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## Ethics in Biological Anthropology

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Ethics is defined as “moral principles or a system of these,” or “moral principles, maxims, precepts or observations concerning these” (Oxford English Dictionary, 2017). For a discipline or a profession, these principles are often articulated in a code of ethics or a code of conduct. These codes express a professional society’s understanding of the obligations, strictures and responsibilities of the organization and its members. For an individual, the codes set out the regulations and limits for a professional life.

The *American Journal of Physical Anthropology* (AJPA) was founded during a time when society and scientists espoused ideas of hierarchical biological relationships, and scientists did not much examine the ethical implications of their work (Ortner, 2010). Hrdlička, in his inaugural paper in the AJPA, cited several reasons that would make collections of skeletal materials difficult but never addressed any reason that we might regard as *ethical* implications of the collection of these materials (Hrdlička, 1918). These types of discussions did not appear until the middle of the 20<sup>th</sup> century, and for much of the second half of the 20<sup>th</sup> century members of the American Association of Physical Anthropologists (AAPA) borrowed ethical guidelines from other associations and from rules and laws of the U.S. government. The AAPA Code of Ethics was officially voted on by the association in 2003 and remains in place today.<sup>1</sup>

In order to understand the strictures that would have guided the ways in which members of the AAPA dealt with ethical choices in their professional lives and research agendas, it is necessary to review codes and regulations that were in effect prior to 2003 as well as the current AAPA Code of Ethics. We then discuss some of the continuing ethical challenges

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<sup>1</sup>In this review we concentrate on the American Association of Physical Anthropology’s ethical guidelines. Other international organizations, including the Canadian Association of Physical Anthropology ([http://www.capa-acap.net/sites/default/files/basic-page/capa\\_code\\_of\\_ethics\\_-\\_oct\\_2015.pdf](http://www.capa-acap.net/sites/default/files/basic-page/capa_code_of_ethics_-_oct_2015.pdf)) and the British Association for Physical Anthropology and Osteoarchaeology (<http://www.babao.org.uk/publications/ethics-and-standards/>) maintain their own codes of ethical standards.

that have faced biological anthropologists, both past and current, and subsequently provide an analysis of the extent to which practitioners have demonstrated ethical literacy, engagement in ethics issues, and ethical practice. These lead us toward an assessment of where we are now.

## CODES OF ETHICS

Professional codes of ethics arise within a branch of normative or applied ethics and are often based on either the utilitarian principles of Jeremy Bentham and John Stuart Mill or on the deontological theories of Immanuel Kant<sup>2</sup> (Beauchamp and Childress, 1989; Mappes and De Grazia, 1996; Turner, 2005). While these theoretical underpinnings of professional ethics remain, the applications to different professional societies have changed along with changing societal norms and advancing technologies. Codes of ethics for a professional society or an association, especially those that do not adjudicate claims, are often aspirational and set forth ideals and guiding principles for members of a group that can be used by an individual practitioner when confronted by a situation that requires action.

The earliest modern professional code of ethics was formulated by the American Medical Society in 1847. A wave of ethics codes appeared in the early part of the 1900s, and a second wave began in the later part of the twentieth century and continues today. The Center for the Study of Ethics in the Professions at the Illinois Institute of Technology ([www.ethics.iit.edu](http://www.ethics.iit.edu)) maintains an archive of professional ethical codes. In 1981, 241 societies had ethical codes; in 2005, there were 841 and today there are over 1500. The archive also provides a record of changing questions and norms since there are often multiple versions of codes from different time periods.

Ethics (e.g., Fieser, n.d.) for most anthropological research are derived primarily from principles of bioethics (e.g., Gordon, n.d., and Callahan, 1995), a special branch of applied ethics (e.g., Dittmer, n.d.) concerned with human health and human subjects research. Principles of bioethics have led to a set of standards that have become the model for research based on an individual's participation in an experiment or study. The Nuremberg Code, written as a response to the horror of Nazi experimentation on enslaved people<sup>3</sup>, laid down an original set of principles for research on individuals. It explicitly set forth the principle of voluntary consent and required that the person(s) conducting the experiment disclose the nature, duration and purpose of the experiment, the method by which it will be conducted, any hazards that might occur, and what good the experiment will do for society.

Since the Nuremberg Code, foundational codes specifically focused on the ethics of research have increased in number. Such ethical codes were proposed by the World Medical Association and regulations were enacted by the U.S. government, including the National Institutes of Health (NIH) and the U.S. Department of Health, Education, and Welfare. There are several excellent reviews of the history of bioethics (see Beauchamp, 2005;

<sup>2</sup>Utilitarian theories are based on consequences. Act utilitarian theories suggest that individuals act in such a way as to produce the greatest good. Rules utilitarian theories state that an individual should follow a rule that will produce the greatest balance of good over evil. Deontological theories, on the other hand, do not rely on utility but on the Kant's principle of the categorical imperative which states that an individual should act as if the action would become a universal law (Mappes and DiGrazia, 1996; Turner, 2005).

<sup>3</sup>We use the word "enslaved" intentionally, to reflect the lived, horrific experience of Holocaust survivors.

Beecher 1970; Childress, Meslin, and Shapiro, 2005; Coughlin and Beauchamp, 1996; Doyle and Tobias, 2001; Emanuel and Weijer, 2005; Faden and Beauchamp, 1986; Gray, 1975; as well as U.S. Department of Health and Human Services, Office of Human Research Protections <https://www.hhs.gov/ohrp/regulations-and-policy/index.html>; Kennedy Institute of Ethics <https://kenedyinstitute.georgetown.edu/>; World Medical Association, Medical Ethics <https://www.wma.net/what-we-do/medical-ethics/>). The most important codes and regulations for an understanding of ethics in biological anthropology are discussed below.

Of critical importance is an understanding of the relationship between codes of ethical behavior and legal standards and requirements. While codes indicate norms and collective ideas of responsibility, the policies of federal agencies, laws passed by Congress, and U.N. conventions must all be followed or there can be legal consequences. Ethical guidelines may make their way into law, but this is not always the case. (For examples of important codes see Table 1. For position statements see <http://www.physanth.org/about/position-statements/aapa-code-ethics-sexual-harrassment/ethics-resources/>; for a history of laws regarding ethics see [https://history.nih.gov/about/timelines\\_laws\\_human.html](https://history.nih.gov/about/timelines_laws_human.html); for international agreements see <https://www.hhs.gov/ohrp/international/compilation-human-research-standards/index.html>; for CITES see <https://www.cites.org/eng/disc/text.php>; and Wagner, 2013a).

While the NIH and the U.S. Congress issued policies for clinical centers and the drug industry during the 1950s and the 1960s that required some protections for subjects of experimental protocols as well as for voluntary informed consent, the most wide-reaching statement on biomedical research was the 1964 World Medical Association's Declaration of Helsinki (updated most recently in 2013 to coincide with its 50<sup>th</sup> anniversary), which distinguished between therapeutic and non-therapeutic research and reaffirmed the basic principles of the Nuremberg Code. The Declaration of Helsinki provided the foundation for the creation of institutional review boards (IRBs) and became the model for many subsequent ethical codes and policies on medical experimentation, including the Council for International Organizations of Medical Science (CIOMS) the International Ethical Guidelines for Biomedical Research Involving Human Subjects, 2002; and the Indian Council of Medical Research (ICMR) Ethical Guidelines for Biomedical Research on Human Participants (Puri, et al., 2009). However, the Declaration of Helsinki's influence on research ethics and science policy in the U.S. has waned over the most recent 15 years (e.g., Wagner, 2013b; see also Burgess and Pretorius, 2012; Wolinsky, 2006), and several bioethicists criticized the 2013 revisions (e.g., Millum, Wendler, and Emanuel, 2013).

In the 1960s, even though U.S. institutions receiving federal funding were required to review research to consider the rights and welfare of subjects, the appropriateness of methods, and the balance of risks and benefits, these reviews were entrusted to local institutions with little oversight. For example, multiple infractions of bioethical principles occurred, including the Tuskegee Syphilis Study (Bulger, Heitman, and Reiser, 2002). Beginning in 1971, the U.S. Congress responded to the various infractions with the creation of Institutional Guidelines of the Department of Health, Education and Welfare and the 1972 Patients' Bill of Rights.

In 1974, Congress enacted the National Research Act, which mandated an IRB review for all Public Health Service-funded research. Congress also authorized the establishment of the

National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research. The Commission produced the Belmont Report, which articulated three ethical principles based on a compromise of utilitarian and deontological ethical theories<sup>1</sup>: respect for autonomy or respect for persons articulated through informed consent, beneficence or balance between risks and benefits, and justice, especially in the selection of research subjects and in the application of new findings. These principles are usually understood as: do no harm, apply the rules of justice and fair distribution, do not deprive persons of freedom, and help others (Gert, Culver, and Clover, 1997).

The Belmont Report inspired federal regulations and is used by IRBs in their analysis of research protocols. The primary mandate of IRBs is to protect the rights and safeguard the welfare of human research subjects and participants. In the 1970s and early 1980s, the Department of Health, Education and Welfare (DHEW) and later the Department of Health and Human Services (DHHS) worked to develop regulatory oversight for human subjects research as 45 CFR 46, Subparts A, B, C and D (Title 45 Public Welfare, Code of Federal Regulations, Part 46 Protection of Human Subjects, 1991). While initially applying only to research conducted or supported by DHHS, Subpart A was later adopted as a common policy, the “Common Rule” for several federal agencies conducting or supporting research with human subjects. The Common Rule itself has been under extensive scrutiny and reforms a matter of fierce debate, with regulatory changes proposed initially in 2011, considerably different changes proposed in 2015, and a new Final Rule announced in 2017.<sup>4</sup>

Other federal commissions, including the National Research Council, the National Bioethics Advisory Commission and the President’s Council on Bioethics and the Presidential Commission for the Study of Bioethical Issues ([www.bioethics.gov](http://www.bioethics.gov)), have continued to examine issues concerning human subjects and to prepare updated guidelines. Bioethics codes have also been established in countries worldwide and international organizations, including the United Nations (UN), working primarily through the United Nations Educational, Scientific, and Cultural Organization (UNESCO) and the World Health Organization (WHO), have developed codes that deal with human rights and autonomy, particularly in regard to any experimentation.

In 1964 the WHO convened a working group to establish guidelines for working with indigenous populations (see below). In the 1980s the UN working group on indigenous populations was convened and in 1993 submitted a draft declaration on the rights of indigenous peoples that remains under review. The National Research Council and National Bioethics advisory commissions have also reviewed statements on research participant autonomy.

Several critical sets of standards have been issued by the U.S. government have had an impact upon biological anthropologists who conduct research on non-human primates. The

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<sup>4</sup>Though a Final Rule, the fate of the “2018 Common Rule” as it is now referred is unknown. The regulatory reforms are subject to the regulatory freeze issued on the day of President Trump’s inauguration, January 20, 2017 (see, e.g., <https://www.whitehouse.gov/the-press-office/2017/01/20/memorandum-heads-executive-departments-and-agencies>) and potentially also subject to President Trump’s Executive Order of January 30, 2017 requiring the elimination of two regulations for each new regulation issued (<https://www.whitehouse.gov/the-press-office/2017/01/30/presidential-executive-order-reducing-regulation-and-controlling>).

1985 amendment to the Animal Welfare Act, amended most recently in 2008, and changes to the Public Health Service policies led to the establishment of IACUCs (Institutional Animal Care and Use Committees) at universities and other places receiving federal funds to conduct research (Nash, 2005). IACUCs are analogous to human subject or participant-focused IRBs—they review research protocols on living and dead animals. They are guided by the “3Rs.” The “3Rs” were originally defined for medical experimentation and became the philosophical underpinnings of the Animal Welfare Act. The 3Rs are: Replacement (replace the use of animals whenever possible), Reduction (reduce to the minimum the number of animals required), and Refinement (refine methods to minimize costs to the animals) (Nash, 2005). While most observational field work on living animals does not necessarily require IACUC approval under the law, universities may require oversight or a waiver for such research from the IACUC committee.

Another federal law, the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990, had a profound impact on the ways biological anthropologists work. The law protects native graves on federal and tribal properties, recognizes tribal authority on these lands and requires that all Native American skeletal remains and funerary objects be inventoried and that culturally affiliated groups be consulted on the disposition of the materials (Larsen and Walker, 2005). NAGPRA’s oversight committee makes regular, yearly reports to Congress detailing the progress of the implementation of the act. While problems remain, particularly with culturally unidentifiable remains and curation of material, the work continues.

## THE AAPA CODE OF ETHICS

The formal consideration of ethical norms by professional societies is often triggered by societal events or by allegations of misconduct by practitioners. The AAPA experienced multiple such events and allegations during the 1980s and 1990s, prompting the association to publish a series of position statements, and eventually, establish its own Code of Ethics in 2003. These include NAGPRA, the Kennewick find (McManamon, 2004; Kaestle and Smith, 2005), increased emphasis on teaching creationism alongside evolution in schools, the 1994 publication of *The Bell Curve* by Charles Murray and Richard Herrnstein, the proposal to establish the Human Genome Diversity Project (HGDP) (Greely, 1998), and the 1998 amendment of the American Anthropological Association (AAA) Code of Ethics.

Prior to the establishment of an AAPA Code of Ethics, biological anthropologists regularly drew from the codes of other national, legal, and related organizations. Meanwhile, the AAPA published position statements – including a statement on the Biological Aspects of Race (AAPA, 1996)-that indicated positions to both members and the general public. In 1996 the statement on race became public. During the same year, at the business meeting of the association, Mark Weiss, then the National Science Foundation (NSF) program director for Physical Anthropology,<sup>5</sup> brought to the attention of the attendees the fact that the association did not have its own code of ethics. Jere Haas, the president of the association, asked Weiss to head a committee to formulate a statement and report at the next meeting.

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<sup>5</sup>The NSF Physical Anthropology Program is now the Biological Anthropology Program.

This call for a new AAPA Code of Ethics was directly responsible for the creation of an ad hoc committee on ethics.

The next mention of a code and the ad hoc committee on ethics was at the 1998 business meeting. It was announced that Linda Wolfe would be the chair of the ad hoc committee that would be working on a code. Members of the committee were Mark Weiss, Philip Walker, and Trudy Turner. Kathleen Gibson also participated in committee discussions as a liaison with the AAA. The committee met several times and decided to adopt the AAA Code of Ethics with small editorial amendments. At the time, the AAA had a well-developed ethics page on its website which traced the history of the AAA Code from the 1971 original which was formulated in consultations with well-known ethicists. The website also had training documents including case studies. The AAPA Code of Ethics was brought to, and approved by, the executive committee of the AAPA in 2002. It was then sent to the full membership and passed overwhelmingly by those who voted. It became part of AAPA formal documentation at the 2003 business meetings and has remained unchanged since then.

Linda Wolfe remained chair of the ad hoc ethics committee until 2013. During the 2013 business meeting a petition was presented to the membership to establish an ethics standing committee. As changes to the bylaws of the association are complex, a two-year process began. During the process, the ad hoc ethics committee continued under the leadership of Erin Riley. It was a more robust committee, with ten members. The members of the committee were interested in a greater presence of ethics-related training materials on the AAPA website. That goal continues with the formally constituted standing ethics committee now in effect. The current chairs of the standing committee are Jennifer Wagner and Graciela Cabana.

## **ONGOING ETHICAL ISSUES IN BIOLOGICAL ANTHROPOLOGY: SOME EXAMPLES**

Although theoretical orientations and techniques have altered radically since the inception of the discipline, biological anthropologists have been and continue to be concerned with the origins and variation of humans and their primate relatives. In the first issue of the first volume of the *AJPA*, Hrdlika stated that the scientific objective of physical anthropology “is the gradual completion, in collaboration with the anatomist, the physiologist and the chemist, of the study of the normal white man living under ordinary conditions. And our knowledge must not extend to the averages or mean conditions alone, but to the complete range of normal variation of every important feature of the human body, and the laws governing their correlation. Such knowledge of the white race is eventually indispensable for anthropological comparisons” (Hrdlika, 1918: 18).

This set the stage for the next 20 years of work in a discipline that used typological categories to talk about human variation and evolution. Several authors have reviewed the history of physical anthropology in relation to race (Caspari, 2003; Marks, 1995; Relethford, 2010). As with ethics in general, World War II markedly changed the ways in which anthropologists approached the rationale behind their work. Typologies could be misinterpreted. The Nazi regime used a distorted version of physical anthropology and

archaeology to support the claims of racial superiority of an “Aryan race” (Arnold, 1990). Inferior groups would not be treated with the same respect for life and autonomy as superior groups. In the case of concentration camps, this led to inhumane experimentation on individuals and genocide.

After World War II, a new sensibility emerged and ethical guidelines for work with human populations were established. The principle of informed consent means that researchers must take steps to ensure that individuals considering participation in research are well-informed, understand the potentially deleterious effects of any experiment as well as its benefits, willingly participate knowing what the potential risks are, and have the right to withdraw consent (and therefore their participation) at any time. Even though explicit studies on race as a typological construct faded from the discipline after World War II and into an era of civil change in the United States, the study of human variation has continued with a more evolutionary perspective. Part of that perspective has included studies of microevolutionary processes that explore the ways in which evolutionary adaptations occurred in populations as well as the relationships between populations (e.g., Cavalli-Sforza, 1956; Fix, 1978; Friedlaender, 1971; Giles, Wyber & Walsh, 1970; Neel, Rothhammer & Lingo, 1974).

One of the most important programs for the study of human population variation in biological anthropology was the International Biological Program (IBP), which was under the direction of the International Council of Scientific Unions and was facilitated in the U.S. by the National Academy of Sciences and the National Research Council. The IBP ran from 1964 to 1974. Particularly important for biological anthropologists was a subcommittee of the IBP, the Human Adaptability Section (IBP/HA). One of the goals of the IBP/HA was to apply the same measurement tools and techniques to a wide array of populations, thus allowing for comparable data for the study of human variation. Anthropologists studied populations in Kenya, Western Samoa, the Andes, the Solomon Islands, Brazil, Tibet and the Arctic, among other places (e.g. Little, Galvin & Mugambi, 1983; McGarvey and Baker, 1979; Baker, 1978; Friedlaender, 1975; Beall, Baker, Baker & Haas, 1977; Szathmary, 1981).

Researchers working under the auspices of the IBP could rely on ethical guidelines from established codes from various organizations, but at the time of these studies, the Belmont Report was years from conception and completion. Instead, researchers could use a document entitled “Research in Population Genetics of Primitive Groups” written by James Neel in 1964 for the WHO (Neel, 1964).

In 1962, the WHO had convened a group of scientists to discuss “studies of long-standing, but now rapidly changing, human indigenous populations.” The group met again in 1968 and reaffirmed their guiding principles. Two reports, both authored by Neel (1964; 1968), detailed the relationship and ethical obligations of researchers to indigenous study populations. Neel particularly emphasized six factors of special importance: 1. The privacy and dignity of an individual must be respected and anonymity of subjects must be maintained. 2. Satisfactory, but carefully considered, recompense should be given for participation in a study. 3. The local population should benefit from the study by medical,

dental and related services. 4. Attempts should be made to maintain congenial social relationships with participants. 5. Learned individuals from the local population should be consulted. 6. There should be the utmost regard for cultural integrity of the group. These principles, which are clearly in line with both the Nuremberg Code and Declaration of Helsinki, were in place during the heyday of studies conducted under the IBP/HA (Collins and Weiner, 1977).

As with most ethical principles, the difficulty comes in application of Neel's principles to real world situations. How were these principles actualized in the 1960s and 1970s? Turner and Nelson (2005) reported on a survey of individuals who were conducting genetic research among indigenous groups during this time period. There were eleven participants in the study who were selected after an examination of published articles in the *AJPA* and the *American Journal of Human Genetics* (AJHG) during that time period. All survey participants stated that there was no discussion of consent in the planning stages of a project. However, they stressed that voluntary consent was assumed because some individuals in the population elected not to participate in the research (Turner and Nelson, 2005). Some researchers had government approval for their research, while others had the approval of local populations or individuals. Leaders of the study group were often consulted. If medical personnel were present, they were often tasked with obtaining consent. In every case some explanation for what the researcher was looking for was provided. Some sort of modest remuneration was given to participants.

Ethical issues and the relationship of the researcher to the community under study remained relatively undiscussed in the discipline until the passage of NAGPRA in 1990 and the formulation of the HGDP in the mid-1990s. Both of these events triggered a new, more intensive examination of the relationship between researcher and community. It became apparent that in many cases, individual consent, while necessary, was not sufficient for work with identified populations.

At a NSF-sponsored workshop held in Milwaukee in 1999, Eric Juengst, who at the time was Professor of Bioethics at Case Western Reserve University, articulated several questions that form the basis for thinking about engagement of local groups: "Who speaks for a group? If the group is nested within a larger group, who represents the original group? What is the relationship between expatriate communities and the community of origin? Does permission from the national government to conduct a project have meaning for the population studies? How does one obtain informed consent from an individual or a group whose members have little understanding of the project or the risks involved? How can the culture of the population be taken into account in the design and implementation of the project? What are the implications concerning the disclosure of the identity of the group? Can consent be withdrawn sometime in the future? How? Can samples be withdrawn sometime in the future? How? Are there appropriate benefits for the population under study?" (Juengst, 1998; Turner, 2005).

For biological anthropologists generally, what issues has an evolving concept of consent raised? Biological anthropologists have an inherent interest in the relationship among groups of people and in the peopling of the world. Genetic technologies allow for a comparison of



DNA sequences among individuals and groups. These sequence differences are then used to formulate estimates of relatedness. But what if those estimates do not conform to populations' cultural history or origin beliefs? Additionally, individuals and populations may give consent for a project using samples obtained at a given time. Many of these samples remain in storage after the project has been completed. Has the population under study agreed to this type of storage? What if someone wants to do another project based on these samples years or decades later, when perhaps many of those individuals who originally consented are no longer alive? While the Common Rule does not apply to research involving deceased individuals, the Health Information Portability and Accountability Act (HIPAA) Privacy Rule does protect individually identifiable health information for 50 years following an individual's death (DHHS, 2013). Moreover, research norms for secondary research on biospecimens and data have been both inconsistent and changing.

To illustrate these issues, some examples are in order. One example concerns the meaning of consent over time, in relationship to individuals, communities, and samples in the case of Yanomami peoples of Brazil and Venezuela (Turner and Nelson, 2005; Turner, 2012). James Neel, Napoleon Chagnon, and other team members originally collected samples from the Yanomami in the late 1960s and early 1970s. Individuals were given a rudimentary explanation of the purpose of the research and told that researchers were going to look for diseases in the blood. While this was indeed true, Yanomami who have spoken to outsiders suggest that they expected greater medical benefits from the work that was done (Turner and Nelson, 2005). The samples were stored in U.S.-based laboratories and multiple kinds of studies were subsequently conducted on the samples over the years. However, maintaining blood samples is regarded by the Yanomami as an affront to their beliefs, as Yanomami cultural beliefs require that everything from a person be destroyed when the person dies. Members of the population also state that they were never told samples would be kept for so long. After years of negotiation, many of the samples were returned to the Yanomami for burial.<sup>6</sup>

A second example involves the principle of justice. The principle of justice applies to work done not only with living people, but on living primates as well as ancient human remains (including fossils). In the case of ancient human remains, who has the authority to speak for the future of the remains, including the authority to decide what to do with them (whether to allow research, enable reburial, public display, or something else)? Do remains belong to the country of origin? To the country that the researcher comes from and where the funding may have come from? And who defines access to these materials?

In 1998 the Permanent Council of the UNESCO-affiliated International Association for the Study of Human Paleontology (a group in which 20 countries were represented, including

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<sup>6</sup>This is only a part of the controversy surrounded the Yanomami that took place early in the 2000s. In 2000 Patrick Tierney published *Darkness in El Dorado: How Scientists and Journalists Devastated the Amazon* in which he accused James Neel and Napoleon Chagnon of ethical violations against Yanomami peoples. While the initial accusations of starting a measles epidemic in the Amazon were not included in the final edition of the book, early versions of the book containing the accusation were leaked. Numerous professional societies disproved the allegations (e.g. American Society of Human Genetics, Tierney, 2002; International Genetic Epidemiology Society, Bauer, et. al., 2001). However, anthropologists continued to question Neel's humanitarian works. Additional allegations were leveled against Chagnon. While this controversy was prominent within the AAA, it was not at the AAPA. However, the question of the disposition of blood samples did have profound repercussions in the discipline.

the U.S. and Ethiopia) unanimously adopted a resolution specifying that hominin fossils should not be put on public display and that the transportation of hominin fossils outside of their country of origin should occur only when there are compelling scientific justifications to do so (Giacobini, 1999). Not surprisingly, the posthumous U.S. tour of the hominin find Lucy, *Australopithecus afarensis*, discovered in 1974 in Ethiopia, generated considerable controversy (e.g., Dalton, 2006; Gibbons, 2006). Principlism involves balancing interests that are often complementary but sometimes conflicting. Lucy was recognized as an irreplaceable member of our world heritage and the fragility of her bones required attention be paid not only to ensuring that any transportation would not harm her bones or accelerate deterioration (by light exposure or even random extreme weather damage) but also that there were no viable alternatives (such as replicas). The desire to share her multi-million-year-old legacy with the public and desire to enable the home country to enjoy economic benefits from such displays also were featured in the debates. Weighing the risks and benefits of travel (or any access to the original fossil bones) must be done in relation to the risks and benefits of remaining at “home.” The ethical questions continue, even with the availability of 3D printing technologies enabling expanded use of replicas for educational and research purposes (e.g., Bushwick, 2011; Callaway, 2014; and Callaway, 2016). Evaluating the equitable distribution of risks and benefits in anthropological research is complex, as it cannot be done without concurrent recognition of sociopolitical history (including the exploitation and marginalization of peoples) and the persistent disparities in the global economy (which affect home countries’ capacity to conduct anthropological research, train anthropologists, and maintain specimens).

Like fossil material, nonhuman primates may be seen as a part of a country’s natural resources and heritage. Access to study sites may require permission from a national government and from local officials and land holders. While strictly behavioral studies may not require any further permissions, researchers looking to obtain any biological samples may need further permissions from national authorities. For example, genetic based studies usually require permission from local wildlife authorities; and if samples are being sent out of the host country and into the U.S., CITES (United Nations Convention on the Trade of Endangered Species) permissions as well as permissions from the U.S. Centers for Disease Control (CDC) and Fish and Wildlife Service (FWS) are required. Host countries may also require material transfer agreements (MTA) that ensure that any financial benefits reaped from any discoveries be shared with the host country.

What do researchers owe to their subjects if their subjects are nonhuman primates? Most primate populations are endangered or threatened. Do primatologists have an ethical obligation to work toward saving these populations? The Code of Best Practices for Field Primatology of the International Primatological Society (IPS) (Table 1) discusses the obligation of stewardship of the researcher toward the population under study. The Code states that the researchers have a fundamental obligation to the species they study and to the ecosystem in which the species lives. The Code also suggests that the field primatologists understand the human community and local customs. As such, most field primatologists have become active in conservation activities in local communities.

## ETHICAL LITERACY AND ENGAGEMENT WITH ETHICS IN THE PROFESSION

Given these constant, ongoing ethical challenges, what can be said of biological anthropologists' ethical literacy (which, according to Tuana 2007, involves three competencies of sensitivity, reasoning, and imagination) or engagement with ethics in theory and practice? Reviewing the ways in which ethics is engaged in print within the AAPA's official journal, the AJPA, offers us an opportunity to assess AAPA membership's ethical literacy (Wagner 2017).

In September 2016, an advanced search was performed on the Access AJPA members-only site, which offers access to every AJPA issue since its premiere issue of Jan/Mar 1918, to identify AJPA items explicitly mentioning ethics content somewhere in the full text. This offered a review of approximately 99 years of scholarship. Search terms were such that published items mentioning ethic, ethical, ethically, ethics, bioethics, unethical, or a close variant thereof would have been detected. These terms are collectively referred to hereafter as "ethics." Items identified were reviewed manually and verified to be content engaging ethics in some way.

This systematic review of the AJPA issues uncovered 329 initial search results, of which we were able to verify 274 as unique items engaging ethics explicitly in some way. Ten items, however, were front pages of the journal and therefore excluded from further content analysis. Content analysis was performed for the remaining 264 items, which included full articles with varying levels of coverage of ethics issues (143 or 54%); books reviewed or received (52 or 20%); conference materials such as program information and abstracts for annual meetings (39 or 15%); and other items such as letters to the editor, news and views, obituaries, and brief communications (30 or 11%).

It is necessary to emphasize the limitations of this approach to reviewing the literature for engagement with ethics. This approach is robust and reliable for identifying (1) all items that referenced the AAPA Code of Ethics, (2) all items for which the authors themselves self-reported ethical issues as a major aspect of the content (regardless of use of whether *ethics* was used in the text itself), (3) and all items that used the specific terms somewhere. It also is likely to detect items that had engaged with discussions of diverse ethical theories (*e.g.*, Kantian/deontological, consequentialist/utilitarian, virtue/Aristotlian, and care) and methodologies (*e.g.*, principlism and casuistry). Nevertheless, this approach would not detect instances when authors discuss or address the various intrinsic, extrinsic, or procedural ethical dimensions of research without identifying them as such.

Results of the literature review and content analysis are shown in Tables 2 and 3. Of the 264 items appearing in AJPA, 207 of them were dated 2003 or more recent. Of these, only 19 of them (9%) mentioned the AAPA Code of Ethics. There was very scant high-level engagement of ethics, with only one article mentioning ethics in the title, three articles identifying ethics as a keyword, and only two articles mentioned ethics in the abstract. A sizeable portion of the items revealed by the search (17 items or 12%) was indirect engagement via the authors' citations to one or more references containing *ethics* or a

variant thereof in their titles. Additionally, almost two-thirds (94 items or 66%) of the ethics engagement this search revealed was nothing more than stating the research described had been approved by an institutional review board or performed in compliance with certain standards. Only 18 items (or 7%) engaged ethics meaningfully, and more than half of these were published in the most recent two years (i.e., 10 of 18, or 56% of the articles with meaningful engagement with ethics, were published in 2015 and 2016). The five items identified with the most extensive ethics coverage were Kaestle and Horsburgh (2002), Galloway et al. (1990), Hulse (1969), Martin and Harrod (2015), and Ubelaker and Grant (1989). Despite limitations of the approach, this reflection provides useful information regarding AAPA's ethical literacy.

Of the five articles dealing most extensively with ethics, Hulse (1969) is a presidential address while the other four are articles in the *Yearbook of Physical Anthropology*. In fact, seven of the 18 articles mentioned earlier are *Yearbook* articles. Why the *Yearbook*? The description at Wiley online states that "The *Yearbook of Physical Anthropology* is an annual supplement of the *American Journal of Physical Anthropology*. The *Yearbook* provides broad but thorough coverage of developments within the discipline. *Yearbook* articles may summarize and synthesize the state of the art in a particular subfield of physical anthropology, present new paradigms for addressing important issues of general interest in the field or detail new technologies that are vital to advancing the discipline. *Yearbook* articles are not simply a literature review. The articles go beyond this to provide new perspectives on a field, which may include the presentation of original data and analysis. Articles on the history of physical anthropology are also included" ([http://onlinelibrary.wiley.com/journal/10.1002/\(ISSN\)1096-8644/homepage/yearbook\\_of\\_physical\\_anthropology.htm](http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1096-8644/homepage/yearbook_of_physical_anthropology.htm)).

What were these articles about? Kaestle and Horsburgh (2002) provide an overview of the ethical issues involved in ancient DNA research including destructive analysis, informed consent and the impact of research on living communities. Martin and Harrod (2015) discuss the impact of their research on living communities descended from the communities they study; their research is on violence and its manifestation in the archaeological record. The Galloway et al., (1990) paper is on forensic anthropology and the ethical strictures in working on individuals, writing reports and appearing in court. Ubelaker and Grant's (1989) paper, written before NAGPRA, details the history of thought on repatriation and return. Hulse's (1969) paper differs from all of these. While the other four *Yearbook* papers remind practitioners of their ethical obligations in conducting research. Hulse (1969) is a presidential address to the association in 1969, a time of political and social turmoil. He reminds his listeners that the work of biological anthropologists is relevant to the human condition and the nature of humans as bio-social organisms. He also issues a call to action, reminding his listeners that they should actively disseminate their findings to the public.

Ethics in biological anthropology have also been discussed at sessions at the annual meetings and more recently at presidential panels at the meetings. The first major ethics symposium was organized by Trudy Turner at the 2001 AAPA annual meeting (Turner, 2005). The symposium was an outgrowth of a NSF sponsored workshop held in Milwaukee in 1999 on Anthropology, Genetic Diversity, and Ethics. Members of the workshop realized

that a discussion of ethical questions faced by biological anthropologists needed to be extended to all aspects of the field. Subsequent sessions on ethics, usually roundtable discussions, were held at AAPA meetings, such as the open forum organized by Graciela Cabana, Claudia Valeggia, Jennifer Wagner, and Alexandra Obregón-Tito in 2012. Other more formal ethics AAPA plenaries or symposia were organized by Dennis O'Rourke in 2007, Graciela Cabana in 2011, and Elle Saines and Heather Shattuck-Heidorn in 2013.

## WHERE ARE WE NOW?

In 2017 biological anthropologists have more resources at their fingertips to assist them with ethical issues related to their research, teaching, practice, and professional responsibilities. The AAPA has a standing Ethics Committee that has compiled useful ethics resources, has begun offering confidential ethics consultations to AAPA members, and has launched an Ethics Fellows Program to promote ethical literacy among biological anthropologists. Yet changing circumstances require reevaluation of standard practices. Following from above presented examples of ongoing ethical issues, we briefly discuss two such examples - informed consent and data access. We follow with issues related to training, discrimination, and harassment.

### Toward open or dynamic informed consent

The current ethic for individuals working with individuals and identified populations is to understand that engaging in research means engaging in long-term partnerships with individuals and relevant communities. Open communication about the goals of a project and the disposition of samples is now standard. To promote trust in scientific research, researchers must now consider communicating with individuals and relevant communities to obtain renewed consent for any additional work or new consent for novel projects even when using previously collected data. Advocacy alongside individuals and communities may also be a part of researchers' personal mandate. Additionally, the research enterprise itself has begun to shift from us/them (researchers/participants) to a co-enterprise, with participatory research raising its own ethical challenges (e.g., Aungst, McGowan, and Fishman, 2017).

Moreover, the advent of the digital age and -omics era (e.g., genomics, transcriptomics, epigenomics, proteomics, metabolomics, phenomics, and exposomics) has brought new challenges to the concept of informed consent, namely, that its fast-paced nature has made it impossible to promise full, or even substantial, disclosure on the details of current and future research on biospecimens and data. In other words, the promises of genuine "informedness" (along with promises of privacy, anonymity, and confidentiality) in informed consent have become somewhat disingenuous. For this reason, researchers are pursuing novel models of consent, such as open consent (e.g., the Personal Genome Project; Lunshof et al. 2008, 2009) or dynamic consent (DC; Kaye et al., 2015) that focus on enabling trust between participants and researchers (Erlich et al., 2014) and promoting participant-centered approaches to research and informed consent (Doerr et al., 2016).

### **Toward increased data access and collaboration**

For the past dozen years, the National Science Foundation (among many other organizations and foundations) has required that all grantees have a data management plan before any grant is awarded. The plan must detail how primary data will be made available to the research community as well as how research results will be communicated to relevant publics. The NIH has long sponsored an online data repository, GenBank, where sequence data are placed prior to publication. Funding agencies also require clearance from IACUC or IRBs before funds are released. Scientific journals now require that manuscript authors indicate that primary data used are, in fact, accessible. Several journals also mandate that a statement that IACUC or IRB permissions to do the research have been obtained. Governments of countries with indigenous nonhuman primate populations may mandate a negotiated Memorandum of Agreement, Association, or Understanding between parties before work can begin. There may also be negotiated Material Transfer Agreements for samples or other relevant heritage items. There has clearly been movement to have more formalized, legal documents to protect the rights of the host country.

Scholars have begun to acknowledge that fragmented research data sets limit the utility of those data and, therefore, reduce the likelihood that researchers will make major discoveries. The “data sharing” movement emphasizes an open and responsible approach to the distribution of research data and results. Here, it is not just other researchers that have an interest in accessing data but also other stakeholders such as the research participants themselves and the general public(s). This has led several sources of research funding, such as the Bill and Melinda Gates Foundation in 2014 (e.g., van Noorden 2017), to adopt open access publication policies. Dissatisfaction with the limitations posed by data silos has prompted efforts, such as the Open Humans Network ([www.openhumans.org](http://www.openhumans.org); see, e.g., Richardson, 2015) or Platform for Engaging Everyone Responsibly, or PEER (<http://www.geneticalliance.org/programs/biotrust/peer>), to enable individuals to aggregate research data about themselves and facilitate their providing those data to enable new research inquiries. Data hoarders are facing increased criticism, and crowdsourcing research has gained some traction (e.g., Silberzahn and Uhlmann, 2015; Khare et al., 2016). While data “sharing” conflates distinct and important concepts of access and use (see, e.g., Prainsack, 2015), momentum is growing for creation of one or more “information commons” for biomedical research (e.g., Majumder et al., 2017), which could encompass much biological anthropology research as well. The 21<sup>st</sup> Century Cures Act, which became law in 2016, aims to facilitate broad data sharing for research purposes and includes two features (expanded application of NIH Certificates of Confidentiality and addition of a biomedical information exemption to the Freedom of Information Act, or FOIA) to strengthen research shields against compelled, involuntary disclosures of data. Managing research data responsibly has become and will continue to be a serious ethical challenge for the foreseeable future.

### **Toward more respectful and inclusive training**

The AAPA Code of Ethics, Section IV, deals with the subject of discrimination in student-teacher relationships. It explicitly states that individuals who are in the role of teacher should avoid discrimination, be fair, teach ethics, acknowledge the work of students and trainees, and avoid sexual liaisons, whether at academic institutions or in field situations. In addition

to professional codes, there is also a legal requirement to avoid discrimination. Title IX of the Education Amendments Act of 1972 Public Law No. 92–318, 86 Stat. 235 (June 23, 1972), codified at 20 U.S.C. §§ 1681–1688, prohibits discrimination on the basis of sex in any education program or activity that receives federal funding.

Yet, despite both professional admonitions and legal prohibitions, we know that discrimination continues to occur. For the past few years, there have been widespread reports not only of discrimination, but sexual harassment of women in other STEM fields including astronomy, geophysical science, medicine and psychology. Biological anthropology received public attention, first from the Survey of Academic Field Experiences (SAFE) study by Clancy et al. (2014) and later by allegations of harassment directed against a senior male researcher (Balter, 2016). The findings of the SAFE study indicated that about two thirds of junior individuals, both female and male, have been sexually harassed at field sites. Most of the harassment of women at field sites was from their superiors. This level of harassment was shocking and led the leadership of the AAPA to actively work to help reduce the occurrence of this type of harassment. Presidential sessions at the meetings were convened to talk about both harassment and discrimination based on sex, gender and other protected categories. Title IX workshops occurred, mentoring programs were strengthened, and notice was given to everyone attending the annual meetings that such behavior was inappropriate and would not be tolerated.

While the results of this study were shocking as to the extent of sexual harassment, the position of women in the field had received previous attention (e.g., Turner, 1997; 2002). For at least three decades there have been more female than male students entering the field, and yet there were fewer tenured and full female professors than would have been expected given the number of female students. In the past several years, due in large part to the work of Robin Bernstein and Andrea Taylor, who received a grant to help promote women in STEM fields, the association has instituted more mentoring and training activities. Women are in leadership positions in the association, although there has only been one woman editor of the *AJPA* in its entire history.

## CONCLUSIONS

As the AAPA has grown and changed over the decades, its practitioners have faced changing ethical challenges—how to study human variation and human and primate evolution in a way that adheres to the principles of autonomy, beneficence and justice? how to communicate information on human variation? how to study primate populations that are disappearing and in need of protection? how to train students in a professional and collegial manner? how to use our collective voice and expertise to benefit society?

We are clearly in a different place than we were in the past. The last 20 years have seen a greater attention to our ethical obligations than in the past. We have been confronted by issues that required attention and we have responded. There is a code of ethics for our professional lives; there is an ethics committee of the association that works to provide educational materials for practitioners; there is an attention at professional meetings to diversity in the profession and our obligations not just to study diversity, but to encourage it

in our professional lives. Most importantly, there is leadership that understands these obligations and works to encourage their fulfillment. Yet ethics in the discipline and in professional lives is an ongoing process, if only because new questions, and new technologies will force us to continue to examine issues. We are poised to do so and should feel encouraged by the growing attention to these matters.

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Table 1

## Selection of Relevant Codes of Ethics and Guidance

Organization	Document	Date Adopted	Date Last Revised	URL
American Association of Physical Anthropologists	Code of Ethics	2003		<a href="http://www.physanth.org/about/position-statements/apa-code-ethics-sexual-harrassment/apa-code-ethics/">http://www.physanth.org/about/position-statements/apa-code-ethics-sexual-harrassment/apa-code-ethics/</a>
American Association of Physical Anthropologists	Ethics Resources	N/A	2015	<a href="http://www.physanth.org/about/position-statements/apa-code-ethics-sexual-harrassment/ethics-resources/">http://www.physanth.org/about/position-statements/apa-code-ethics-sexual-harrassment/ethics-resources/</a>
American Alliance of Museums	Code of Ethics for Museums	1991	2000	<a href="http://www.aam-us.org/resources/ethics-standards-and-best-practices/code-of-ethics">http://www.aam-us.org/resources/ethics-standards-and-best-practices/code-of-ethics</a>
American Anthropology Association	Principles of Professional Responsibility (also referred to as "Code of Ethics" and "Statement on Ethics")	1971	2012	<a href="http://ethics.americananthro.org/category/statement/">http://ethics.americananthro.org/category/statement/</a>
American Association of Anthropological Genetics	N/A. None	N/A. None	N/A. None	N/A. None
American Psychological Association	Ethical Principles of Psychologists and Code of Conduct	2003	2016	<a href="http://www.apa.org/ethics/code/index.aspx">http://www.apa.org/ethics/code/index.aspx</a>
American Psychological Association	Guidelines for Ethical Conduct in the Care and Use of Nonhuman Animals in Research	2012		<a href="http://www.apa.org/science/leadership/care/guidelines.aspx">http://www.apa.org/science/leadership/care/guidelines.aspx</a>
American Society of Human Genetics	Code of Ethics	2006	2017	<a href="http://www.ashg.org/about/ethics.shtml">http://www.ashg.org/about/ethics.shtml</a>
American Society of Primatologists	Code of Best Practices for Field Primatology	2014		<a href="https://www.asp.org/resources/docs/Code%20of_Best_Practices%20Oct%202014.pdf">https://www.asp.org/resources/docs/Code%20of_Best_Practices%20Oct%202014.pdf</a>
Animal Behavior Society	Code of Ethics	1990	2004	<a href="http://www.animalbehaviorsociety.org/web/embedded/Animal%20Behavior%20Society%20Handbook%20August%202013.pdf">http://www.animalbehaviorsociety.org/web/embedded/Animal%20Behavior%20Society%20Handbook%20August%202013.pdf</a>
Archaeological Institute of America	AIA Code of Ethics	1990	2016	<a href="https://www.archaeological.org/sites/default/files/files/Code%20of%20Ethics%202016.pdf">https://www.archaeological.org/sites/default/files/files/Code%20of%20Ethics%202016.pdf</a>
British Association for Biological Anthropology and Osteoarchaeology	Code of Ethics	2008	2010	<a href="http://www.babao.org.uk/assets/Uploads/code-of-ethics.pdf?">http://www.babao.org.uk/assets/Uploads/code-of-ethics.pdf?</a> See also <a href="http://www.babao.org.uk/publications/ethics-and-standards/">http://www.babao.org.uk/publications/ethics-and-standards/</a>
International Council of Museums	Code of Ethics	1986	2004	<a href="http://icom-museum/the-vision/code-of-ethics/">http://icom-museum/the-vision/code-of-ethics/</a>
International Primatological Society	Code of Best Practices for Field Primatology	2014		<a href="http://www.internationalprimatologicalsociety.org/docs/Code%20of_Best_Practices%20Oct%202014.pdf">http://www.internationalprimatologicalsociety.org/docs/Code%20of_Best_Practices%20Oct%202014.pdf</a>
National Academy of Sciences	On Being a Scientist: A guide to Responsible Conduct in Research: Third Edition	1989	2009	<a href="https://www.nap.edu/read/12192/chapter/1#viii">https://www.nap.edu/read/12192/chapter/1#viii</a>
Society for American Archaeology	Principles of Archaeology Ethics	1996		<a href="http://www.saa.org/AbouttheSociety/PrinciplesofArchaeologicalEthics/tabid/203/Default.aspx">http://www.saa.org/AbouttheSociety/PrinciplesofArchaeologicalEthics/tabid/203/Default.aspx</a>
Society for Vertebrate Paleontology	Official Society Policy and Guidelines	Varies		<a href="http://vertpaleo.org/the-Society/Governance-Documents.aspx">http://vertpaleo.org/the-Society/Governance-Documents.aspx</a>
World Archaeological Congress	First Code of Ethics	1990		<a href="http://worldarch.org/code-of-ethics/">http://worldarch.org/code-of-ethics/</a>

\* Websites last accessed August 10, 2017

**Table 2**

Engaging Ethics in the AJPA over 99 years: Summary of Findings

Type of Content	Number of Items citing <i>ethic, ethical, ethics, etc.</i>	Number of Items Dated 2003 or More Recent (Percentage) Mentioning the AAPA Code of Ethics*	Number (Percentage) of Items Identifying <i>ethic, ethical, ethics, etc.</i> as Keyword	Extent of Ethics Engagement (number of mentions of <i>ethic, ethical, ethics, etc.</i> )
Article	143	15 of 123 (12%)	3 (2%)	Mean 2.329 Median 1 Mode 1
Book (Received, Reviewed, Literature)	52	1 of 44 (2%)	n/a	Mean 2.56 Median 1 Mode 1
Conference Materials	39	1 of 20 (5%)	n/a	Mean 3.41 Median 1 Mode 1
Other (Brief Communications, Letters, News and Views, Obituary, Dedicated Issue)	30	2 of 20 (10%)	n/a	Mean 1.93 Median 1 Mode 1
<b>Total</b>	<b>264</b>	<b>19 of 207 (9%)</b>	<b>3 of 143 (2%)</b>	

**Table 3**

Summary of Content Analysis of Articles Engaging Ethics

Type of Engagement with Ethics	Number	Percentage (of 143 Total Articles Engaging Ethics)
Mentioned in the main text	109	76%
Mentioned in the Title	1	< 1%
Identified as Keyword	3	2%
Mentioned in the Abstract	2	1%
Mentioned in the References	31	22%
Mentioned in the Acknowledgments	24	17%
Mentioned <i>only</i> as a statement of approvals/compliance	94	66%
Mentioned <i>only</i> in the References	17	12%
Mentioned <i>only</i> in a Footnote	1	< 1%

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