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PUBLIC SCIENCE OF THE SAVAGE MIND: CONTESTING CULTURAL ANTHROPOLOGY IN THE COLD WAR CLASSROOM

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"What is human about human beings? How did they get that way? How can they be made more so?" These three questions formed the basis of a fifth-grade social studies curriculum project developed in the 1960s called *Man: A Course of Study*, or MACOS. In the years between the curriculum's development in the 1960s and its controversial implementation in the 1970s, two separate sets of concerns served to problematize the use of anthropological materials in public school classrooms. On the one hand, MACOS designers were wary of the possibly racist interpretations of exploring so-called "primitive" cultures in the classroom. On the other, conservative textbook reformers objected to claims that all cultural solutions to biological problems were morally equivalent. Once MACOS earned a place in national news, it came to embody both hopes for the redemption of American democratic society and fears about the violent nature of humans, depending on one's political perspective. These mixed messages eventually undermined the long-term success of the program as public science. © 2013 Wiley Periodicals, Inc.

"What is human about human beings? How did they get that way? How can they be made more so?" These three questions formed the basis of a fifth-grade social studies curriculum project developed in the 1960s called *Man: A Course of Study*, or MACOS (Bruner, 1965, p. 4). Following the Soviet Union's successful launch of the Sputnik satellite, U.S. legislators had argued that America's perceived lag in science and technology could be closed, even reversed, by improving the quality of education in contemporary public school classrooms. Thanks to an infusion of money into the budget from Congress, the National Science Foundation (NSF) supported existing curriculum reforms in the physical sciences and quickly began similar efforts in the mathematical, biological, and social sciences.[1] By the early 1960s, a group of psychologists, anthropologists, sociologists, and educators were busy developing new primary source materials for social studies curricula—including MACOS.[2]

To teach elementary school students about what it meant to be human, MACOS employed both an ethnographic case study and many examples of nonhuman animal behavior. Well-known cognitive and educational psychologist Jerome Bruner, ethnologist Asen Balikci, biological anthropologist Irven DeVore, and education expert Peter Dow—four powerful figures at the center of the program—looked for a way to virtually transport students to the far reaches of the world so that they could discover anthropological research for themselves.

1. The alphabet soup of new curricula developed in this era included, for example, the PSSC (Physical Sciences Study Committee, released in 1960), SMSG (School Mathematics Study Group, 1961), CHEM Study (CHemical Education Materials Study, 1962), BSCS (Biological Sciences Curriculum Study, 1963), ESCP (Earth Science Curriculum Project, 1965), ESS (Elementary Science Study, 1965), IPS (Introductory Physical Science, 1966), and more. Such programs (not all of which were funded by the NSF) aimed at improving pre-college education across the sciences, social sciences, humanities, and foreign languages (Rudolph, 2002a, 2002b).

2. These projects became known collectively as the "new social studies" (Fenton, 1967; Switzer, 1981; Byford & Russell, 2007; Stern & Riley, 2009; Evans, 2010).

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To help the students achieve objective distance when viewing this ethnographic material, the team hit upon the idea of using animals as an introduction to behavioral observation before introducing students to their human subjects. In its final yearlong form, MACOS consisted of two main components. Fifth graders began by learning about the progressive development of social organization in animals—the struggle of salmon to survive in a harsh environment, the importance of parental care in herring gulls, and the development of a complex system of communication in baboons as compared to the human capacity for true language. In the second half of the course students imagined what it would be like to live above the Arctic Circle, like the Netsilik of Pelly Bay, Canada (now Nunavut Territory), roaming in search of fish in the summer months, hunting seals and building igloos to keep warm in winter. Ethnographic films carried students to the far reaches of the icy tundra so they could study another human culture (Dow, 1991). Throughout the year, the program also encouraged students to apply the analytical skills they developed to understanding the culture in which they themselves lived.

As conversations about the proper role of the social sciences in social studies heated up, other curriculum projects also sought to include anthropological materials and questions in pre-collegiate classrooms (Wolcott, 1967). Malcolm Collier at the University of Chicago headed up the Anthropology Curriculum Study Project and the Anthropology Curriculum Project was based out of the University of Georgia.[3] Of these, however, only MACOS released their product commercially, replacing an entire year of regular social studies education. I therefore concentrate on MACOS as my sole case study, tracking the promise and eventual demise of anthropological materials in grade-school classrooms.

This paper builds on scholarly discussions of both the history of science education and public science that explore the diverse calls for greater popular understanding of science following World War II. Historians of science who have written about science education often engage in deep explorations of how scientists reproduce other scientists (theoretically, practically, and culturally) or, in a related move, analyze pedagogical training as a tool for understanding cultural differences in scientific practice within or between fields.[4] As a result, very few focus on pre-college education, unless they are interested in either controversies over science curricula, especially evolution in the classroom (a topic of continuing concern in the United States) or questions of education policy.[5] Scholarship on MACOS in the history of education has been primarily concerned with the question of why the program failed (indeed, it can be seen as the least successful of all the post-Sputnik curriculum reform efforts) and has enumerated a plethora of issues at the core of local and national concerns with the MACOS curriculum (Dow, 1991; Stern & Riley, 2009). The program itself substituted social science methodologies for a traditional social studies curriculum that explicitly engaged with American history and civics (Evans, 2004, pp. 128–129). MACOS was constructed and supported with

3. The ACSP created a series of short anthropological units that could easily be incorporated into existing social studies curricula; the ACP was never released commercially (Dynneson, 1981). Neither program was widely adopted, nor did either attract the same kind of public outcry engendered by MACOS.

4. Notably, Thomas Kuhn drew the attention of historians of science to questions of scientific training in *The Structure of Scientific Revolutions* (1962); more recently, see Kaiser (2005a, 2005b) and Vicedo (2012). Textbooks as sources can tell us a great deal about scientific practice, canonical experiments, the views of the scientists who wrote textbooks, even practices of translation (Gordin, 2012).

5. Classic examples include Nelkin (1977), Larson (1985), and Rudolph (2002a). More recently, see Nelson and Rudolph (2010) and Shapiro (2012), the only essay in the recent *Focus* section of *Isis* devoted to science textbooks that engaged with secondary education. Shapiro suggests that science textbooks constitute a particular form of science popularization because more than merely reflecting science constructed, they also "can function as agents of change within scientific communities and their social contexts" (p. 100).

federal funds, which smacked of centralized attempts to control local educational programs (Kraus, 2009). Furthermore, although resistance to MACOS began with a small number of religiously motivated critics, an established network of conservative textbook protesters successfully brought their complaints to the nation as a whole (Nelkin, 1977; Evans, 2011, p. 146). To these, I add another dimension—the reformist hopes that characterized politics of the mid-1960s, as MACOS developed, were replaced by the mid-1970s with an increasingly conservative political climate that proved hostile to some of MACOS's most fundamental tenets.[6]

Recent discussions about public science provide a different set of tools and perspectives from which to approach science pedagogy in the grade-school classroom (Rader & Cain, 2008; Nyhart, 2009; Kohlstedt, 2010; Onion, 2011). Pandora and Rader (2008), for example, have argued that the multiple "publics" of science—including science journalists, museum curators and visitors, even Bill Nye the Science Guy—constitute part of an enlarged scientific community. By tracing discussions about science in these various contexts, they suggest historians should integrate the agency of non-scientists as actors in historical and contemporary conversations about public science. More recently, Cain (2012) has traced the transformation of museum education into an increasingly consumerist model in the early decades of the twentieth century. Consumerism is of course a fraught concept when applied to museums, and even more so to education. Yet by invoking a consumerist lens, Cain hoped to elucidate the ways in which exhibit designers at museums "increasingly described pedagogy as a process of negotiation, persuasion and communication, in which museum visitors played an active, important role" (p. 4). A similar insight emerges from discussions of consumption and design in the technology and science literature (e.g., Cowan, 1987; Serlin, 2004). In adapting the idea of "public science" for analyzing the history of MACOS, we must explore the intellectual and moral commitments of the various communities who designed, used, and even critiqued the grade-school program.

Over the course of the twentieth century, cultural anthropologists developed a strong reputation as politically liberal academics, reinforced by the association of social science research with desegregation and the forced bussing of children (Jackson, 2001a). Reflecting these mores, MACOS taught that all human cultures, including our own, sought to solve the same kinds of existential and practical questions (like housing, food acquisition, and sharing, for example), and that scientists could learn about human nature by comparing these equally valid cultural solutions to fundamental biological problems. MACOS designers hoped that students, by absorbing this lesson and honing their capacity for critical reasoning, would learn to address social issues through civic reform and participatory democracy.[7] By the time MACOS reached elementary schools, however, the political winds were already shifting, and concerned parents and members of school boards interpreted the new curriculum as a dangerous agent of secular ideology infecting their children. In the mid-1970s, John B. Conlan, an ambitious Republican Congressman from Arizona, lead a campaign against MACOS. Perhaps because of the recent failed attempts of textbook watchers to block the teaching of the new *Biological Sciences Curriculum Study* (BSCS) with evolutionary theory

6. Scholarship in the history of science and animal studies has illustrated the complex nexus of historical and social forces continuously shaping human discourses about nonhuman animals. As this literature has illustrated, narratives focused on animals can provide historians with windows through which to see the inner workings of human cultures or mirrors that reflect the historical relationships of labor, race, or gender in a society (Ritvo, 1987; Haraway, 1989; Mullin, 1999; Daston & Mitman, 2005).

7. Peter Dow interview with Janet Whitla, March 23, 1976, Peter Dow—MACOS Records, Gutman Library, Harvard University, Cambridge, MA (hereafter, "MACOS Records"), Box 43, Folder 12.

at its core, Conlan attacked the anthropological components of MACOS (Larson, 1985). He insisted that the course materials included in the program reeked of both cultural relativism (accurately reflecting the designers' intentions to promote tolerance of other cultures and ways of life) and secular humanism (decidedly less so)—all at the expense of teaching the students solid facts about American history, civics, and geography (Evans, 2004, pp. 128–129).

Thus, despite initial enthusiasm for the idea of including cultural anthropological materials in public school classes, scientists and educators eventually found their efforts stymied. On the one hand, as a result of the civil rights movement liberal American social scientists came to believe that including ethnographic material on so-called "primitive" cultures could potentially backfire, reinforcing any racist preconceptions students might have rather than working to eliminate them. On the other hand, conservatives questioned cultural anthropologists' long association with the political left, arguing that including material on other cultures decentered traditional American history and values. MACOS entered the public spotlight in the mid-1970s due to both local conflicts over the curriculum and a larger Congressional investigation of the use of federal funds to design and promote elementary school science curricula. Both MACOS designers and their opponents hoped to provide children with tools to survive the Cold War, but they differed dramatically in which tools they thought most appropriate. As a final straw, although scientists were intimately involved in the creation of the program, very few were available (or willing) to speak out in its defense. Within a few years, federal funding for science education was slashed, the Educational Division of the NSF was shut down, and MACOS (together with cultural anthropology) largely disappeared from public school curricula. From the mid-1960s to the mid-1970s, a period of marked fascination with the search for a universal human nature (Haraway, 1989), classrooms as well as the popular media shifted away from human cultures toward animal behavior as a reliable source of information about what it meant to be human.

Building MACOS

MACOS began in the halcyon years of American school science educational reform. M.I.T. physicist Jerrold Zacharias helped to found what became known as the Physical Science Study Committee (PSSC) in 1956. When the Soviets launched Sputnik only one year later, Congress increased NSF's budget for science education fivefold, and in 1958 Zacharias abandoned his physics research to devote his full attention to studying public school education in physics (Rudolph, 2002a, 2002b, pp. 74–77; Lutkehaus, 2008). Zacharias was especially interested in using movies as aids for teaching high school physics, and began to develop a series of 20-minute films accompanied by educational materials for teachers and students (Goldstein, 1992). He intended these films to elicit in students an appreciation for the processes of scientific reasoning. Zacharias insisted that the students "have some kind of intellectual training that involved knowing [about] Observation, Evidence, the Basis for Belief" (Goldstein, 1992, pp. 164–165; see also Ramsey, 1995).

In the summer of 1961, a group of scholars led by Zacharias gathered at Endicott House on MIT's campus to discuss strategies for improving science education in Africa (including establishing an international institute for educational research).[8] They hoped to use recent curricular developments in the United States as models for this effort. Although scientist-led

8. "African Summer Study, MIT—Endicott House, June 19–July 29, 1961," MACOS Records, Box 1, Folder 2; "A Short History of the Social Studies Program [Spring 1965]," Box 3, Folder 15, MACOS Records. Evans (2010, pp. 107–139) provides a detailed historical account of the meetings at Endicott House.

pedagogical programs were already underway for physics, chemistry, biology, and math, no one at the meeting could point to innovative ways of approaching the social sciences. So the following year, Zacharias offered to support a "major program" in rethinking domestic social science pedagogy. Zacharias' start-up funds were familiarly known as "Zachs" and came in blocks of $250,000 (the rough equivalent of $1.8 million in 2012) reputed to be the smallest amount of money with which he could be bothered.[9] With additional support from the Ford Foundation, Educational Services, Incorporated (which would later become Educational Development Center, Inc.) administered the social sciences curriculum development program under the direction of Douglas Oliver, a cultural anthropologist at Harvard known for his work in the Solomon Islands (Oliver, 1955).[10] As a result of his early experiences with PSSC, Zacharias was convinced that by the time children reached high school it was too late to teach them how to reason experimentally—such intellectual training needed to start much earlier. With the social science curriculum reform project, he hoped to begin in elementary school. Oliver, for his part, dreamed of "turning all students into little anthropologists" (Dow, 1991, p. 138; see also Wolcott, 2008, p. 202).[11] Their combined vision for a new social science curriculum spanned several years, beginning in first grade with "simple" hunter-gatherer societies, and each subsequent unit tackling a more "complex cultural form" (Dow, 1991, p. 128; Wolcott, 2008, p. 203):[12]

Unit 1—"a nomadic group, the Netsilik Eskimo of Pelly Bay, Canada"

Unit 2—"two hunting and gathering societies, the Australian Aborigines and the Bushmen of the Kalahari Desert of Africa"

Unit 3—"human evolution and the general traits which give man the capacity for culture"

Unit 4—"the origins of maize agriculture in this hemisphere, in the Tehuacan Valley of Mexico"

Unit 5—"the origins of urbanism in ancient Mesopotamia"

Unit 6—"the emergence of a culture which could be called proto-Western in the Bronze Age of Homeric Greece"[13]

From the beginning, inspired by Zacharias' incorporation of films in the PSSC, the MACOS group planned to make extensive use of film in the new curriculum.[14] Oliver commissioned ethnologist Asen Balikci to gather footage of the Netsilik (Unit 1) and began negotiations with John Marshall, then a graduate student in Anthropology at Harvard, and his sister Lorna Marshall, to use their films and diaries of life with the nomadic Kalahari Bushmen (Unit 2). He also contacted Karl Heider and asked him to film the agricultural and fearsome

9. Author interview with Irven DeVore, November 2009; see also Killian (1985, p. 166).

10. Steven White (Director, Special Projects, ESI) to Douglas Oliver, March 5, 1962, MACOS Records, Box 1, Folder 3; see also Oliver (1964). ESI began as the corporate distribution arm of the Physical Science Study Committee. EDC, the ultimate publishers of the MACOS curriculum, grew rapidly and still exists today as a nonprofit developer and publisher of educational materials for classrooms around the world.

11. See also Peter Dow interview with Everett Mendelsohn, January 31, 1975, MACOS Records, Box 42, Folder 25.

12. The Cities Unit (Unit 5), as originally conceived within the frame of MACOS, was subsequently deemphasized by Bruner ("Minutes of the Social Studies Planning Committee, November 10, 1964," Box 4, Folder 14, MACOS Records) after which the head of the unit, well-known archeologist Robert Adams, decided to leave the program (Dow, 1991, p. 70). Adams had produced a simpler version of the Cities Unit for the Anthropology Curriculum Study Project based at the University of Chicago (Collier, 1963).

13. "A Short History of the Social Studies Program [Spring 1965]," MACOS Records, Box 3, Folder 15.

14. Peter Dow interview with Kevin Smith, October 17, 1974, MACOS Records, Box 43, Folder 8.

Dani of Papua New Guinea (see Marshall, 1957; Gardner & Heider, 1969; Marshall, 1971; Heider, 1974).

Of course, films for social studies classes in elementary school already existed. The Eastman Kodak Company, for example, produced a series of films (1920s–1940s) for classroom use with such diverse titles as "Coffee" (1930), "Dutch East Indies" (1930), "Glimpses of the Near East" (1941), "Life History of the Yellow Fever Mosquito" (1929), and "Rubber" (1929)—not all of which have survived. Most of the films concentrated on other regions of the world and were intended for use in a standard economic geography lesson (e.g., detailing information about the regions' economic imports and exports). American history and civics formed another standard approach to social studies. From the perspective of MACOS designers, new materials for the classroom were needed just as much as methodological revisions to social-scientific perspectives in grade-school curricula.

Balikci eagerly joined the project, taking leave from the Université de Montréal. Although he had spent a series of summers and even a winter conducting ethnographic fieldwork with the Netsilik (Balikci, 1970), he had never worked with film before, and found himself excited at the prospect (Turin, 2004). Balikci remembers being told to shoot footage of traditional culture in a style that seven- or eight-year-old children could understand—a daunting task in its simplicity. All told, he and the cameramen hired to work with him spent 13 months in the Arctic, spread over three years, and shot a half-million feet of film (Turin, 2004). (As silent 16 mm film was typically filmed at 40 frames per foot and replayed at a rate of 18 frames per second, that means they created about 300 hours of raw footage that they later edited into short, easily digestible films for the students. Sound was recorded separately and added in the studio.)

In the spring of 1964, Oliver left the project for personal reasons; psychologist Jerome Bruner took his place as director. Bruner was a long-time friend with Zacharias, the power behind the start-up money. They shared a similar vision of how the educational materials might be developed, stemming from their mutual involvement in a 1959 conference Zacharias organized at Woods Hole called the "Study Group on Fundamental Processes in Education."[15] Shortly after, Bruner published what was intended to be a summary of the conference but had morphed into the highly influential *Process of Education* (1977 [1960]). Two new directorial members were also brought on board: biological anthropologist and expert in baboon behavior Irven DeVore and Peter Dow, an experienced high school teacher on leave from Germantown Friends (Philadelphia, PA), who remained at ESI for 10 years and later earned his Ed.D. in Administration, Planning and Social Policy at Harvard.[16]

For many people involved in MACOS, Bruner constituted a kind of inspirational guru who functioned as the guiding light for their work.[17] According to Patsy Asch, for example, it was not just his intellect (although she acknowledged that was fierce). She suggested that when Bruner started talking to anyone, even an elevator man, he gave them his whole attention, treating them as the most important thing in the world for the duration of their interaction. "He's incredible," she told me.[18] There are several noteworthy implications of the passion with which

15. On these early collaborations between Bruner and Zacharias, see Rudolph (2002a, pp. 83–112), Rudolph (2002b), and Evans (2010, pp. 69–106). Bruner also participated in Zacharias' 1961 conference on science pedagogy for Africa, for example, and served with him on the White House Panel on Educational Research and Development for Presidents John F. Kennedy and Lyndon Johnson.

16. Author interview with Irven DeVore, November 14, 2009; Dow (1991, p. 4).

17. Peter Dow interview with Everett Mendelsohn, January 31, 1975, Box 42, Folder 25.

18. Author interview with Patsy Asch, November 30, 2011. See also Dow's interviews with people involved in the development of MACOS, MACOS Records, Box 42 and 43, including Janet Whitla.

she still recalls working with Bruner. First, Bruner had hired Asch (a kindergarten teacher) to develop classroom materials for the unit on the !Kung, together with Hope Hare. She was far from the top of the organizational hierarchy and yet he clearly spent time talking with her about her work. Second, and by implication, the mutual respect and attention Asch appreciated in Bruner was probably not a quality shared by all other members of the developmental team, of whom there were many.[19] Balikci headed up the Netsilik film unit. DeVore was in charge of the baboon films. Timothy Asch, Patsy's husband, worked on developing discrete stories for a third unit based on John Marshall's footage of the !Kung.[20] A young Robert Trivers created booklets and other materials for classroom use that would accompany the films on animal behavior.[21] Once developed, an array of experienced elementary school teachers tested these materials in their classes. The administrative responsibility for pulling everything together fell to Dow, especially after Bruner's departure (on his sailboat) for a new post at Oxford University in 1972.[22]

Given the passion of Bruner's vision, it is unsurprising that people with conflicting ideas about the program remembered the development of MACOS with more than a little frustration.[23] Zacharias, for example, felt the content of the program was too mature for grade-school children.[24] Robert Adams, who had been deeply involved in developing the fifth unit on the origins of cities, lamented the lack of historical perspective in MACOS, although he ultimately agreed with the decision to drop the unit.[25] Indeed, Bruner appropriated the ethnographic materials already developed and redesigned the accompanying materials to exemplify his belief that "knowing is a process, not a product" (Bruner, 1966, p. 72). In a sense, then, MACOS became Bruner's attempt to reevaluate "education in the light of our newly gained knowledge of man as a species" (p. 24).

Under Bruner, the MACOS team continued to emphasize the widespread use of ethnographic film, as Oliver had intended, but as a mechanism to replicate the experience of being in the field without directions from an invisible narrator telling the students how to interpret what they were witnessing—and, in fact, no English subtitles translating Natsilingmiutut, the spoken Netsilik language.[26] Skillful editing by filmmaker Quentin Brown turned Balikci's raw footage of the Netsilik into stories that the children could figure out for themselves (Brown, 1970; Lutkehaus, 2003). Yet Bruner also believed that students would need guidance viewing these materials critically and learning to identify interesting patterns of behavior. Much like Zacharias' films for high school physics students, course builders intended the MACOS films to be accompanied by activities, booklets, and a program to train teachers to use the films in

19. See Peter Dow's interview with Kathy Sylva, November 11, 1974, MACOS Records, Box 43, Folder 10. For a more complete elaboration of MACOS personnel, see Dow (1991).

20. Both Asch and Marshall became well-known ethnographic filmmakers and remained fast friends. In 1968, they co-founded Documentary Educational Resources, a nonprofit distribution company specializing in ethnographic and documentary films for educational use (http://www.der.org).

21. Inspired by MACOS, Trivers decided to pursue a career in science, earning his Ph.D. in Biology at Harvard in 1972 and publishing several highly influential papers in evolutionary theory (collected and paired with anecdotal essays, in Trivers, 2002).

22. Author interview with Jerome Bruner, October 4, 2011.

23. Peter Dow interviews with Blythe Clinchy, October 31, 1974, and Joseph Featherstone, October 29, 1976, MACOS Records, Box 42, Folders 10 and 13, respectively.

24. Peter Dow interview with Jerrold Zacharias, November 15 and October 11, 1974, MACOS Records, Box 43, Folder 13.

25. Peter Dow interview with Robert Adams, October 31, 1975, MAOCS Records, Box 42, Folder 2. Adams resigned his position as part of the MACOS team shortly after this decision was made (Dow, 1991, p. 70).

26. On contemporary conventions of wildlife filmography, see Mitman (1999).

the classroom.[27] None of this would have been possible without an initial $1 million grant from the Ford Foundation (Dow, 1991, p. 60), and continued financial support from the NSF, totaling $7.4 million by 1974 (NSF, 1975, p. 38).

Given the pedagogical goals of the program, the political leanings of the designers, and the increasingly prominent civil-rights movement, by 1967 MACOS designers became convinced that it was "politically unacceptable to use materials that showed partially naked, dark-skinned 'primitives' in a public school classroom" (Dow, 1991, p. 122). Of the footage gathered on the Netsilik, the Dani, and the !Kung for inclusion in MACOS, only the Netsilik material was fully developed into a distributable format. By implication, only the Netsilik were sufficiently "white" to be uncontroversial, yet led lives amply different from those of the students, providing an effective intellectual foil.[28] When I followed up with Patsy Asch, who had been primarily responsible for the classroom development of the !Kung Bushman unit, she confirmed this impression, but added that *she* had pulled the plug. Unless MACOS was willing to tackle racism directly, she worried, there was no way to use the Bushman material without carrying into the classroom the stereotypes of the children. Additionally, she explained, as MACOS developed, adaptation and evolution became more centrally part of the curriculum, and the implied hierarchy (salmon to gulls to baboons to Bushman to Netsilik to Americans) became more questionable and the Bushman were likely to be seen as an "an evolutionary stepping stone" on the way to American superiority.[29]

In the implemented vision of the MACOS program, then, anthropological materials based solely on the Netsilik became a body of facts and a set of tools to teach the students how to reason about the nature of their own humanity and to increase social and cultural tolerance of others.

Animal Models

In the 1960s, professional anthropologists primarily relied on three sources of information to triangulate answers to questions about human nature like those posed by Jerome Bruner to MACOS students: paleoarcheological fossils, ethnographic materials on other cultures, and a close examination of social behavior in animal species. These roughly corresponded with three of the traditional four fields in American anthropology: archeology, cultural anthropology, biological anthropology, and linguistics. At the time, many linguists were preoccupied with understanding the universal structures common to all languages and followed Chomsky (1957) in denying continuity between human language and animal communication.[30] When MACOS materials discussed animal communication, they emphasized baboons' bodily gestures and automatic sounds, explicitly contrasting these actions with the flexibility and adaptability of true human language (MACOS, 1970d). On the other hand, MACOS designers had originally intended to incorporate archeological findings as the basis for discussing the historical origins of humanity but these ambitions largely vanished by the end of 1964 (Dow, 1991,

27. Most of the MACOS booklets, slide shows, and teaching guides are available online through www.macosonline.org/course/ [last accessed May 16, 2012].

28. MACOS designers may also have hoped to capitalize on interest in Inuit culture generated when Alaska became a state in 1959.

29. Author phone interview with Patsy Asch, November 30, 2011; see also, Peter Dow interview with Tim and Patsy Asch, November 23, 1975, MACOS Records Box 42, Folder 4. The Dani films were dropped very early in the planning process.

30. Obvious exceptions include scientists who tried to teach captive chimpanzees or gorillas to use sign language to communicate, or who attempted playback experiments with wild animals (Radick, 2007).

pp. 49–51).[31] Additionally, they shied away from explicitly discussing the evolutionary origins of Man, fearing it might land the curriculum in hot water (Dow, 1991, p. 112). As a result, cultural anthropology and animal behavior came to occupy the whole of the MACOS curriculum.

The Netsilik materials were developed first and then test-run in summer institutes using local students. In cooperation with DeVore, the MACOS team later developed a short series of films and booklets about baboon life on the wild savanna to illustrate biological principles that were interspersed as needed throughout the unit. In all cases, students loved the materials, but from the perspective of the instructors, the children could view neither the anthropological nor primatological films with any kind of objective distance. Students seemed to find it difficult, for example, to think about the environmental causes underlying particular behavioral traits. Additionally, the children anthropomorphized the baboons, projecting their own motivations to explain the behavior they observed. What the students needed, the MACOS group thought, was practice studying animals even less like humans. The next summer, they introduced two additional sets of materials on the life cycle of the salmon (the fight for survival in a harsh environment) and herring gull behavior (rudimentary parenting), and front-loaded the animal material so that students would learn the basics of objective behavioral observation *before* being introduced to their human subjects (Wolcott, 2008, p. 195). In the version distributed for classroom use, the course began by tracing the progressive development of social solutions to the biological problems facing all animal species before turning to an analysis of Netsilik culture as an entree to analyzing the American culture in which the students themselves lived. MACOS included a total of six films focusing on animal behavior and 21 films featuring the Netsilik, intended for use with fifth graders. Given the later reaction to the program, it is important to explore the extensive educational materials included in the MACOS curriculum and the implicit evolutionary narratives and political lessons they offered.

From the inception of this social sciences curriculum project, the "gut assumptions" guiding the development of the program included the hope that through "intelligent study" of their own lives (past and present, private and public), students would learn the tools necessary for the continuance of the human species. "Before us," suggested the program designers, "lies a time when the steadying influence of an invented above or beyond is sadly diminished and when we will have to live with the giddy awareness of all the things we *can* do right here and now. The task when the present schoolboy ends as a man will be harder than ever before and much more interesting. The point of education is to prepare people for the task."[32] Several years later, the planning committee rearticulated these "gut assumptions" as "leading generalizations," but the basic message—that through education lay the salvation of humanity—remained the same. The committee wrote, "Reduce fear and injustice and you reduce hate. Fear creates the very thing it was afraid of. Hate destroys collaboration, and civilization is a collaborative effort. Hate is the primeval danger." Thus, he continued, learning about change and decay was certainly necessary, but it was equally important to "discover the possibility of order and joy." The point of education, for Bruner, was to give children the opportunity to discover

31. "Appendix VIIa: The Human Past" and "Appendix VIIb: Jones – Sat. 23 June – Following Clinchy's presentation," MACOS Records, Box 1, Folder 3; "Broad Aims of the Unit on Human Origins" and "Unit on Evolution," MACOS Records, Box 2, Folder 5; "Meeting Regarding the Unit on Man's Place in Nature, October 15, 1964," MACOS Records, Box 2, Folder 7; "ESI Unit on Human Origins, December 1964," MACOS Records, Box 3, Folder 3.

32. Elting Morison, "The Gut Assumptions (Shores Still Dimly Seen But Touched With Rosy Fingered Dawn), January 4, 1963," MACOS Records, Box 1, Folder 4.

who they were, and to develop both their powers of reasoning and their confidence in those powers.[33]

The animal sequence began with films that utilized a traditional narrative voiceover, added in the studio after the films had been cut into their final form. In later baboon films, students were expected to interpret animal actions without any narration. The films on animal behavior provided clear lessons about the adaptive nature of social interactions—lessons that the designers of MACOS intended the students to apply to humans as well. Additionally, each film began by establishing the ecological conditions in which the animals or people lived, thereby providing teachers with a way of discussing the adaptation of each behavior to the environmental pressures the animals (and then people) experienced throughout their lives.

The first films, *Life Cycle of the Salmon* and *Herring Gull Behavior*, made two points abundantly clear: life was a struggle for survival in a harsh environment, and species endured because adults of one generation sacrificed their lives to produce the next generation—illustrating the circle of life (MACOS, 1970a). The second film emphasized the importance of parental care in ensuring the survival of their young. The film also described "displacement" behavior in birds: when a gull received a variety of stimuli at the same time, he became unsure of how to act—he was "conflicted," as the narrator put it. Rather than behave inappropriately, the bird looked down at his feet. Not all behaviors, students learned, serve obvious functions (MACOS, 1970b).

The MACOS booklet accompanying *Herring Gull Behavior* developed a theme that the film only hinted at—aggression. The film briefly mentioned that although males could be highly aggressive and territorial, rarely did encounters between two birds lead to killing. Sometimes gulls instead opted to "vigorously peck grass instead of each other" (a form of displacement behavior). The booklet explicitly related this theme to human behavior, with a startling image of a man screaming and shaking his fist (see Figure 1). The accompanying text elaborated,

> Humans act this way, too. When you are angry, you can feel like fighting and you may fight, but you are more likely to shake your fist, slam a door or scream . . . If they [animals] fought every time they were angry, they would be constantly risking injury or even death. It is an advantage to an animal to be able to get what it wants without having to fight. (MACOS, 1970c, pp. 22–23)

Heavy-handed? Perhaps. The designers of MACOS trusted that through early exposure to ideas of civic participation and democratic citizenship, children would embrace these ideals as adults. By directly addressing controversial issues, like violence, within the safety of the classroom, these educators hoped students would think of their own nonviolent means of reconciliation (see also Bettelheim, 1967).

The herring gull material, based on the research of ethologist Nikolaas Tinbergen, was a huge hit with the students (Burkhardt, 2011). One teacher, Thalia Kitulkais, described how she reconstructed Tinbergen's blind from which to observe the birds undetected: "I have children running up to me and saying, 'Can I be Tinbergen today? Can I hide under the blanket? Can I study the other children? Can I study the animals?'" (Chelsea House, 1968). The vivid

33. J. S. Bruner, "Some Leading Generalizations" [undated], MACOS Records, Box 3, Folder 10; see also, "Provisional General Propositions and Assumptions—Drafted by the Social Studies Program Planning Committee 1962–1963," MACOS Records, Box 3, Folder 9; Bruner's views stand in stark contrast to contemporary American conceptions of Soviet communism's mindless training (Rudolph, 2002a, pp. 65–72).

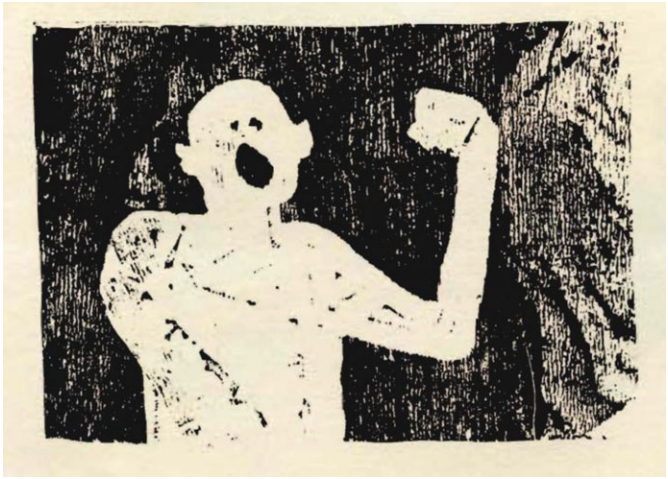


FIGURE 1.
Many of the MACOS booklets were illustrated with stark woodcuts. Here, a man yells in frustration and shakes his fist rather than engage in a direct confrontation with the object of his anger (MACOS, 1970c, p. 22).

image of children hiding under a desk and taking notes on the behavior of their classmates highlights the importance MACOS designers placed on students acquiring both the content and the methods of scientific research as a way of ultimately helping them reach a greater understanding of their own behavior (Bruner, 1977, pp. vii–xvi).

The baboon films were narrated much more sparsely. *Animals in Amboseli* introduced students to life in the game reserve, the other animals that cohabit the reserve with the baboons, and the environmental conditions through which the baboons migrate. Two additional short films centered on *The Young Infant* and illustrated the importance of mothers as places of safety and centers of exploration. This sequence of films culminated with *The Baboon Troop*, which illustrated that through social interactions with individuals of their own and other species, baboons (like humans) enjoyed greater protection and security (DeVore, 1968a, 1968b, 1968c; see also, DeVore, 1965). Ending on a sad note, however, the narrator identified a crippled juvenile who was incapable of keeping up with the troop. The troop, of course, could not slow down and the juvenile was left behind. (The question of how societies deal with old or injured members would come back again with regards to Netsilik culture.)

The main booklet accompanying the baboon films focused on a different aspect of social life entirely—*Baboon Communication*. In contrast to the cooperative lessons that could be drawn from baboon troop life for humans, the communication booklet emphasized the fundamental gulf between animal communication and human language (Chelsea House, 1969; MACOS, 1970d). Whereas animals cannot lie because they communicate through gestures and "automatic messages," humans are capable of conscious deception. So on the one hand, it reinforced a vision of man as an animal; on the other, the booklet argued baboons and humans possessed distinct kinds of mind—one capable of mere communication, the other of complex language (Chomsky, 1968).

These animal materials grounded students' awareness of the environmental factors that affected animal behavior, providing them with practice in objective observation before turning their attention to studying human cultures.

HUMAN LIVES

The second half of the MACOS curriculum was devoted to an ethnographic study of the Netsilik. Balikci was asked by the planning committee to concentrate on four areas of Netsilik culture: "the severity of Arctic life," emphasizing the harsh ecological conditions to be overcome on a daily basis; "interaction between people," especially intra- and intergenerational customs; "details of technical processes," including close-ups of Netsilik tool manufacture; and "instances in which Eskimos handle a situation differently from the way we would or show attitudes different from ours."[34] In other words, humans faced some of the same ecological challenges as the animal species studied previously, but solved them culturally and technologically rather than instinctually. This intellectual framework fit easily with Balikci's initial expectations about the underlying causes of Netsilik cultural traditions because of his fascination at the time with Julian Steward's theory of cultural ecology (Steward, 1972; Turin, 2004).[35] Balikci believed he would eventually be able to relate all the interesting cultural variation back to the harsh environmental conditions in which the Netsilik lived. When filming, then, he paid close attention to Netsilik technologies and behaviors associated with hunting, fishing, and trapping, but largely ignored their religious traditions (Turin, 2004).

Almost all of the collected materials—with a few exceptions—focused on the kindness and cooperation cementing the Netsilik people into a common culture. After much discussion, MACOS designers chose to include such "sensational" topics as the hunting of animals (in which students discussed "man as a predator"), infanticide, wife stealing, and polygamy, but remained unsure of how to broach these topics within an elementary school setting.[36] One member of the planning committee worried that by depicting the Netsilik as "cruel predators" or "savages" (as these behaviors might imply) the program ran the risk of "running athwart of all our non-ecological goals, such as showing the children that people in other cultures are human and worthy of respect."[37] In the end, these topics were incorporated into the curriculum, but merely in the form of stories told by the Netsilik and contained in booklets that accompanied the films (MACOS, 1967; Wilson, 1967; Fields, 1970). The exception to this generalization was the role of man as a predator. Many segments of the Netsilik films highlighted aspects of their hunting practices, in part because these sequences also aptly illustrated the construction and use of technologies like fishing lines, spears, kayaks, and dog sleds, and in part because of their relation to the artic environment in which the Netsilik lived.

Some professional anthropologists today have dismissed the Netsilik films as mere "recreations" because the people in the films were enacting a way of life they remembered, but no longer led (Ruby, 2005). During the earliest footage shot, which became part of *Fishing at the Stone Weir*, some of the actors wore contemporary underpants, one child sported a yellow band-aid, and other small discrepancies crept into the film. At the first screening of this material back in Cambridge, Mass., viewers noted these details and requested that in the future, all signs of modern technology be removed prior to filming, noting "there is no creature with so sharp eyes as the elementary school kid. If we are going to reconstruct, we should really reconstruct, so that we have a truly authentic document."[38] Balikci additionally remembers being told to avoid gimmicks, like a long zoom, that could make the sequences look artificial by calling

34. "Elementary Sequence—Outline of an Eskimo Unit for Grade One, June 12, 1963," MACOS Records, Box 2, Folder 3.

35. See also, Peter Dow interview with Asen Balikci, October 17–18, 1974, MACOS Records, Box 42, Folder 6.

36. "Conference on the Eskimo Unit, January 20 and 21, 1964," MACOS Records, Box 2, Folder 3.

37. "Conference on the Eskimo Unit, January 20 and 21, 1964," MACOS Records, Box 2, Folder 3.

38. Evans Clinchy to Asen Balikci, September 19, 1963, MACOS Records, Box 4, Folder 1.

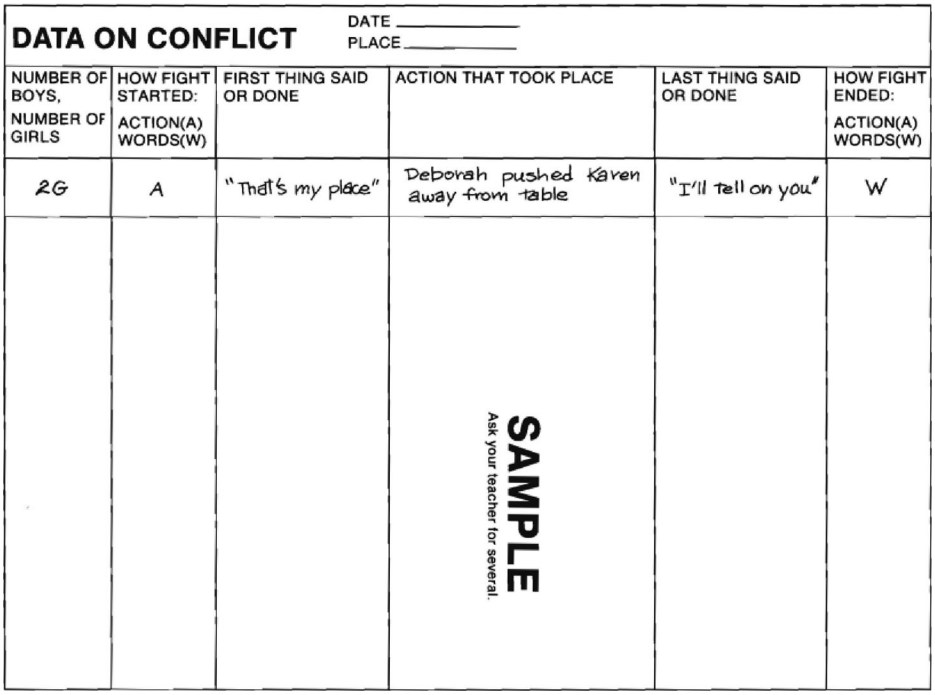
attention to craft of filmmaking (Turin, 2004). In recalling his involvement with MACOS, DeVore has suggested that the original intention had been to contrast this reconstructed vision of the past with footage illustrating how the Nestilik actually lived in the 1960s. That component of the course dropped out by the final version, a decision with which DeVore never agreed.[39] Today the films represent a way of life that is largely unimaginable to younger generations of the Netsilik people and many of the actors who participated in their creation are glad the films preserved a snapshot of their traditional way of life before it passed beyond memory (Laird, 2004).

At the time of their release, however, of greater concern was the content of the films and the accompanying booklets. One story, "Old Kigtak," garnered considerable media attention. In it, "Arfek had to leave behind his old mother-in-law Kigtak to crawl over the ice and catch up if she could. It was a pitiful sight and we did not laugh for it probably meant death for her." The tale continued, "We have a custom that old people who cannot work anymore should help death to take them. [. . .] it is not that we have hard hearts but that the conditions of life here are merciless and to survive in a land of ice and snow sometimes we must be without pity" (Fields, 1970, pp. 43–44). The designers of the program hoped that by including stories like "Old Kigtak," they could illustrate how the Netsilik wrestled with questions of right and wrong, just like Americans (and unlike baboons). When Margaret Mead later heard about this story, Dow remembers that she was equal parts delighted that MACOS included anthropology and horrified by their misstep. In recounting her shock at the inclusion of these myths, Dow recalls her saying that the designers should have known better—"the trouble with you Cambridge intellectuals is that you have no political sense!" (Dow, 1991, p. 206).

Bruner maintained that by contrasting the students' own "highly formulated, technological culture" with a people who "lived off the land," students would learn a number of lessons about themselves. First, he intended the contrast between American and Netsilik lives to illustrate how all cultures developed explanations for the world around them. Whether those explanations were "scientific" or "mythological," he stated, they were equally important for the daily functioning of society. Second, Bruner wanted to show that all humans manufactured and used tools to extend their power and control over the environment (hence the importance of the hunting scenes). Third, he saw social organization as vital to the work of each species. Whereas salmon fought their way up stream in loose aggregations and baboons gathered into troops for protection, the Netsilik films prompted students to "reflect back on man's way of organizing himself into a society." Finally, Bruner intended that students would learn that all humans use language to communicate and come to appreciate the complexity and innateness of the capacity for language. Both lessons, he hoped, would teach the students something about the unique nature of "man's mind" (Chelsea House, 1968).

The most powerful tool with which students analyzed their own cultures was the "Observation Handbook" (MACOS, 1970e). This was divided into three sections: observing conflict, observing play, and teaching-learning. The beginning of the handbook noted that students studied physics with batteries and pulleys, chemistry with test tubes and chemicals, and because this course was about studying man, they would observe the behavior of human beings (for their purposes, kindergarteners). In the first section, the students paid attention to how fights started and how they ended, and then considered whether or not it was possible to predict when a fight would end based on the words and actions of the participants, whether the "challenges" that sometimes led to fighting were deliberate or accidental, and finally generalized about how

39. A film along these lines was later produced with Asen Balikci's guidance (Blais, 1971). See also, Peter Dow interview with Irven DeVore, October 20, 1974, MACOS Records, Box 41, Folder 2.



DATA ON CONFLICT DATE _____ PLACE _____

NUMBER OF BOYS, NUMBER OF GIRLS	HOW FIGHT STARTED: ACTION(A) WORDS(W)	FIRST THING SAID OR DONE	ACTION THAT TOOK PLACE	LAST THING SAID OR DONE	HOW FIGHT ENDED: ACTION(A) WORDS(W)
2G	A	"That's my place"	Deborah pushed Karen away from table	"I'll tell on you"	W

FIGURE 2.
MACOS students began observing animal behavior and teachers were encouraged to keep animals, such as hamsters, in the classroom. Later in the year, students also observed the interactions of other kids in the playground. This sheet suggested they pay attention to who started fights, how they got started, what transpired, and how the conflict was eventually resolved. The final sections of the book asked students to consider how such fights could have been prevented (MACOS, 1970e, p. 22).

humans (and animals) avoided fights in the first place (Figure 2). Taking the skills developed in this section, students continued their observation of human play behavior, greeting customs, and the mechanisms by which people learn from each other. Teacher Thalia Kitulkais (who had reconstructed Tinbergen's blind in the classroom) argued that in studying man, one must study all aspects of his life, including biology. She added, "people may be likely to think that other animals are ruled by instinct, and that only man has a mind, only man has logic, . . . but this is not true!" Kitulkais insisted that humans, like animals, are influenced by urges and instincts; being aware of them could allow students to deal with their own instincts positively, in a "living way" (Chelsea House, 1968). Through observing and studying the behaviors and habits of humans directly, then, MACOS designers hoped students would develop the skills necessary for understanding themselves.

MACOS reflected a larger trend among American anthropologists, who were coming to believe that animal-human comparisons could be used to advance the argument that all human communities exhibit equally complex cultures (Lévi-Strauss, 1968). After the Second World War, anthropologists had increasingly defined the characteristics that made humans "human" in terms of our universal capacity for culture (Stocking, 1968). Culture was comprised of the habitual behavioral practices in which all groups of people participated, and was passed down from generation to generation. For these anthropologists, if culture and humanity were co-constitutive, and if culture was not something you could have more or less of, then using

so-called "primitive" cultures to illustrate universal human behavior smacked of prejudice or racism, not objective analysis (Geertz, 1973; Proctor, 2008). At the same time, beginning with Sherwood Washburn at the University of Chicago and continuing with DeVore's research on primate societies in the wild, anthropologists began to argue that although primate social interactions were simpler than human behaviors, they were functionally related to the biological underpinnings of human behavior—that is, unaltered by culture (see Jackson, 2001b). As a result, primate societies began to supplement or even replace human cultures as a tool of choice for excavating the roots of human nature, because searching for the minimum characteristics defining "fully modern" humans by generalizing from the animal/ape side of the human-animal boundary was far less controversial than from the human side.[40]

Bruner was interviewed in several contemporaneous documentaries that illustrated the use of MACOS in classrooms. The first of these featured Kitulkais's predominantly white students at the Newton School, in a wealthy suburb of Boston. The film captured the supplementary materials present in their classroom: multiple sets of materials with which to work, games, blankets, markers, and live hamsters. The second followed children from Boston's Dearborn Public School—a poorer, primarily African-American elementary school with fewer classroom resources (Chelsea House, 1969). At the end of the year (and the film), the children were asked what effect the course had on their thinking. A flurry of answers followed: "how to survive," "we should grow up and get a good education," "you can't make nobody do nothing if they don't wanna [. . .] If you try and talk them into it, they might agree. 'Cause if you keep beating 'em and beating 'em, that don't get nowhere." The final words of the film, however, rested with a young girl in pony tails, who slowly lowered her head to her desk as she proclaimed, "we was all wild, and then you came and you tamed us" (Chelsea House, 1969).[41] In these films, we can see some of the less explicit aspirational hopes of the social science curriculum reform project; as a result of their education, the next generation of both white and African-American citizens would not protest in the streets, but would instead seek social progress through constructive civic democracy.

Reactions to MACOS

Initial responses to MACOS were largely positive (e.g., Hicks, 1969; Moss, 1970; Pines, 1970; Anon, 1971). At the height of its popularity, the program reached over 400,000 students, spread between 1,700 schools in 47 states (Ruby, 2005, p. 685). A 1970 article in *Time Magazine* declared that, "few parents have objected to the course, even though it contains rather fundamental information on mating habits and some of the bloodiest film imaginable on the slaughtering of seals." Both Bruner and Dow conceded the dramatic nature of material. Bruner commented, "a generation ago, the problem for kids was sex. For this generation, it's violence." Dow, for his part, suggested that, "urban kids are much more attuned to questions of survival and not so frightened by some of the gutsier issues like death and reproduction" (Anon, 1970a). Given the social context of the times, they argued, sex and violence were issues that the students needed to work through anyway, and MACOS could provide a set of materials and tools that would make it easier for students to imagine creative alternatives to violence as a mechanism of social change.

40. This trend is especially visible in the pages of *National Geographic Magazine* between 1960 and 1980, with the rising popularity of articles by Jane Goodall, Dian Fossey, Biruté Galdikas, and others (Haraway, 1989).

41. The students also asked whether they thought they would learn more in a different school, and almost all the students said yes—because other schools had gymnasiums or working heat and no broken windows in the winter. For more on the busing controversy in Boston, see Lukas (1985).

Yet despite its early success, the program largely disappeared in the mid-1970s due to protests at parent-teacher meetings in local schools and a series of Congressional hearings about the potentially dangerous messages embedded in the class materials. The long-term repercussions of these attacks were profound, both for MACOS and for the public funding of educational initiatives by the NSF (Rothenberg, 2010; Solovey, 2013). Congress practically eliminated federal funding for curriculum development in the sciences in 1976; in October of that year, the Director of the NSF (Dr. Guy Stever) resigned to become President Gerald Ford's full-time science advisor; and when Ronald Reagan assumed office in 1981, his administration slashed funding for the social sciences (with the exception of economics). Controversies over Darwinian evolution in the classroom certainly played a role, but the chief articulated objection to the MACOS program was that it undermined American national spirit by promoting cultural relativism and advancing the godless vision of society characteristic of secular humanism (Conlan, 1975; Nelkin, 1982, pp. 47–51).

Although MACOS organizers attempted to minimize controversy by including anthropological materials based only on the light-skinned Netsilik, attacks came from an unexpected direction—the association of Netsilik traditions with a culture of violence (Nelkin, 1977, pp. 81–103).[42] To explain this reaction, we must consider the larger social picture. Certainly, the sixties were a tumultuous decade, as televisions and newspapers carried stories of the shift from nonviolent civil rights protests to urban riots, increasingly angry anti-Vietnam war demonstrations, and the political revolutions accompanying much of the decolonization of Africa and Asia (Hallin, 1989; Anderegg, 1991; Gerstle, 2001). Together with the high-profile assassinations of President John F. Kennedy, Malcolm X, Martin Luther King, Jr., and Robert Kennedy, these events led even scientists to question the fundamental goodness of humanity. When playwright Robert Ardrey published *African Genesis* in 1961, for example, he highlighted the paleontological research of Raymond Dart, who claimed that true humankind was born only when our ancestors learned to kill (Ardrey, 1961). By the mid-1960s, concerns over aggression, new discoveries in anthropology, and a changing field of animal behavior catalyzed a popular press eager to explore a vision of man as innately violent. Adding fuel to the fire, Ardrey's second book, *The Territorial Imperative*, and the English translation of Konrad Lorenz's *On Aggression* were both published in 1966, joined the following year by Desmond Morris' *Naked Ape* (Ardrey, 1966; Lorenz, 1966; Morris, 1967). Professional anthropologists almost universally disliked this vision of innately violent man, but for Americans encountering scientific conceptions of humanity solely through mass media, it would have seemed that most anthropologists and zoologists agreed that humans, at their core, were little more than aggressive, competitive apes (Hinde, 1967; Montagu, 1968; Pilbeam, 1972).

Controversies over MACOS started at the local level, when the program was first introduced to public schools in the fall of 1970. The first inkling of a problem occurred rather quickly in Lake City, Florida.[43] A group of concerned citizens (none of whom had children enrolled in the program), led by Baptist minister Reverend Glenn, approached the local school board and tried to ban the program. They suggested that in recent years, there had been too many innovative curriculum changes in the school, that the lesson that "man is an animal and

42. At the time, textbook criticism could be divided into four distinct camps: the intellectual (expressing indignation that textbooks were not sufficiently challenging to students), the scholarly (sorrow over the lack of accuracy in textbooks), and the liberal or the conservative (contending that the contents of textbooks were politically unsavory, albeit from different perspectives). MACOS designers sought to address the concerns of the intellectual camp, while the most politically significant criticisms of MACOS would ultimately derive from conservative critics (see Philo, 1967).

43. Folder title: "Lake City, Florida," MACOS Records, Box 36, Folder 1.

nothing more" was tantamount to "teaching about the existence of God and religion," and that the school ought to return to basic education (Fitzpatrick, 1971). According to its mandate, the school board assembled a panel of four teachers and four townspeople and asked them to report back in two weeks. The panel attended MACOS classes, read all of the booklets for students and teachers, talked with people about their experiences with the program, and so on. Their report recommended that the course be continued, adding that the following year parents should be given the option of placing their kids in a separate, non-MACOS class.[44] The school board ultimately decided to keep the course but made it optional immediately. Of the 360 children enrolled in MACOS, only 45 transferred to another course, yet the following fall the school (wary of further controversy) dropped MACOS from their curriculum entirely (Anon, 1970b).

These concerns were amplified in Phoenix the following year. Course critics suggested that MACOS students were introduced to "a steady diet of blood-letting and promiscuity." As the course continued, they argued, "the children lose touch with good and reality." Critics were particularly concerned with the inclusion of "nightmarish films" portraying Netsilik culture, asking "why is such a lawless culture portrayed as desirable to copy? For dessert the students learn how to skin a daughter-in-law and masquerade in her skin."[45] Events unfolded much as they had in Lake City—concerned citizens wrote to the school board, which convened an investigatory panel, and eventually voted to keep MACOS. Critics tried to take the fight to the State Board of Education, but it refused to hear the case, stating that is was a local, not a state, concern.[46] This time, however, the MACOS curriculum team acted immediately by sending a small crew to film the proceedings and gather materials about the debate.

A local MACOS representative suggested the attacks on the course centered on two arenas: values and politics. He suggested the difficulties arose because teachers and those who criticized the program had different answers to values questions such as, "Whose values are the children exposed to in school? What values should they be exposed to? How should children be exposed to these values? Who is really responsible for teaching and maintaining values? How are values learned? What kind of people should schools help children become?" Similarly, disagreements stemmed from conflicting answers to questions about the politics of education: "How can schools define what they are trying to do? How can parents communicate what they want? How can educators respond to the legitimate concerns that parents raise about changes in school programs? What should be done when parents and school people really do disagree about what ought to be taught? How should decisions be made about the overall direction of a school and what should be taught to children?"[47] Until educators and local communities could come to some kind of rapprochement with regard to these questions, he worried, MACOS was going to continue to stir up trouble. Guided by these concerns, and using the material gathered in Phoenix (which had been edited into a booklet of ephemera from the controversy and a film called "Innovation's Perils"), MACOS designers encouraged prospective school administrators and teachers to think broadly about the kinds of questions that might be raised by MACOS in

44. This narrative is reconstructed from a workbook/reader created during and after the debates at Lake City, called "Community Issues and Man: A Course of Study," MACOS Records, Box 36, Folder 1.

45. All quotes from "Who Do We Eat?" (a leaflet distributed before the October 28 School Board Meeting in Phoenix), MACOS Records, Box 36, Folder 1.

46. On earlier instances of the fraught relationship between local school boards and evolution, see Larson (1997).

47. Edward C. Martin, "Talking Paper: EDC and Innovation," April 24, 1972, MACOS Records, Box 36, Folder 6.

their communities and helped local schools develop answers *before* trouble started rather than after.[48] Largely, this strategy worked.

Yet a few years later, John B. Conlan, then a Republican Congressman from Arizona (1973–1977), brought before the U.S. House of Representatives an appeal to stop federal funding to NSF for the dissemination of MACOS materials. In his April 1975 address, he attacked the program, echoing the rhetoric of local attacks in his home state:

> Mr. Chairman, MACOS materials are full of references to adultery, cannibalism, killing female babies and old people, trial marriage and wife-swapping, violent murder, and other abhorrent behavior of the virtually extinct Netsilik Eskimo subculture the children study . . . The course was designed by a team of experimental psychologists under Jerome S. Bruner and B. F. Skinner to mold children's social attitudes and beliefs along lines that set them apart and alienate them from the beliefs and moral values of their parents and local communities.[49]

For the record, Skinner was never associated with the program. The MACOS directors included a two-paragraph quotation from Skinner's *Science and Behavior* on "education as the acquisition of behavior" in the publication *Seminars for Teachers* (Skinner, 1953, pp. 402–403; as cited in MACOS, 1970f, p. 7). They also included passages on the goals of education by Bruner, John Dewey, and Lawrence S. Kubie, which together formed the basis of a seminar discussion. Yet by referencing Skinner's behaviorism, Conlan hoped to support his argument that MACOS was a program bent on modifying the behavior of American youth.

Conlan objected to the violence he saw as inherent to the Netsilik way of life, and a key part of his argument hinged on his perception of their hunting practices as unnecessarily cruel. Conlan and his press secretary repeatedly cited seal hunting scenes as the cause of student distress.[50] Such traumatic scenes of violence, Conlan claimed, left at least one boy unable to sleep for days (Laird, 2004). Conlan rejected Bruner's notion that MACOS provided a set of tools that students could use to negotiate their lives, seeing the program instead as delivering a world of violence to the doorsteps of good families who had so far been successful in protecting their children from the horrors of the changing world in which they lived (Kilpatrick, 1975a).

Conservative pundits also argued that MACOS was the product of "secular humanism" and as such was (above all else) amoral.[51] According to columnist James J. Kilpatrick, for example, "progressive and liberal educators" were misguided in their praise of the program—they claimed the curriculum merely raised value issues and did not coerce the students into a particular answer, but this was precisely the problem: "[T]he barely concealed purpose of MACOS is indeed to teach children how to think—to think, that is, as Dr. Bruner would like them to think" (Kilpatrick, 1975b). The sense that "Humanists" controlled the educational system was rampant among MACOS detractors, as was made clear in one article about a debate over including the program in local Vermont schools: "a whole generation of America's youth

48. Folder titles: "Innovations and Perils Film Planning 1971" and "Innovations and Perils Correspondence," MACOS Records, Box 36, Folders 5 and 6, respectively.

49. *Congressional Record—House of Representatives*, April 9, 1975, H2585–2596, as cited by Sommer (1984, p. 168). Sommer also cited Conlan's dismissal of the Netsilik as "a culture that is so low that even the other Eskimos do not want to associate with this clan" (see also Walsh, 1975).

50. It is unlikely that Conlan was objecting to the consumption of raw meat, but the highly visible ways in which that meat was procured and shared. In other words, his shock at the MACOS movies seems to have been as much about class as it was about religious commitment.

51. The social sciences were deeply imbricated with federally mandated civil-rights legislation (see Jackson, 2001a).

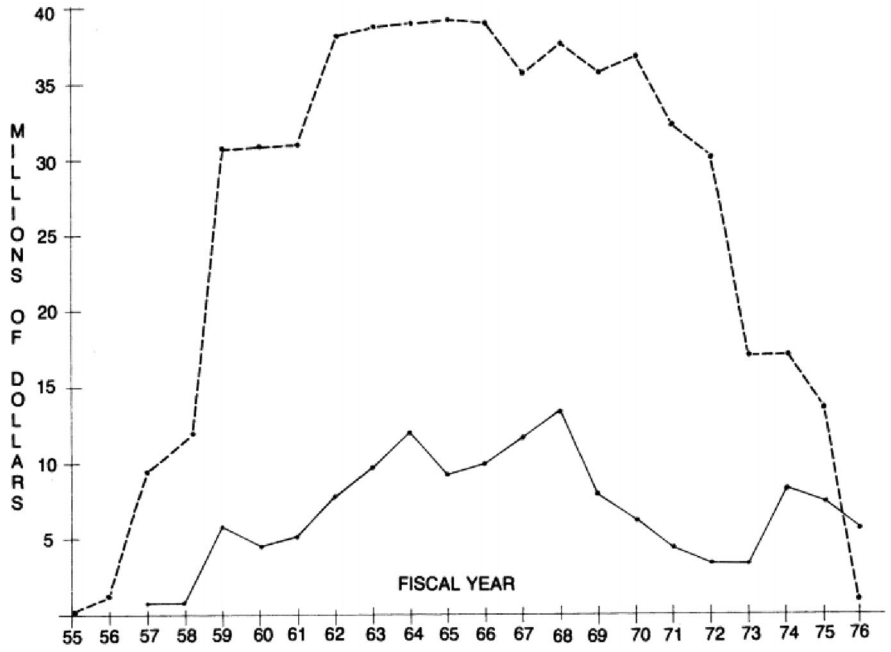


FIGURE 3.
The National Science Foundation's educational efforts were slashed as a result of controversies surrounding federally funded textbook efforts (including MACOS) but never eliminated entirely (Welch, 1979, p. 286).

will be morally, psychologically and even physically destroyed" through the anti-Christian sentiments foisted upon the "captive audience of children" attending public school (Steinbacher, 1972, p. 55; as quoted by Woolfson, 1974). Conlan argued, and Kilpatrick agreed, that the Netsilik people, as a *moral* model for learning about humanity, were too violent, too "primitive," and would ultimately break down the "traditional American values" families were struggling to instill in their children (Laird, 2004). On the basis of support provided by conservative activists, and with the gathering energy of parents and teachers who had already mobilized in the fight over the evolutionary content of the Biological Sciences Curriculum Study a few years earlier, Conlan was successful in blocking the further disbursement of federal funds to support MACOS. Due to the bad publicity, sales of MACOS materials plummeted a full 70 percent between 1974 and 1975 (Nelkin, 1977, p. 108).

As arguments over MACOS grew more contentious, Conlan used the debate as a platform to question *any* use of federal funds for science education (Figure 3). By 1976, NSF's annual budget for curriculum development had dropped to merely $5.5 million, enough to allow several ongoing projects to finish, and no monies were available for pre-college teacher training. This was a far cry from the $40 to $50 million a year they had been allocated for much of the 1960s (Welch, 1979).

MACOS even became an issue discussed by Ronald Reagan during his 1980 campaign for President. Reagan suggested that MACOS "indirectly taught grade school children relativism, as they decided which members of their family should be left to die for the survival of the remaining ones." Amplifying the rhetoric that MACOS advanced a "secular humanist" perspective, he added, "I don't recall the government ever granting $7 million to scholars

for the writing of textbooks reflecting a religious view of man and his destiny" (Holden, 1980). In the media and on the floor of Congress, the animal components of the course were rarely mentioned. Instead, MACOS had turned into a battleground over the role of the federal government in developing anthropological science materials for public school classrooms.

Despite the deep involvement of scientists in the creation of MACOS, none of these men publicly supported the program in its time of crisis. In 1969, Douglas Oliver had moved to Hawaii, where he taught part-time until fully retiring from Harvard in 1973. Jerome Bruner left for the University of Oxford in 1972 and was both surprised and saddened by the anti-intellectual attitude of people who attacked the program. Speaking out, he believed, would not help the situation.[52] Irven DeVore, who loved lecturing in front of classes, later admitted that he disliked writing and published very little for popular audiences. Asen Balikci was engaged in a new research project in Afghanistan, once again based out of the Université de Montréal. They looked the other way, too, when Conlan called into question the NSF review and funding of MACOS, halting further disbursement of funds for MACOS and 18 other pre-college science courses under development until they could conduct a full internal review. In the end, Peter Dow was the only public spokesperson for MACOS—this was not a fight one man could win.

Yet despite the highly visible outcry over the curriculum, MACOS refused to disappear entirely.[53] Ironically, when Tim and Patsy Asch moved to Canberra, Australia, in 1976, their children were enrolled in a newly adapted MACOS curriculum for Australians, in which the Netsilik materials were replaced with films and booklets about the People of the Western Desert.[54] West German teachers, by way of contrast, kept the Netsilik materials but compressed the entire yearlong sequence to make room for a third component to the course—"Everyday Life and Politics"—that included lessons on the national system of government.[55] In a sense, this added component embodied the unspoken assumptions of participatory democracy and citizenship embedded in the American program.[56] It also offers us, in hindsight, the overlooked possibility of integrating the biological and anthropological approach to Bruner's original questions with more traditional approaches to social studies curricula.

Conclusion

Given this story, what insights can we gain from analyzing the MACOS controversy through the lens of public science? From the perspective of the program designers, the target audience for MACOS was the students. MACOS was self-consciously constructed according to Bruner's student-centered pedagogical model in which children explored classroom material guided by knowledgeable teachers who, in an ideal setting, lectured rarely and gradually

52. See Bruner–Dow correspondence, Harvard University Archives, Jerome Bruner Papers, Accession 10823, unprocessed, Box 9B.

53. MACOS enjoyed a long life in private middle and high schools around the country, especially in Friends schools. Additionally, those involved in developing the MACOS curriculum carried its legacy with them. Both filmic ethnographer Timothy Asch and evolutionary biologist Robert Trivers attested to the program's influence on their later work (Trivers, 2002, pp. 56–58; Lutkehaus, 2003).

54. "International Distribution," MACOS Records, Box 34, Folder 1; "Man a Course of Study in Australia," Jerome Bruner Papers, Harvard University Archives, Unprocessed Accession 11380, Box 35 (old Box 21A).

55. "Was ist der Mensch?" (1980) MACOS Records, Box 34, Box 3; "Was ist der Mensch?" Jerome Bruner Papers, Harvard University Archives, Unprocessed Accession 11380, Box 35 (old Box 21A). West German educators may have initially encountered the program at American schools. See Peter Dow interview with Clara Hicks, November 5, 1974, MACOS Records, Box 42, Folder 18.

56. See Peter Dow interview with Janet Whitla, March 23, 1976, MACOS Records, Box 43, Folder 12.

introduced new material (Bruner, 1965). By encountering the same material multiple times, each subsequent time with a little more detail, students could easily build on the knowledge they had previously acquired, integrating it into a larger picture (Bruner, 1977). In other words, their ideal evaluator of the program was someone who (by the end of the year) would have been familiar with all aspects of the course material. Yet if there were a set of people who thought of themselves as the "consumers" of MACOS it would have been members of the community where MACOS was being taught (not necessarily parents of students, not the teachers, and certainly not the students themselves).[57] These concerned citizens were rarely familiar with the whole design of the course, and typically read only brief excerpts from the materials. This disjunction in audience created a space in which misunderstandings about the goals and content of MACOS could flourish.

These two groups were far from the only constituencies invested in the future of MACOS. All told, we can enumerate the scientists and educators involved in the creation of the films and classroom activities, the education centers training the teachers who would ultimately work with students, the teachers themselves, the students, the parents of the students, local organizers, Congress, and the larger communities in which all of these groups were embedded. By analyzing grade-school science education as a form of public science discourse, we see how these various communities judged the intellectual and moral commitments of cultural anthropology and MACOS according to radically different standards, and therefore came into profound conflict with one another.

Once MACOS earned a place in national news, it came to signify far more than a one-year introduction to anthropology for fifth graders. Symbolically, the anthropological bent of MACOS embodied both hopes for the redemption of American democratic society and fears about the violent nature of humans, depending on one's political perspective. The largely liberal designers were wary of the possibly racist interpretations of using "primitive" cultures in the classroom and hoped that research on animal behavior, especially in primates, might shed light on universal human traits without categorizing other cultures as "primitive" or "stone-age." Conservative textbook reformers objected to claims that all cultural solutions to biological problems were morally equivalent; they held out the possibility that using primates rather than "primitive" human cultures as pedagogical models could avoid the bad moral models such human societies posed and simultaneously skirt the specter of cultural relativism. If they could not claim that secular humanism was a religious doctrine propagated in schools (Larson, 1985), they could at least argue that this particular program was unhealthy for the moral development of its students.

These separate sets of concerns served to problematize the use of anthropological materials in a public school classroom. By the late 1970s, with increasing scholarly and public attention to sociobiological theories of human nature, animal behavior remained a pillar of public science (Segerstråle, 2002). Within the political climate of the Reagan era and the reintensifying of the Cold War, the anthropological emphasis on studying other cultures seemed less important for understanding human nature than biologists' games of conflict and individual choice. The singular case of MACOS provocatively suggests that biology came to vie with anthropology in the classroom because in this pivotal moment animals proved to be less controversial than people for helping Americans understand the humanity of human beings.

57. After WWII, conservative activists had begun to conceive of education within a consumerist framework, including choice of schools through a voucher system (Freidman, 1955). Cohen (2003) locates these changes as part of a much larger shift in cultural attitudes toward the federal government as a "service" provider, in which some Americans saw the value of democracy in free consumer choice.

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