Teaching in Eden

Lessons From Cedar Point

AN EXCITING NEW LOOK AT TEACHING FROM A LEADING EDUCATOR

John Janovy, Jr.

TEACHING IN EDEN

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BY

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Preface

Teaching in Eden is a result of two relatively unusual teaching experiences. The first involved the opening of a biological field station on the high plains of western Nebraska. The field station is named Cedar Point, but some of us called it a Garden of Eden for some fairly obvious reasons, which you will learn in what follows. The second experience resulted from an academic administrative practice that long ago disappeared from major universities—namely—throwing brand new faculty members to the sharks, a.k.a. freshman biology students in large auditoriums, while expecting these same faculty members to develop productive research programs. The idealism expressed in this book is derived largely from the field program—a time and place where all you had to do was study living organisms, enjoy the natural beauties, get dirty, and talk about ideas. A teacher's challenge is to retain this idealism in the less-than-ideal world of today's large public university beleaguered by financial problems, liability, physical plant decay, and cultural wars, yet expected to produce employable twenty-two-year olds, major research discoveries leading to economic benefits, and winning athletic teams.

Teaching in Eden is therefore both a teaching memoir and an assessment of American higher education from the front lines—especially the large, introductory science course, classroom. Both the memoir and assessment are written by a foot soldier who not only has taught in these large classrooms, but also has held significant administrative positions and maintained a productive research program for nearly forty years. The field program is the Cedar Point Biological Station (CPBS), housed in

thirty-five buildings built into the bluffs eight miles north of Ogallala, Nebraska, on the banks of the North Platte River, along the southern edge of the Nebraska Sandhills. The most instructive experience at CPBS involved a single course in parasitology that produced a long list of powerful and creative teaching tricks. The techniques we learned at CPBS, especially during its early years, showed us how to completely change the character of a university science course. These so-called "Cedar Point Lessons" were a product not only of the opportunities and constraints posed by the natural environment, but also of the unusual interactions that took place between faculty and students. Not long after the field program started, I began purposefully trying to create the Cedar Point atmosphere in places far from the prairie wetlands: I started trying to build another Eden. This book is my attempt to explain exactly how it was done, in hopes that it will be done over and over again in places far from western Nebraska, and by people other than scientists.

The Field Parasitology course at the Cedar Point Biological Station, taught for twenty-eight years, from 1976 to 2003, was not only a highly unique educational experiment—at least for the University of Nebraska—but also virtually the last of its breed. Its uniqueness was the result of three factors. First, there was an enormous diversity of instructional material immediately available to us. Second, we used role-playing as the primary teaching technique. And finally, we realized that its pedagogical discoveries could be taken back to a city campus where there were no prairie wetlands and where students were routinely confronted with many competing, if not outright demanding, obligations beyond their biology lessons. Field Parasitology was taught, therefore, under what can only be described as the most ideal, even idyllic, conditions, and it inspired numerous students to pursue graduate work in parasitology, thus functioning as a life-changing experience for many young people who eventually became faculty members at other colleges and universities. If members of this new generation have access to field programs, then the torch will be passed burning at full strength. But fires need fuel, and in the case of instructional programs, that fuel is some unpredictable

combination of human resources, rich and readily available teaching materials, and conducive settings—that is—a pedagogical Eden, including a Tree of Knowledge.

The necessary human resources will always be available at both small colleges and large universities. Students annually walk into our front doors by the hundreds, if not by the thousands. Most of these young people are just waiting to be inspired, most will change majors two or three times during their academic careers, and all will experience a world whose technological, social, and political challenges cannot be known even a decade in advance. Yet among the crowd of nineteen-year-olds on the nation's campus sidewalks are some people who eventually will be making decisions that shape the lives of millions, if not billions, of other humans. These kids need a "field program." I don't know if I am the person to supply that educational paradise, but I've lived and worked in one now for over a quarter century, and have seen the results. It's time to pass along the tricks we learned in that setting in hopes that someone will be able to use them in places far removed from the prairie wetlands where they were revealed.

Finally, all of the material in *Teaching in Eden: Lessons from Cedar Point* is true. I have mixed the details and changed a few names in places to disguise the individuals involved, primarily at their request, but everything you will read actually happened. All of the student papers referred to were indeed written, all of the conversations actually occurred, and all of the teaching techniques described were actually tried, usually over and over again, year after year. Student reaction to them comes from comments on course evaluations and from conversations that took place months, sometimes years, after the student and I went our separate academic ways. Any tenured faculty member at a large public university occupies a privileged position of enormous power, and those who are sent into the trenches—think Introductory Biology with hundreds of students—have the most power. But with the power comes massive responsibility. Tax-paying parents have sent you their children and asked that they be shaped into something "successful." The tools you have to accomplish this task are mostly words and pictures. *Teaching in Eden* is a record of how I've tried to use

these tools, how I've tried to solidify that fragile link between the power and the responsibility that come with the territory known as "teacher."

—John Janovy, Jr.
Varner Professor of Biological Sciences
University of Nebraska

TEACHING IN EDEN

1
THE INTERVIEW

We don't see any computers being honored here.
—Ted Pardy (from a speech at the Parents Association Faculty-Recognition Ceremony)

Mr. Eldon Novak, his wife Susan, and their daughter Michelle, all from Broken Bow, Nebraska (pop. 3979), enter my office and introduce themselves. Whenever such visitors arrive—prospective honors students, sometimes with younger siblings, and usually one or both parents—I'm inevitably reminded that my office furniture is all secondhand, straight out of inventory. The warehouse is open on Wednesday; maybe this week I'll go look for some better used chairs. While we talk, my western wildlife screensaver changes from ringtail cats to newly hatched white pelicans, to a magnificent wolf portrait, and a progression of other fauna. Visitors often watch these creatures, paying little attention, it seems, to my sales pitch. Once in a while the telephone rings, interrupting our conversation. While I try to get off the phone quickly, my guests scan the wall art—a wax model of a dissected human torso showing parasites in every organ; a Robert Weaver painting of the road from Keystone to Roscoe; a fish print (made by spreading ink on a real fish) given to me by a former student; a large watercolor landscape, a gift from a West Coast friend who flew to North Platte, Nebraska, then rented a four-wheel drive in order to reach an isolated headwater spring so she could paint the scene from life. I promise to call someone back and hang up. We return to the subject at hand: why this

particular high school senior, who grew up on the bleak but starkly beautiful northern prairies, and has a composite ACT score of 35, should come to the University of Nebraska instead of Harvard, Southern Cal, Stanford, or Baylor.

Baylor? Warm and safe. Sleet hits the window. We talk briefly about the weather. In the grain belt, conversations that fail to mention the weather are somehow unfinished. Then I return to my sales job, selling my institution, my department, and a major in biological sciences. From somewhere two floors down comes the sound of construction. Did I remember to sweep up that large dead roach from the hallway before these people arrived? Probably not. We don't notice the roaches much anymore unless they're in our coffee cups. This is, after all, a *biology* building. But why UNL instead of Southern Cal or Baylor?

"The institution itself makes far less difference than what a student does after he or she arrives." I pass along hackneyed standard wisdom that seems to sink in so rarely, yet is embedded deeply in my brain from one conversation with my own son, a fifth-year philosophy major and certainly no honors student. At the time, I was on a committee charged with designing the university's Comprehensive Education Program, an exercise in unabated idealism. If this program could be put into place, then every student, not just arts and sciences majors, but *every single student*—business, engineering, teachers, agronomy—would indeed write papers, struggle with intellectual controversy, speak up in class, and encounter diversity in the most academic-political sense of the word. The committee was on a retreat at a local scenic state park lodge, an all-day session to hammer out details of our final recommendations to the chancellor. The student representative to the group was president of the student body, a business major, and heir to the state Republican political machine.

At lunch, this young man claimed he had just written his first paper—a two-pager—as a senior. Later, throughout the afternoon, I was unable to get that claim out of my mind; it kept me awake during the typical drawn-out sessions punctuated only by more coffee and more cookies. This future leader had evidently gotten through three and a half years at my

institution without writing a single paper. A few days later I asked our resident philosopher how many papers he'd written.

"In English? Or in philosophy?" my son countered with his own questions. It seems there were two file drawers of such papers, many of them long discourses on some idea, assertion, or piece of literature. He launched into a list of what these papers were about, who had asked him to write them, and what various faculty members had said about them in the end. At that point I changed my recruiting advice to potential honors students and their parents, such as the Novaks from Broken Bow now sitting in my office. I knew Michelle would get into medical school, or for that matter, anywhere else in life she chose to go. For students with such high standardized test scores, so many doors suddenly swing open that it's easy to lose sight of major opportunities in one's immediate environment.

"Talk to your fellow students during your first semester here," I say to Michelle, while watching her parents' reaction. "Find out who the very best faculty members are in the humanities and social sciences, the most challenging English and philosophy professors, the good ones in history and political science, and take courses from those people, any courses. Be sure to take art history, too. You have four or five years to be a college student, forty or fifty years to be a physician." Then I ask about foreign language.

"Three years of Spanish," Michelle replies softly, wrinkling her nose. Mrs. Novak flashes a quick, impatient, smile.

"Keep taking it," I respond. "Learn to speak it well. Become fluent. Spanish is rapidly becoming almost a job requirement, even for physicians. Practice it every day. Go to Spain or Mexico." Their eyes start to glaze. Would this advice be more meaningful if I told them that at the age of sixty-three I was taking a night class in Spanish at a local community college, listening to tapes during my morning workout *(¡No hay problema, señorita! Tenemos un restaurante de cinco estrellas.)?* Probably not; Michelle's mother does not even want to hear "age of sixty-three" and her father is thinking: I drove 200 miles to listen to this? I return to my make-us-look-like-Stanford spiel.

"All major universities are about the same in one regard—namely—the large numbers of students, but you don't have to be anonymous. Three hours a semester, visiting with your instructors, makes a world of difference in the quality of education you receive for your money, wherever you spend it."

That observation, born of nearly four decades in the business, is met with bored disbelief. Neither Michelle Novak nor her parents want to hear about spending three hours over the next six months talking with a faculty member, making sure he or she knows an honors student is sitting back on the twentieth row of some auditorium. I suspect, quite strongly, that what they really want to hear about is the best way to get into medical school. I also suspect they believe, quite strongly, that good grades will do the trick. But how do I know three hours a semester will make a significant difference in a student's academic life, even a premed, perhaps especially a premed? Because in 1966, three weeks into my first semester as a university professor, staring out at 362 freshmen, at 7:30 A.M. Tuesday, Thursday, and Saturday, I decided that in addition to memorizing their wardrobes and hairdos, I also needed to know their names. After all, every faculty member I'd ever had knew my name. Doesn't a teacher have an *obligation* to learn his or her students' names? Doesn't that obligation automatically come with our students' tuition checks? So no matter how many people were in those large lecture sections, I simply had to try to learn their names. And as the years passed, and I watched how my university's student-faculty relationships evolved, the names became an obsession.

In the middle '60s, everyone in my department handed out three-by-five cards the first day of class, asking that students provide names, majors, and so forth, all for the purpose of making out a roster. But one day I looked at those cards and thought: If a student personally handed me this card somewhere outside of class, so I could spend five minutes talking with him or her, then it would be much easier for me to learn names by the end of the semester. To hell with the roster; all I had to do was give a 10-point quiz Friday of the first week, and I'd have those data. The cards, however, now had some real potential value. That's when I began paying for these cards with

points. I added 5 percentage points to an exam score if a student came to my office, handed me that card, and carried on a short conversation, one-on-one. I've been doing this now for nearly thirty-six years, although recently the card has evolved into a full-page information sheet.

Yes, this activity takes time. Yet this investment of time provides a unique kind of data, some of which administrators usually don't want to know. For example, although I've not been very disciplined in actually keeping a record of how many times an honors student, well into his or her sophomore year, has his or her first actual, face-to-face conversation with a faculty member, any faculty member, over that 5-point card, I do encounter such a student at least once a semester. In a typical year, I encounter three or four of them, on paper, at least, our best and brightest. I used to send my department chair an E-mail every time this happened, just to remind him that our advising system was missing a whole lot of our top classroom performers. After a while I quit doing that. Nobody ever wanted to talk about what I saw as a fundamental flaw in the system. But I still kept a lot of cards with "honors, National Merit Scholar, never talked to faculty member" scribbled on them.

I also encounter the kids who are struggling, and are finally willing to give up a pinch of anonymity in order to get an extra 5 points. What they reveal, usually unwittingly, is that they have terrible study habits, terrible attitudes, and have not been to class very often. In such cases, the five points rarely makes a difference in their grades. In my wildest dreams, the five-minute visit makes a small difference in their lives, but I've only truly known that to happen once. A struggling student had written two beautiful papers for my general zoology class of about 200. The incongruity between her grades on my multiple-choice exams and her papers led to a conversation about majors and reasons for taking a zoology course. I suggested she take some additional English courses, matching her obvious talent with a discipline that used, and appreciated, such talent. She did. It was a perfect match, and she blossomed, intellectually, in her new location. I've given approximately 15,000 letter grades in the past thirty-six years and talked personally with probably two-

thirds of those students; this is the only case in which I actually know about the connection between a single face-to-face conversation and student's academic success. But seemingly unique events can not only tell us what is possible; they can also suggest what is ideal. The three-by-five cards are a vehicle for accomplishing that ideal, namely, one short conversation, about something intellectual, between a faculty member and a student. The ideal is not—*NOT*—a one-on-one "conversation" between a student and a computer screen.

For the Novak family—taxpayers, football fans, extremely hard-working and skillful people suddenly realizing what a composite ACT of 35 means to their daughter—I continue the litany of ways to make the bleak upper midwest winter look better than stately, wooded, fall season magnificent, Princeton:

"The standard advice, and I give this to all the students, especially when parents are around, is to take both Cell Structure and Function, and Biodiversity, before the middle of your sophomore year. Then go to the biological field station no later than the summer after your sophomore year. Start doing research by the end of your sopho-more year, and teach labs if you can. Read lots of serious books, take advantage of the easily available museums, recitals, and visiting lecturers on campus, and talk big talk with anyone who will listen. Those are the secrets to increasing the quality of your university education and they will work for almost anyone. And they will work anyplace." Even at Podunk U in Outback, Montana, I might have added, but don't. This child might be someone who desperately desires to be in Outback, Montana.

Susan Novak seems to be paying a little more attention; course names sound suspiciously like "advice" and "advice" is why they have come to my office.

"We've heard about the field program," she says. "That's Cedar Point? Out in western Nebraska?" I nod, hand her a brochure. Michelle's curiosity level increases slightly. "What are those courses you mentioned?"

Cell Structure and Function and Biodiversity are the first two courses in the biological sciences core curriculum. I teach the latter. The semester I am writing this book, my class has eighty-eight registered students, nearly half of whom are juniors and

seniors. They've either not received this simple advice to take the most basic courses first, or they've ignored that advice. Why would someone put off until they're a senior such a basic, core-curriculum requirement in his or her major? Because someone has told them that premeds need to get their physics, chemistry, and math out of the way in preparation for the MCAT (Medical College Admission Test). They've decided, because they *are going to be doctors,* that physiology, anatomy, and genetics are more "applicable to their interests" than insects, protozoans, molluscs, and worms. In attempting to satisfy our clientele—that is, by helping them get into professional schools—we've denied that same clientele the full benefits they've already paid for.

What are these benefits? They are the rich intellectual experiences of trying to understand the extraordinarily diverse worlds of art, music, literature, history, and science—that is—the realms of life beyond an operating table or a dentist's chair. Why have we denied anybody these benefits? In my opinion, the answer is simply by giving our students what they appear to want—that is, treating them as customers instead of future presidents. We used to assume one went to college to get an education, acknowledging that a career would then be possible. As an institution, we now assume one goes to college in order to achieve a career, and in the sciences especially, we worry far more about certification than about education. The reversed polarity is subtle, but powerful. The new assumptions permeate all of our interactions between faculty, students, and advisers. In the biological sciences, departments with hundreds of majors rarely find a twenty-year-old who simply wants to study plants and animals. What we find instead is a massive supply of human resources, much of it quite capable of taking leadership positions in our society, dedicated instead to finding a specific job as a health-care professional at some level, and usually for a very personal reason.

Over in the English department, faculty members may be having these same thoughts about their prelaw students (the humanities' equivalent to premeds). If there is anything that surpasses our obsession with health, it is our pervasive awareness of the law. We are simply awash in information

about the legal system, regardless of how accurate that information might be. Our best-selling novels, our gripping motion pictures, our nightly prime-time tube fare, are all little more than a steady, droning, albeit often quite well-written and exciting, examination of our relationships with the law. This background of common experience translated into a never-ending morality tale is rather extraordinarily educational. Hardly a native-born American lives who doesn't believe, quite sincerely, that he or she would know where to go and what to do in a courtroom. Hardly an changes of a murder trial. My one call to jury duty was so familiar—American lives who could not tell you exactly what happens on a routine traffic stop, in a divorce proceeding, or in the opening exfrom having partaken in this free, media-delivered, education—that it felt like I'd been in that courtroom a hundred times. *I knew exactly what to do as a juror!*

My fellow jurors would never have known what to do in a cattail marsh. My former fellow jurors, however, or at least their children, will ultimately share, with all the rest of humanity, the consequences of environmental destruction, global warming, the amoral creep of science and technology into their daily lives, the end of fossil fuel supplies, and the malignant ignorance being spread throughout our public schools by the creationists. In this wonderful, complex, rich nation it is entirely possible to become a most successful, beloved, and wealthy physician [or lawyer] without ever giving a second thought to what the word "stabilized" really means to the individuals—namely, our great-grandchildren—who will participate in the "stabilized" human population, estimated to be around 20 billion. You can also become that same physician and fervently believe that evolution, the central unifying theme of biology, is a complete lie. That is why this young woman sitting in front of me, like all her fellow premeds, needs to take Biodiversity early on. And do research. And get out into the field with the beetles. And talk to her teachers. And get to the place we call a paradise—Cedar Point.

"The Cedar Point Biological Station is the most successful educational adventure the university has ever started." Although I begin my biological sciences sales pitch with our

crown jewel, the campus sculpture gardens are next. "Students and faculty have averaged about twelve to fifteen papers, books, theses, and films a year since the place opened in 1975." I watch the Novaks carefully; "papers, books, theses, and films" do not seem to be making the desired impression. "Enrollment in Cedar Point courses is about twice the national average for programs of this kind, and the United States is really the only nation that has very many field biology stations with extensive course offerings." My guests remain quiet and polite, but it's obvious that nobody wants to hear about enrollment figures or global pedagogical issues. "It's an in-residence program, so some faculty member will be able to write a meaningful letter of recommendation for you, based on your Cedar Point work." Now everyone is wide-awake. The words "letter of recommendation" have done the trick.

I reach into a file drawer and pull out a sheet of paper.

"Here is an example of what one of your recs could easily look like four years from now." I hand this page to Susan Novak and watch her face as she reads.

October 15, 1999
Ms. Jackie O'Hara
Office of Admissions and Students
986585 Nebraska Medical Center
Omaha, NE 68198–6585

Dear Ms. O'Hara:

This letter is to accompany the application of Ms. Sara M.Schrader for admission to the University of Nebraska College of Medicine. I have known Ms. Schrader for three years. She was a student in my Biodiversity (BS204) course, my Field Parasitology (BS487) course at the Cedar Point Biological Station (CPBS), and she has worked in my laboratory as an undergraduate researcher for two years. BS204 is a core majors' course that requires four papers in addition to exams, pop quizzes, and extemporaneous writing assignments. Ms. Schrader also contracted Biodiversity for honors, thus did writing, library research, and oral presentations beyond the regular requirements. Field Parasitology (CPBS) is a very demanding course that requires laboratory and field exercises, a