# Constituting knowledge across cultures of expertise and tradition: indigenous bio-scientists

Nanibaa Garrison (Diné) at the Pasteur Institute
Photo by: Tomoji Mashimo

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# Hypothesis

That diverse scientists, Native Americans in this case, will help enable a different kind of science that is not only more inclusive and accountable to a broader sector of society, but that the science itself will improve.

The **alternative hypothesis** is that greater Native American inclusion in scientific fields will result simply in a “browning of the laboratory,” with no real change in concepts and approaches.

I’m also interested in Native American scientists’ roles in the development of scientific governance within U.S. tribes. Not much data to that end has yet emerged. The subjects are young.

# Method & Ethics

## Archival research

- Literature on Natives in science
- Demographic info. from professional associations

## Interviews

- Semi-structured, 1-2 hours
- Snowball method in which I get referrals from Native American scientists already interviewed. I eventually have names repeated.

## Participant observation

- At scientific meetings and trainings


A few SING faculty & interns (summer 2011)

# Care for the subject

- "Studying up" was no antidote to "studying down"
- "Studying across" and caring for my subjects, and their projects

*'how' critique is expressed, as well as what its objectives are, is critical to achieving changes in any research area. We start from the position that many of the critiques of geographic information systems (GIS) have aimed to demonstrate what is 'wrong' with this subdiscipline of geography rather than engaging critically with the technology. Critics have judged the processes and outcomes of GIS as problematic without grounding their criticism in the practices of the technology. This follows a pattern of external critique in which the investigator has little at stake in the outcome. External critiques…tend to be concerned with epistemological assumptions and social repercussions, while internal critiques have focused on the technical. But there is a further difference. Internal critiques have a stake in the future of the technology while external ones tend not to…We argue for a form of critique that transcends this binary by tackling enframing assumptions while remaining invested in the subject. To be constructive, critique must care for the subject .*

Schuurman and Pratt 2002

# The politics of identifying subjects

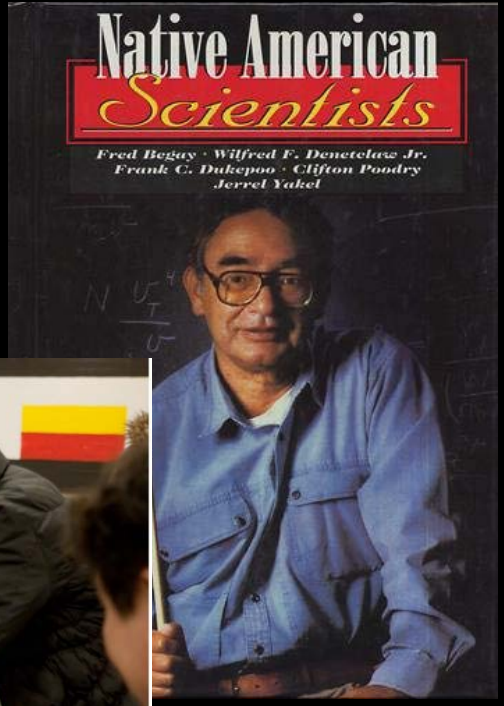
- Peer recognition and referral
- Not a requirement to have a certain political status, i.e. tribal enrollment or citizenship (although all ended up being enrolled).
- Found participants also through participation in Native American and other “minority” science organizations and forums on campus and nationally, e.g. the Society for the Advancement of Chicanos and Native Americans in Science (SACNAS) and the Summer Internship for Native Americans in Genomics (SING).

# What's different about Native American bio-scientists?

1. They emphasize situatedness.

2. Mentoring (by those who target people historically marginalized from science) is key to their staying in science.

3. Native American scientists respond in surprising ways to moral and cultural challenges.




These photo features University of Washington SACNAS Chapter members performing a DNA precipitation workshop with the Clear Sky Native Youth Council students and community members

http://students.washington.edu/sacnas/outreach.php

# How do Native American scientists situate themselves?

1. First to go to university, family/community unfamiliar with scientific practice

2. Family moral support nonetheless key to their staying in science.

3. Diversity mentoring explicit and central.


SACNAS 2011 exhibitor hall. UC Berkeley & UC Davis recruitment and display tables

# Surprising responses to moral and cultural challenges

- Study of already dead organisms vs. killing for study.

- Not stumped by incompatible knoweldge forms (e.g. Creationism vs. evolution) but more fundamentally uneasy with social differences between *traditional scientific* and *traditional tribal* relations with knowledge generation processes. So the tension is not between "traditional (tribal) knowledge" vs. science (or "spiritual" vs. material), but "harmony" vs. the will to know.

# Diversifying the field and lab can expand hypotheses and innovations in methods, help tribes be better served by research

Two Native American genetic archaeologists argue that tribes should consider research on ancient human remains for two reasons:

1. Native Americans have the incentive to develop methods that are less destructive of bone and respectful to the *being*—not simply lifeless bio-material—under study.

2. Scientific narratives have authority in policymaking. It is prudent to have a voice in the construction of historical narratives that are increasingly genetic. Native American scientists can contribute research questions, hypotheses, methods, and ethical approaches that are consonant with our cultural practices and knowledge priorities, rather than shaped solely by non-tribal research priorities and Western bioethical assumptions.

SING Summer Workshop http://www.igb.illinois.edu/conference/sing/curriculum