the work. Brilliance alone will carry you so far. The bottom line is that to succeed in science you must do the work, analyze your data, and write up your results. If you cannot do this, you should opt for a different career.

Neither should you allow your institution to burden you with premature or excessive teaching requirements that interfere with the completion

of your doctoral thesis. Many institutions use senior graduate students to teach undergraduate courses. This is okay, if done sparingly, and if the goal of this work is to make you more marketable because you have developed teaching expertise. However, I have met too many African American students who are either tied to teaching or working in their adviser's laboratory to make ends meet. If you are such an "all but dissertation" (ABD) graduate student reading this article, you should stop whatever you are doing, find an alternative means of financial support, and finish your degree. The rewards for this are obvious. Scientists with PhDs earn more money for research, teaching, and service than persons without degrees. Finally, you will never achieve your goal of being a professional scientist unless you are awarded a PhD degree.

In writing your doctoral thesis, your work should be divided in ways that make publishable units. In other words, each chapter of your thesis should be a body of work that you can submit to a professional journal for publication. You will also know if you have a good graduate adviser if he or she works with you to ensure that your doctoral work is publishable and to help you to submit your work, under your primary authorship, in a timely way. Accept nothing less. If this isn't happening, find another adviser or find another program.

Although NSF has discontinued its graduate fellowship program earmarked for minority graduate students, the NIH programs are still in place. Given the previous arguments, it is imperative that young investigators take advantage of the existing support mechanisms (which still exceed the need). Both the NSF and NIH mechanisms can be found via the organizations' Web sites. For example, you can find a link to the NSF's programs for broadening participation/diversity directly on its home page (www.nsf.gov). The NIH minority programs are handled by its Minority Office of Research Experiences (MORE) division within the National Institute of General Medical Sciences (NIGMS). You can find the MORE links by searching at the NIGMS portal. Before you receive your PhD you should already have found a postdoctoral position.

One way you can achieve this is to present your graduate thesis work at scientific meetings. This is where you will be noticed, particularly by senior researchers in your field who have the potential to write you letters of recommendation or to help you find suitable specialized postdoctoral support programs. Generally, every subdiscipline has a network of researchers that work on similar projects. In my case, I was recommended

for the President's Postdoctoral Fellowship Program on the strength of my presentations at the *Drosophila* research conferences and my graduate adviser's connections to scientists at the University of California who worked in similar projects.

Postdoctoral researchers are generally recruited to carry out specific projects. When you arrive at your new venue, you should have a meeting with your host outlining exactly what projects you will be pursuing. Furthermore, you should come to an agreement concerning the authorship of particular sorts of papers that will come out of that project. This is particularly important now that there can be dozens or more authors attached to projects utilizing many modern techniques such as genomics and bioinformatics. Indeed, this issue has become so important that the National Academies of Science has devoted a section to it in a recent publication on responsible conduct of research (NAS, Committee on Science, Engineering, and Public Policy, 2009).[10] You also want to find out whether this laboratory has a good record of postdoctoral students actually finding faculty appointments after their tenure is finished. This is also something you should have investigated before you accepted the position, but you may also get more relevant information once you are working there.

Even more than graduate students, postdoctoral students need to be jealous of their time. Your goal as a postdoctoral student should be to finish as much research and submit as many publications as practicable from the project. Depending on your discipline, you may need to do more than one postdoctoral appointment. However, you do not want to get into a situation where you are going from one postdoctoral appointment to the next. This is a dead-end strategy. Your goal should be to do enough postdoctoral research to make you a competitive candidate for a faculty job. Some postdoctoral positions combine research and teaching. These are more suitable if your goal is to find a faculty position at a smaller undergraduate teaching institution. At present, there is an effort under way to recruit minority faculty to just such positions.[11]

It is also useful to learn grant writing as a postdoctoral student. Some faculty advisers will allow you to read their grants, and indeed others may actually require you to write parts of resubmissions or new grants, particularly if they arise from your work. Whenever possible, if the university or granting agency regulations allow it, you should be a co-principal investigator on any grant that results from significant amounts of your work. Again, a sign of a good postdoctoral adviser is that he or she will encourage

this when it is appropriate. Finally, if possible, find out from new faculty, particularly European American men, how many publications they have had, which journals they have been published in, and when they were hired to the faculty. If they have published five papers in top-tier and two papers in second-tier journals, then you should plan to have seven papers in top-tier journals, and three papers in second-tier journals. This is the one and a quarter rule. In economics it is called the "black tax." Everything costs more when you are African American in this society, including hires, promotions, and tenure. Accept this and you have a chance of entering the academy. Remember, you will not be able to right this injustice unless you and many more like you make it into research institutions.

Getting hired by a university is arduous for everyone, but more so for African Americans. The most egregious lie circulating in academe is that unqualified African American scientists are being hired willy-nilly for professorships! In the hiring process, you should expect that everything you have ever done will be open for inspection. However, if you adhered to the one and a quarter rule as a graduate student and postdoctoral student, you have an excellent chance of being hired as an assistant professor in biology. For example, my first university appointment came after finishing a prestigious postdoctorate appointment at the University of California. The President's Postdoctoral Fellowship program both provided me with excellent research mentorship (Professors Michael Rose, Richard Lenski, Eloy Rodriguez, Clifton Poodry, Joseph White, and others) and allowed me to network with other young minority scientists. However, despite this, it required the willingness of eight tenured university faculty members to approach the academic vice provost concerning irregularities of how my application for a—faculty appointment—target of opportunity was handled. It seems that someone in the departmental office "misplaced" my application file until after the deadline for this program had passed. We were able to prove that my application had indeed been turned in before the deadline, and this played a major role in my eventual hire a year later.

Once you are hired, your first task is to negotiate the salary requirements and research support you require. Negotiation is a difficult process. It is usually easier if you have multiple offers on the table. You should have a realistic sense of what your minimal space and setup requirements are as well as what salary you require. You can get a handle for what scientists in your discipline and rank make by accessing the American Association for the Advancement of Science (AAAS) salary survey (you can find this from

the AAAS home page, www.aaas.org, under Science Careers). It can give you data for regions and institution type. Setup funds and space are crucial because you are unlikely to get more of those things from the institution once you agree to the initial package. Talk with your graduate and postdoctoral mentors about what equipment they needed in their laboratories and carefully price these items. Also ask for support for supplies so that you can get going on research to lead to your first external grants. It is also standard for young faculty members to get reduced teaching loads while they are setting up their laboratories and initiating research.

Once you are hired, you should meet with your departmental chair and dean to receive in writing what you must accomplish to achieve tenure. Most universities require a mix of research, grant support, teaching, and university and community service. This mix differs by the institution type and culture. Whatever they tell you, strive to implement the one and a quarter criterion. Most importantly, you must consistently document all of your publications, grants, presentations, teaching evaluations, and university and community service. It is also helpful to keep records of how many hours per week you spend on these activities.

It is crucial that you find a senior faculty mentor. You want to find someone who has a strong record of publication and grant support. This person will be your lifeline through the tenure process. In addition, as a minority faculty member you will be under a great deal of pressure to provide mentorship to undergraduate and graduate students, postdoctoral researchers, and junior faculty members (both nonminorities and minorities). This is both a challenge and an opportunity. On the one hand, even as an untenured assistant professor you will be asked to serve on a variety of university committees devoted to diversity issues. I believe that assistant professors should carefully weigh such duties and see how they fit into their ultimate goal of achieving tenure. This service may be appropriate for some, but not others. Tenured faculty members, on the other hand, have an absolute duty to serve on such committees and to do their best to generate external funds to build programs that foster minority recruitment and retention in the sciences. This is also an opportunity to increase your own grant support because, at present, NSF, NIH, and other granting agencies are still providing funds to support this activity. I had the pleasure to serve as an assistant professor in the California Alliance for Minority Participation program, funded by NSF, with Professor Eloy Rodriguez as principal investigator. This, in turn, provided me with the training I needed to lead

my own training program at Arizona State University–West, funded by the Bridges to the Future initiative at NIH. The benefit of these programs is that they increase the number of potential minority students in the science career pipeline and get those students doing research; in addition, their research efforts can help your own research program. The programs also allow you to form a support network outside your own institution and network your students into graduate and postdoctoral opportunities. Make no mistake, however. Directing these programs is time-consuming, and you should carefully document your work in them and present that in your promotion materials.

Promotion to tenure and full professor requires that you assiduously implement the one and a quarter criterion. Certainly, if you fall short of this and your productivity is equal to that of the White male members of your department, you still have a good chance of tenure and promotion. The one place you do not want to be is to have less productivity than the departmental norm. Given the uncertainty of the tenure process, you just don't know what can happen.

A crucial aspect of the tenure process is outside letters of support for your promotion. Most institutions will allow you to name a certain number of individuals and then the promotion and tenure committee will independently solicit additional reviews of your scholarship. Furthermore, the committee will ask you for the names of people who should not be asked for letters evaluating your work. It is crucially important that you utilize the option of eliminating individuals that have conflicts of interest or animosity toward you or your work. You should also carefully pick the people whom you wish to submit letters in your behalf. The general rule is that any reference you solicit should have at least the rank you are being promoted to; thus, untenured assistant professors should only ask for references from tenured associate professors or higher, and associate professors should only ask for letters from full professors, and so on.

Slaying the Beast: The Unwritten Rules

My career has demonstrated that if you adhere to the written rules, you are likely to achieve reasonable professional success. However, my greatest weakness was that I did not effectively learn and apply the unwritten rules of the academy. If you are wondering what these rules are, they are the same ones that operate in society at large, particularly with reference to the behavior of individuals and groups.

Studies of racism in the post–Civil Rights era have moved on from focusing on overt to "aversive" racism.[12] Ironically, aversive racism is often displayed by people who possess strong equalitarian values and believe they are not prejudiced. Furthermore, aversive racism may be rooted in adaptive behaviors resulting from past selection to solve other problems, such as the tendency to categorize (which automatically creates more positive values for one's own group and negative ones toward others); the desire for power and control, which is most powerfully displayed by males of the dominant social group; and the internalization of societal beliefs and values. There are several examples of aversive racism that are relevant to the African American pursuit of careers in science, including the fact that greater discrimination occurs against African Americans who are strongly qualified for high-prestige positions than against those who are weakly qualified for low-prestige positions and the relationship of negative attitudes toward Blacks being associated with opposition to affirmative action and other social-justice programs that are typically associated with Blacks.[13]

The tendency to believe that Blacks are less qualified for careers in science has a long history in biology. Indeed, evolutionary biology, genetics, and anthropology developed much of the theory that is used to buttress these ideas.[14] Despite the fact that these concepts have been sequentially debunked, few practicing scientists are aware of this, and many just don't care. Their empirical reasoning suggests that the general absence of Blacks in this field is proof positive that the rare Black in the field is "suspect." Moreover, professional scientists have different grasps of the nature, history, and philosophy of science. These shortcomings often contribute to the prevailing ethos that scientific research and the scientific community are mainly objective and value-neutral entities. My experience is that they are not and there is a vast amount of scholarly literature that supports my experience.[15] It is from here that many of the unwritten rules of the academy emanate.

Unwritten rule number one: Know who the big men are in your field (and I do mean men). You must either win them to your side or neutralize them. Avoid antagonizing them, if at all possible. If you must antagonize them, wait until after you have tenure. Or if you must antagonize one, make sure you do so under the protection of another one. Communities of scientists often form factions during contentious scientific problems. Remember, the egos of scientists are fragile. You may inadvertently

antagonize people; some aspects of your personality might be offensive to some, or they may be jealous of your success. For example, some aspects of my personality, particularly my African American mannerisms, were often abhorrent to some of my faculty colleagues. A professor once lamented to my faculty mentor that I was "too Black." She meant culturally. Do not expect non–African Americans to have any knowledge of, or sympathy for, your plight.

Unwritten rule number two: Know the power relations between the various stake-holding groups in your department, college, and university. In general, at traditionally White universities, White men hold the most power, followed by White women. The various ethnic minority communities may have different positions in the hierarchy, depending on where you are located in the country and the institutional history. It is a mistake to think that simply because individuals are from groups that face social oppression they understand or are sympathetic to your particular form of social oppression. White men may oppress White women in the academy, but their relations to them are going to be very different from the way they threaten either Black men or Black women. Neither should you overestimate the protection that tenure affords. Institutions have other ways of punishing the rebellious, such as denying laboratory or office space, increasing teaching loads, and withholding salary advances. Outside the institution you may face removal from prestigious editorial boards and review committees or receive specious reviews of your own papers and grants.

Unwritten rule number three: Be careful whom you trust. Not everyone who offers you support is really on your side. Conversely, not everyone you disagree with is necessarily your enemy. Neither is every disagreement based in racial animosity. The vast majority of scientists do not believe they are racists or biased. Most are narrowly focused on their research and advancing their own careers. They will always weigh support for you, or support for social justice–associated initiatives in the university, by how they affect their own self-interests. Therefore, whenever possible, present your programs in light of how they will improve the life of everyone in the university. Finally, if you must engage in a disagreement, try to keep it principled. In other words, make sure it is based on intellectual as opposed to personal criteria.

Unwritten rule number four: Choose your battles carefully. If you must fight, fight to win. A victory won without combat is more valuable than a

victory won after a dramatic combat. Whenever possible, attempt to win the intellectual struggle by exposing the logical errors of your detractors. You will find that, as your career progresses, you will be fighting more often than not, particularly if one of your goals is to make positive institutional change.

Unwritten rule number five: Keep your personal and professional life separate. In your university affairs, maintain the highest ethical standards. The university may accept White male or female professors dating their graduate students, but it is highly unlikely that it will accept your doing that. In addition, you must adhere to all university and federal guidelines concerning the use of grant funds or obtaining reimbursements. Be careful about how you entertain at university functions. If colleagues go to a restaurant or bar after a seminar or other university activity, be sure it is in mixed company and avoid any excessive use of alcohol. The bottom line is that you cannot afford to have any aspect of your behavior related to university business reflect the appearance of impropriety.

Slaying the Beast and Surviving to Tell the Tale

> *The smell beneath the alkali was that of devil-grass which brought sweet dreams, nightmares, death. But not for you gunslinger. Never for you . . . each time you forget the last time. For you, each time is the first time.*
>
> —Stephen King, *The Dark Tower: Dark Tower VII*

Stephen King began his magnum opus, the Dark Tower series, when he was 19. The first novel, *The Gunslinger*, was published in 1982. It opens with the hero, Roland Deschain, following a man in black across the desert. From the epigraph to this section you have surmised that it also ends there. From this I surmise that King's message was that it's not the destination (the Dark Tower) but the journey that matters. Thus, I am not ashamed to say that I have not achieved all of my career goals (if so, I would retire now). I also realize that I never will. Rather, I realize that it has been the journey all along. I was born into a world of social oppression, oppression that permeates every aspect of its function. I choose to resist. I could not have done otherwise.

Neither can I say that the personal cost of what I have achieved so far hasn't been very high. I did not know it, but I suffered from depression for

most of my academic career. My subsequent discovery of this and treatment for it may have saved my life (and certainly has made life better for my wife and children). I am not alone as rates of depression have been on the rise throughout America over the past decade.[16] The data also show that African Americans in higher socioeconomic categories are more likely to suffer from stress than their European American counterparts. If I had been aware of how the unwritten rules operated from the beginning of my career, I could have saved myself much of this stress and pain and would have been more productive. I hope the reader will heed my warnings and avoid my mistakes.

I do not believe a socially conscious person of African American descent can avoid coming into direct conflict with the existing ethos of the scientific research community. This does not mean that I think all White scientists are bad people. Remember, aversive racism operates in people who think they have egalitarian attitudes. Indeed, I could not have been successful without the friendship and support of a good number of them. Neither can anyone who is about to embark upon a career in biology go forward with the attitude that he or she is going to completely overturn the culture of science. Rather, what I have attempted to do in this essay is lay bare the challenges that face any African American who wants to succeed in academe. In addition, it has been written from my experiences as a man. Many of the things I say are gender-neutral; however, much is specific to the experiences African American men will face. Social dominance theory predicts that the dominant group in science, European American men, respond far more negatively to African American men than to European American or African American women. I discuss some of the generalities of this in *The Race Myth.*[17]

Finally, there is at least one important collective step that needs to be taken to help the situation of African Americans in biology. First, we need to form a professional organization of African American biologists, or at least form a caucus within a large professional organization such as AAAS or the Society of Comparative and Integrative Biologists. For example, the National Society of Black Engineers allows for communication and joint action among its members. In this way, research of concern to the African American community may be more effectively advocated for and training and support for junior scientists may be coordinated. Such an organization would also be a more effective way to communicate the importance of training in science and research to the African American

community at large and in particular to political entities such as the Congressional Black Caucus.

At the end of the day, scientists stay in science because of their love for research and scholarship. Because of the character of our society, some scientists are less capable of pursuing that love. Ernest Everett Just, one of the greatest African American scientists of the 20th century, was broken by mid-20th-century racism. Unfortunately, the fundamental conditions that Just faced still exist, even if they have supposedly evolved. If an African American is willing to bury his or her head in the sand, hunker down, and shuffle hard enough, there is a good chance that he or she might blend into the prevailing climate of American science. However, if you cannot help but challenge the apparent injustices and inequities in how scientific research is conceived, practiced, and executed or if you speak out against the apparent biases in how scientific resources are distributed, you will not blend in. This is why I began this essay with a discussion of goals. Ask yourself this: What do you want? Where do you want to go? Do you have the mental toughness to achieve it?

Those of us who have been fighting this battle are eager to welcome reinforcements. Time is short, the stakes are high, and failure is not an option.

Notes

1. African Americans are defined as persons having African ancestors who lived in America before the Emancipation Proclamation. Of course this means that there are other people living in America of African descent, such as recent African immigrants or Afro-Caribbeans. The fact that American racism operates on any detectable amount of African ancestry means that all these groups have faced similar issues; however, their experiences are also different in important ways.

2. My PhD was granted in evolutionary, systematic, and environmental biology in December 1988. There were other persons of African descent before me in aligned fields, such as genetics, anthropology, and population ecology; however, as far as I am aware, no one was awarded a degree in this field before I was. Since I earned my degree, others have followed, most notably, professors Scott Edwards of Harvard, Tyrone Hays of the University of California–Berkeley, and Paul Turner of Yale.

3. Sociologists used a variable known as social distance to describe how various groups view others. The social distance variable includes such factors as willingness to marry, membership in clubs, willingness to have personal friends, living on the same street as neighbors, employed in the same occupation, citizens of the same country, visitors in the same country, and exclude from my country. In 1926, Whites ranked Negroes 26th of 31 racial groups; in 1991, the ranking was 21st of 30 racial groups. See the discussion in R. T. Schaefer, *Racial and Ethnic Groups*, 7th ed. (New York: Longman, 1997).

4. G. Jones, "Minorities in the Scientific Workforce." Editorial, *Science* 296 (2002): 217.

5. D. J. Nelson, "Diversity in Science Association," 2005, http://cheminfo.chem.ou.edu/faculty/djn/diversity/top50.html.

6. J. Mervis, "Scientific Community: Wanted—A Better Way to Boost Minority Ph.D.s," *Science* 281, no. 5381 (1998): 1268–1270.

7. J. Mervis, "Minority Postdocs Are Rare, Independent Breed," *Science* 281, no. 5433 (1999): 1529–1530.

8. Richard Sander, "A Systematic Analysis of Affirmative Action in American Law Schools." *Stanford Law Review* 57, no. 2 (2004): 367–483.

9. K. R. Manning, *Black Apollo of Science: The Life of Earnest Everett Just* (New York: Oxford University Press, 1983), 134.

10. National Academy of Sciences, Committee on Science, Engineering, and Public Policy, *On Being a Scientist: A Guide to Responsible Conduct in Research,* 3rd ed. (Washington, D.C.: The National Academies Press, 2009).

11. For information see, Consortium for a Strong Minority Presence at Liberal Arts Colleges, http://www.grinnell.edu/offices/dean/csmp/.

12. J. F. Dovidio and S. Gaertner, "On the Nature of Contemporary Prejudice: The Causes and Consequences of Aversive Racism," in *Confronting Racism: The Problem and the Response*, ed. J. Eberhardt and S. T. Fiske (Newburg, CA: Sage Publications, 1998), 3–32.

13. Ibid., 18 and 23.

14. J. Graves, *The Emperor's New Clothes: Biological Theories of Race at the Millennium* (New Brunswick, NJ: Rutgers University Press, 2001).

15. Some interesting recent studies of this are J. Harwood, *Styles of Scientific Thought: The German Genetics Community 1900–1933* (Chicago, IL: University of Chicago Press, 1993); S. E. Lederer, *Subjected to Science: Human Experimentation in America Before the Second World War* (Baltimore, MD: Johns Hopkins University Press, 1995); R. N, Proctor, *Value Free Science? Purity and Power in Modern Knowledge* (Cambridge, MA.: Harvard University Press, 1991); M. J. S. Rudwick, *The Great Devonian Controversy: The Shaping of Scientific Knowledge among Gentlemanly Specialists* (Chicago, IL: University of Chicago Press, 1985); M. Ruse, *The Evolution Wars: A Guide to the Debates* (New Brunswick, NJ: Rutgers University Press, 2001).

16. CDC, "Self-Reported Frequent Mental Distress Among Adults—United States, 1993–2001," *Morbidity and Mortality Weekly Report* 53 no. 4 (2004): 963–66.

17. J. Graves, *The Race Myth: Why We Pretend Race Exists in America* (New York: Dutton Press, 2004).