

## **Finding the Indigenous in Indigenous Studies**

**Daniel Wildcat  
Raymond Pierotti**

“We went to Geneva...as representatives of the indigenous peoples of the Western hemisphere, and what was the message that we gave? ‘There is a hue and cry for human rights’ they said ‘for all people,’ and the indigenous people said ‘What of the rights of the natural world? Where is the seat for the Buffalo or the Eagle? Who is representing them here in this forum?’”

Oren Lyons (Onondaga; 1984)

A survey of positions recently advertised in American Indian Studies, Native American Studies, Ethnic Studies, etc., shows that such disciplines seem to include everything but the natural sciences. A highly ranked university in the Midwest seeking faculty in ethnic studies requests applicants with “specialization in humanities, behavioral, and social sciences, creative arts, creative writing, business, communication, law or medicine.” A major Canadian university seeking a head for their Department of Native Studies suggests that “areas of cognate interest include Sociology, Political Studies, or Law.” What seems curious to us is that the natural sciences are always left out of such lists. This is especially poignant when we remember that our ancestors typically defined their identities and traditions in terms of what they shared with the natural world and their surrounding environments (Lyons 1984; Deloria 1990, 1992; Cajete 1994; Marshall 1995; Anderson 1996; Basso 1996, Martin 1999). The answer may be that the history of science is full of examples where science has been used against

Native peoples (Martin 1999), and its practitioners have been and still are hostile to Native peoples and their traditional knowledge, for example, the recent case involving Kennewick Man.

The institution of science as exemplified by most academic disciplines has been considered to constitute a hostile environment for most indigenous students. Nevertheless, there is a growing consensus that indigenous knowledge about the natural world and its processes is extremely accurate. More importantly, indigenous knowledge recognizes real processes and phenomena that mainstream science is only beginning to acknowledge (Pierotti and Wildcat 1997a,b, 1999, 2000; Martin 1999).

The knowledge base of indigenous peoples is highly localized and focuses on the web of relationships between humans, non-humans, and landforms within a particular locality (Cajete 1994; Basso 1996; Pierotti and Wildcat 1997a,b, 1999, 2000; Martin 1999). "In the traditional [way of knowing], there is no such thing as isolation from the rest of creation" (Deloria 1990, pg. 17). In fact, the indigenous worldview has been described as being spatially oriented, in contrast to the temporally oriented worldview representative of Western culture (Deloria 1992).

Within a spatially oriented worldview, ecosystems are conceived of as a web of social relationships among the family, clan, or tribe and the other elements with which they share a place (Barsh 1997; Pierotti and Wildcat 1999, 2000; Salmon 2000). To be indigenous means to occur naturally in a specific area or environment. This concept carries the implication that the organism or culture under discussion evolved within that environment, and the set of conditions found within that environment shaped the traditions and knowledge set of the culture (Pierotti and Wildcat 1997a, 1999). Indigenous peoples look around them to get a sense of their place in history, and they depend upon the animals and plants of their local environments for companionship, as well as for food, clothing, and shelter (Pierotti and Wildcat 1999, 2000). Spatial orientation can be seen in the tradition of invoking and praying to the four compass directions, the sky, and the earth. A person making such prayers is acknowledging the space in which they live and their understanding that the creative forces shaping their lives exist in the natural world that surrounds them in all of these directions (Pierotti and Wildcat 1999, 2000).

This should not be interpreted to imply that we believe that all indigenous worldviews are the same. The influence of local places upon cultures, and the corresponding diversity of peoples attached to those places, guarantees the existence of variety in the ceremonial and symbolic expressions of indigenous worldviews (Pierotti and Wildcat 1999, 2000). Our experience and research suggest, however, that a shared philosophy and concept of community appears to exist that is common to the indigenous peoples of North America (see also Cajete 1994; Anderson 1996; Martin 1999). This way of thought includes 1) respect for non-human entities as individuals; 2) the existence of bonds between humans and non-humans, including incorporation of non-humans into ethical codes of behav-

ior; 3) the importance of local places; and 4) the recognition of humans as part of the ecological system, rather than as separate from and defining the existence of the system. For example, the ideas that “all things are connected” and “all my relations” stem from these philosophical concepts (Pierotti and Wildcat 1997a,b, 1999, 2000). We consider these ideas to be an intellectual foundation for an indigenous theory and practice of politics and ethics, centered on natural places and connection to the natural world, which is based upon empirical observations resulting from patient observation of the natural world and its patterns (Pierotti and Wildcat 1999, 2000).

It seems, therefore, “natural” that academic areas, programs, or centers dedicated to “native” studies should include academic disciplines that deal with the topics of physics, earth science, biology, chemistry, etc. Too few indigenous academics are found in these disciplines (and we know the reasons why). This suggests the need for an intellectual insurgency movement in the sciences, and what better place for this movement to emerge from than American Indian, Native American, and Indigenous Studies Programs. The point is that our traditional indigenous worldviews and knowledge systems shun the naive dichotomies of Western thought, e.g., material versus spiritual, science versus humanities, and quite predictably the most invidious of Western distinctions—nature versus culture.

Ironically, the academic study of indigenous people and their cultures appears to focus almost entirely on disciplines that separate humans from the natural world. In our view, humanities, social sciences, arts, and law all have a place as components of indigenous studies, but none of these areas should be separate from the relationships between humans and the natural world. Indigenous knowledge and philosophy is inherently multi-disciplinary because it links the human and the non-human and is not only the basis for indigenous concepts of nature but also for concepts of politics and ethics (Pierotti and Wildcat 2000; Wildcat 2000). In contrast to the Western academic tradition, no clearly defined boundaries exist between philosophy, history, sociology, art, law, biology, and anthropology in indigenous thought. Thus, it seems crucial that the natural world be considered an integral part of departments or programs that deal with indigenous peoples. However, the opposite appears to be true, and such programs, as presently organized, specifically or implicitly exclude disciplines that deal in any meaningful way with the natural world. As a consequence, these programs have essentially, albeit ironically, opted to create indigenous studies in the best tradition of Western metaphysics.

This point can be emphasized if we briefly examine the bases of the academic disciplines typically associated with programs in indigenous studies. The humanities, as is implicit in the word itself, deal with humans and exclude the non-human world. The social sciences have an even odder historical tradition, because disciplines in this field all study the human species from a scientific perspective and tend to function as if the principles they develop have no application or relevance to the non-human world. Implicit in these approaches is

that the study of the non-human must be kept separate from the study of the human, with the former being the province of the natural sciences—e.g., biology—and the latter being the subject of several sub-disciplines—e.g., anthropology, psychology, sociology. Some social sciences dip cautious toes into non-human waters, e.g., comparative psychological studies using rats or pigeons as subjects, or the inclusion of primate studies within the field of anthropology. Yet these approaches assume that the non-human study subjects are little more than simple models for the more complex behavior of humans. In fact, one criticism of anthropology by indigenous peoples in many parts of the world is that those who practice anthropology often treat their study subjects (humans) as if they were less than human.

Creative arts and writing, as well as professions like law, business, and medicine, are also human-centered. Although medicine resembles psychology and anthropology in its dependence upon studies involving non-humans as the first steps in its investigation of the effects of various treatments and medicines, this is still fundamentally different from studying non-humans as an end to themselves.

In addition to these disciplines there exist several “applied” sciences such as geography, forestry, wildlife management, and engineering. All of these disciplines treat various components of the non-human world, e.g., rivers, forests, wildlife, either as resources to be managed for human benefit, or as problems to be dealt with in an effort to minimize human discomfort and inconvenience.

As emphasized above, the natural sciences have not been inviting to indigenous scholars. The failure of indigenous studies programs to incorporate the natural sciences may result from the lack of respect that has been shown to traditional knowledge by Western academic scientists. A problem often faced in trying to get indigenous students to consider science careers is overcoming the belief that “science is not for indigenous people” because Western science has a long history of denigrating indigenous knowledge and beliefs (Suzuki and Knudtson 1992; Anderson 1996). Western culture has often treated the knowledge acquired by indigenous cultures as “primitive superstition,” which is characterized as subjective and personal, as opposed to the so-called “rational” perspective of Western scientific knowledge (Deloria 1990; Martin 1999).

Such attitudes on the part of academics, both indigenous and non-indigenous, ignore a substantial body of indigenous knowledge relative to the functioning of natural systems, and especially to the science of ecology (Pierotti and Wildcat 1997b, 1999, 2000). As a result, indigenous scholars and students do not think of modern science as a discipline relevant to their people. Indigenous peoples developed ecological concepts because their very existence depended on understanding ecology, especially relationships between species (connectedness) and the nature of individuality within species (Pierotti and Wildcat 1997a,b, 1999, 2000; Martin 1999). In fact, it may be possible to end the intellectual and academic marginalization of indigenous studies by demonstrating that a truly indigenous-based, albeit less discipline-divided and more integrated, knowledge

of the world may offer some advantage in solving the problems of modern and post-modern industrial societies.

### *Nature and Indigenous Scholarship*

It is our intention to demonstrate that relationships with the natural world permeate much of indigenous scholarship and creative writing and art. As a consequence, we contend that programs dealing with indigenous peoples and Native American or American Indian studies will function more efficiently if they reach out to indigenous scientists and work to incorporate indigenous perspectives on the natural sciences as part of their pedagogy. We provide examples from non-scientific disciplines to support these points.

In the humanities, connection to nature is seen as a way of restoring indigenous identity and of healing individuals who have been damaged by their interaction with the dominant culture. In N. Scott Momaday's Pulitzer Prize-winning novel *House Made of Dawn* (1968), the protagonist Abel is healed by re-establishing his ties with the landscape of his people and includes an extensive passage in which Abel watches two golden eagles involved in a courtship ritual. The land that Abel experiences is an important character in this book, and the title itself refers to the idea that indigenous people consider the environment to be their home, and that going outdoors or indoors is simply moving between different components of one house (Reichel Dolmatoff 1996; Pierotti and Wildcat 1999, 2000).

Similarly, in Leslie Marmon Silko's novel *Ceremony* (1977), Tayo, a young mixed blood Pueblo Indian damaged both spiritually and psychologically by his experiences in the Second World War, is restored to spiritual health by encounters with a mountain lion and a bear while searching for his uncle's lost cattle. In Louis Owens's novels, *The Sharpest Sight* (1992) and *Bone Game* (1994), about the spiritual development of the mixed blood Choctaw, Cole McCurtain, nature and animals are used to link McCurtain to the traditions of his Choctaw heritage. In Owens's novel *Dark River* (1999), a young Apache who is accidentally shot comes back as a wolf, and the protagonist, Jacob Nashoba, is taken home by a spider at his passing.

Almost all of the major contemporary indigenous poets and novelists employ constant references to non-humans and to the natural world in establishing the nature of their characters and the links that these characters have to their communities. Examples include Louise Erdrich, Linda Hogan, Thomas King, Joseph Marshall, Irvin Morris, Simon Ortiz, David Seals, Luci Tapahonso, and James Welch. Perhaps the only prominent indigenous writer who does not use nature as a regular theme in his writing is Sherman Alexie.

History is another discipline within the humanities in which indigenous links to nature are important. As mentioned above, human history existing independent of place and nature is a concept foreign to indigenous peoples, because their history cannot be separated from the entire biology and geography of which they

are a part (Deloria 1992; Basso 1996; Pierotti and Wildcat 1999, 2000). Historical accounts provided by indigenous peoples emphasize this relationship to nature and the importance of specific localities (Marshall 1995; Basso 1996). Many traditional stories, including creation stories, do not deal with the exact time when events happened; however, they are always very specific as to the localities where these events happened (Basso 1996). Many of the events that are described happened so long ago that they exist “on the other side of memory” (Marshall 1995, p. 207). Thus, as long as indigenous people remain connected to the places where their cultures evolved, and their memories remain intact, their sense of history will remain intact, even though the exact time when these events occurred is of little significance.

Philosophy is yet another discipline within the humanities where indigenous links to the natural world are important. The essence of indigenous philosophy is that one be native to a place and live with nature (Cajete 1994; Deloria 1992; Pierotti and Wildcat 1997a,b, 1999, 2000). This contrasts with the dominant Western philosophy that assumes humans live above, separated, or in opposition to nature (Suzuki and Knudtson 1992; Martin 1999). Western philosophers from Aristotle to Descartes have emphasized the separation of humans from the natural world (Pierotti and Wildcat 1997a,b, 1999, 2000). In contrast, indigenous philosophy is based on the concept that it is best to live with the geography and biology of your environment without trying to alter it solely to meet human needs, while casting off the modern Western view that “space” exists to be conquered. This philosophy has allowed indigenous people to take their knowledge of the natural world with them, despite relocations, both forced and voluntary. This philosophy has allowed them to survive these experiences and establish sacred places in their new homes (Owens 1998, p. 164).

Within an indigenous ethical system, nature exists on its own terms, and individual non-humans have their own reasons for existence, independent of human interpretation. Living with nature requires people to rearrange the customs and habits of their daily life. One such custom involves representing sound ecological management in strongly ethical (or religious) terms and developing a view of the environment that stresses specific concrete bonds between nature and the human community (Deloria 1990; Rappaport 1971; Anderson 1996). The cultural diversity of Native Americans reflects their intimate ties to the land and the biology of the places that they call home in specific social codes and institutions, rather than in some misty “union with nature” (Anderson 1996; Pierotti and Wildcat 1997a,b, 1999, 2000). Thus, indigenous philosophy encompasses both science and religion, in the sense that religion is the ritual representation of the community and a device for sanctioning moral and ethical codes (Durkheim 1961). *“The task of the tribal religion...is to determine the proper relationship that the people must have with other living beings”* (Deloria 1992) (italicized for emphasis), which means that tribal religions encode and embody knowledge about the environment and human relationships with non-humans. In this sense, culture, religious tradition, and scientific knowledge are intimately and

pragmatically linked, thereby demonstrating the interdisciplinary nature of indigenous knowledge (Anderson 1996; Pierotti and Wildcat 1999, 2000; Wildcat, 2000).

Given the above, it should be no surprise that knowledge about the environment and non-humans is a major component of indigenous education (Deloria 1990, 1995). In particular, the Santa Clara Pueblo educator, Gregory Cajete, has stressed that indigenous education should be based upon ecological principles and knowledge (Cajete 1994). In his book, *Look to the Mountain: An Ecology of Indigenous Education*, Cajete systematically examines the differences between Indian and non-Indian understandings of how education should function and argues that indigenous educational philosophy should be rooted in environmental knowledge and links to the natural world. Similarly, in a series of essays on indigenous education in *Winds of Change*, the journal of the American Indian Science and Engineering Society, Vine Deloria, Jr., argues that indigenous education must be rooted in the relationships between indigenous people and the natural world (Deloria 1990).

### ***Indigenous Knowledge and Science***

We have discussed how the links between indigenous peoples and the natural environment have influenced indigenous scholars and artists in the humanities and education. At this point, we would like to examine how indigenous philosophy and tradition can be used to examine phenomena in the natural sciences in an effort to demonstrate how the links between indigenous people and nature might generate insights into controversies in natural science.

The topic in natural science that we would like to address is the controversy between fundamentalist religious teachings and evolutionary biology. This controversy has become particularly relevant in Kansas with the recent decision of the Kansas State Board of Education to no longer require the study of evolution in public schools. In our opinion this controversy results from the Western philosophical tradition that human beings are separate from the rest of nature, which is being taken to its logical extreme by fundamentalist Christians.

As we mentioned above, one of the basic concepts of indigenous thought is that all things are related. The Lakota people institutionalize this belief in the closing of their prayers with the invocation *Mitakuye oyasin* (all my relations), which indicates their recognition of their connections and relatedness to the non-human world (Anderson 1996; Pierotti and Wildcat 1999, 2000). This acknowledgment that the human and the non-human are related in a real and meaningful sense is the fundamental principle of evolutionary biology, in which this relatedness is recognized through the fact that DNA and RNA are the common hereditary material of all living creatures.

Connected to the idea of relatedness in indigenous knowledge is the idea that each organism is an individual with unique qualities (Anderson 1996; Pierotti and

---

Wildcat 1999, 2000). As an important example of this recognition of individuality we examine a statement of Okute, a Teton Lakota (McLuhan 1971):

*From my boyhood I have observed leaves, trees, and grass, and I have never found two alike. They may have a general likeness, but on examination I have found that they differ slightly. It is the same with animals (and) with human beings. An animal depends upon the natural conditions around it. If the buffalo were here today, I think they would be very different from the buffalo of the old days because all the natural conditions have changed... We see the same change in our ponies... It is the same with the Indians...*

It is obvious from Okute's statements that Native people understood that individuals vary within species and that the environmental conditions under which animals exist shape their appearance and behavior. This is as clear a statement of evolution by natural selection as exists in Darwin (1859). Perhaps more significantly, Okute describes evolutionary change that may take place over very short periods of time. Such rapid evolutionary change has only recently been recognized by Western science, as recent studies have shown that evolutionary change can take place within only a few generations (e.g., Grant and Grant 1991; Weiner 1993; Reznick et al. 1997). Also important is that Okute includes his own kind within his observations, which indicates that he is aware that humans evolve in the same manner as do non-humans. This insight is crucial, because one of the major conflicts between science and religion in the Western tradition is whether humans are part of nature, a subject that is probably the basis of the controversy involving the Kansas Board of Education. In fact, one major reason that Darwin's theory of evolution through natural selection (1859) is so controversial in the modern world is that Darwin placed humans within nature, rather than separate from nature, where the Western philosophical tradition assumed humans belonged (Pierotti and Wildcat 2000).

The recognition that changes in the environment can lead to changes in the form of beings, along with their non-human centered worldviews, can also be seen in the creation myths of indigenous peoples. A major difference between indigenous and Western worldviews is that in nearly all Western belief systems creators tend to be human, or human in form. In contrast, within indigenous belief systems, creators are typically non-human (Pierotti and Wildcat 1997a, 1999). This raises the question, How do worldviews change if the entity that created a culture is not a human, or even humanlike?

One consequence of viewing your creator as non-human is that you would not be troubled by the idea that humans, like yourself, came from organisms that would not be recognized as human (Pierotti and Wildcat 1997a, 1999, 2000). If your creator is a representative of a type of animal that is likely to be encountered in one's immediate environment and during one's daily activities, this works to



maintain the deep respect and affection for the natural world and its inhabitants (Anderson 1996; Pierotti and Wildcat 1999, 2000). Viewing animals as creators also implies that the animals existed before the humans did, since to be a creator it is necessary to exist prior to your creation. For example, the Lakota Manuel Iron Cloud has made the statement that “Sungmanitu Tanka Oyate, [wolves], were a nation long before human beings realized and declared themselves a nation” (in McIntyre 1995).

There are numerous points of convergence between indigenous thought and evolutionary theory. Although indigenous views are often described as “traditional,” this should not be taken to mean that they are unchanging. Indigenous worldviews portray the universe as a system in continuous flux, driven by known forces as well as by powerful random elements, which are identified as “tricksters” (Barash 1997). Since everything is bound to change in ways that cannot be forecast accurately, it is assumed that both human and non-human can also change to respond to these changes, as described by Okute (above). One major feature of traditional beliefs is that they have existed long enough for long-range consequences to affect them (Anderson 1996; Pierotti and Wildcat 1999, 2000).

### *Conclusions*

It should be clear from our arguments that the natural sciences and indigenous scientists must be an important component of Indigenous or Native Studies programs. There is no component of traditional indigenous life that is not influenced by the natural world, and we would not be the people we are without our links to nature and the non-human elements of our social groups. The distractions and harm to our traditional indigenous ways of knowing that have resulted from numerous institutionalized attempts at assimilation is no excuse for working in Native Studies programs merely grafted onto essentially Western conceptualized and intellectually grounded academic disciplines. The future of indigenous peoples lies not in the greed and fear-based concepts of the Renaissance and the so-called Enlightenment of Western European tradition, which are likely to lead the human species to destruction. If we are to be truly indigenous in our studies, we must begin studying our links to the places where we have lived, currently live, and most importantly want our children and grandchildren to live—be they cities, small towns, reservations, or homelands; and we must always include the geography and the non-human inhabitants of those places. There is much work to be done wresting American Indian, Native American, and Indigenous Studies programs from the underlying philosophy and worldview to which the American university typically conforms. Let us radically indigenize our programs. A good step in this direction would be to find ways to effectively incorporate the natural sciences into what must necessarily be an integrated or interdisciplinary field of study and restore our understanding of the natural world and how we came to be in the first place.

---

 Acknowledgments

We thank the faculty and students of Haskell Indian Nations University for the knowledge and ideas that they have shared with us. We thank C. Annett and M. Wildcat for comments on this article. This work was supported in part by NSF grant #DEB-9317582 to R. Pierotti.

## References

- Anderson, E.N. 1996. *Ecologies of the Heart: Emotion, Belief, and the Environment*. New York: Oxford University Press
- Barash, R.L. 1997. "Forests, Indigenous Peoples, and Biodiversity." Pages 20-24, in *Global Biodiversity*. Ottawa: Canadian Museum of Nature.
- Basso, K.H. 1996. *Wisdom Sits in Places: Landscape and Language Among the Western Apache*. Albuquerque: University of New Mexico Press.
- Cajete, G. 1994. *Look to the Mountain: An Ecology of Indigenous Education*. Durango, CO: Kivaki Press.
- Darwin, C. 1859. *The Origin of Species by Means of Natural Selection*. London: Studio Editions, Ltd.
- Deloria, V., Jr. 1990. "Knowing and Understanding: Traditional Education in the Modern World." *Winds of Change* 5(1): 12-18.
- \_\_\_\_\_. 1992. "The Spatial Problem of History." Pages 114-134 in *God Is Red*. Golden, CO: North American Press.
- \_\_\_\_\_. 1995. *Red Earth, White Lies*. New York: Harper and Row.
- Durkheim, E. 1961. *The Elementary Forms of the Religious Life*. Glencoe, IL: Free Press.
- Grant, B. R. and P. R. Grant. 1989. *Evolutionary Dynamics of a Natural Population*. Chicago, IL: University Chicago Press.
- Jackson, W. 1994. *Becoming Native to This Place*. Lexington, KY: University of Kentucky Press.
- Lyons, O. 1984. "Our Mother Earth." *Parabola* 7 (1).
- Marshall, Joseph III. 1995. *On Behalf of the Wolf and the First Peoples*. Santa Fe, NM: Red Crane Books.
- Marshall-Thomas, E. 1994. *The Tribe of Tiger: Cats and Their Culture*. New York: Simon and Schuster.
- Martin, C. L. 1999. *The Way of the Human Being*. New Haven, CT: Yale University Press.
- McIntyre, R. 1995. *War Against the Wolf: America's Campaign to Exterminate the Wolf*. Stillwater, Minnesota: Voyageur Press.
- McLuhan, T. C. 1972. *Touch the Earth: Native American Teachings*. New York: Promontory Press.
- Momaday, N. S. 1968. *House Made of Dawn*. New York: Harper and Row.
- Nelson, R. K. 1983. *Make Prayers to the Raven: A Koyukon View of the Northern Forest*. Chicago: University of Chicago Press.
- Owens, L. 1992. *The Sharpest Sight*. Norman: University of Oklahoma Press.
- \_\_\_\_\_. 1994. *Bone Game*. Norman: University of Oklahoma Press.
- \_\_\_\_\_. 1999. *Dark River*. Norman: University of Oklahoma Press.
- \_\_\_\_\_. 1998. *Mixed Blood Messages*. Norman: University of Oklahoma Press.
- Pierotti, R., and D. Wildcat. 1997a. "Evolution, Creation, and Native Traditions." *Winds of Change* 12(2): 70-75.
- \_\_\_\_\_. 1997b. "The Science of Ecology and Native American Traditions." *Winds of Change* 12(4): 94-98.
- \_\_\_\_\_. 1999. "Traditional Knowledge, Culturally Based Worldviews, and Western Science." Pp. 192-199, in *Cultural and Spiritual Values of Biodiversity*. D.A. Posey, ed. United Nations Environment Program. London: Intermediate Technology Publishers.
- \_\_\_\_\_. 2000. "Traditional Ecological Knowledge: The Third Alternative." *Ecological Applications* (Special Feature): in press.
- Rappaport, R. A. 1971. "The Sacred in Human Evolution." *Annual Review of Ecology and Systematics* 2:23-44.
- Reichel-Dolmatoff, G. 1996. *The Forest Within: The World View of the Tukano Amazonian Indians*. Tulsa, OK: Council Oak Books.
- Reznick, D., F. H. Shaw, F. H. Rodd, and R. G. Shaw. 1997. "Evaluation of the Rate of Evolution in Natural Populations of Guppies." *Science* 275:1934-1937.
- Silko, L. M. 1977. *Ceremony*. New York: Viking Penguin Books.
- Suzuki, D., and P. Knudtson. 1992. *Wisdom of the Elders: Sacred Native Stories of Nature*. New York: Bantam Books.
- Weiner, J. 1993. *The Beak of the Finch*. New York: Vintage Books/Random House.