



Keeping Biological Anthropology in Anthropology, and Anthropology in Biology

ABSTRACT Considerable tension among the subfields has existed within the discipline of anthropology. As a result, some anthropology departments have splintered, and the hallmark "holistic approach" of anthropology has been considered more myth than reality. However, as promoted by the American Anthropological Association and the *American Anthropologist* for over one hundred years, enhancing the holistic nature of anthropology remains an important and necessary endeavor. This article provides an introduction to this special issue of the *American Anthropologist*, which focuses on the subfield of biological anthropology. Hopefully, as a result, increased connections among the subfields will be fostered, for the betterment of both biological anthropology and anthropology in general. The underlying theme of this article and the subtext for the entire special issue is clear: Biological anthropology needs anthropology, and anthropology needs biological anthropology. [Keywords: biological anthropology, subfields, four-field approach, holistic]

A FUNNY THING HAPPENED on the way to this forum. While composing my introductory comments for this special issue of the *American Anthropologist* (AA) devoted to biological anthropology, Robert Borofsky's (2002) provocative article entitled "THE FOUR SUBFIELDS" unexpectedly appeared in my mailbox. Contrary to my perspective that "holistic anthropology" is a hit, Borofsky declared it a myth. Yet far from feeling my comments had been subverted, I was elated that someone was dedicated (peculiar?) enough to read all 3,264 articles that appeared in the AA from 1899 to 1998, designate those considered to be "holistic," and place such helpful information at my fingertips. Although many may disagree with how Borofsky estimates the level of holism within the field, I appreciate that his methods are clearly outlined for future assessment and possible refinement by others. And, personally, I am satisfied with his general results, indicating that less than ten percent of all articles published in the flagship journal of anthropology in the United States exhibit the effects of subfield collaboration or integration. I am also surprised by, yet open to, his revelation that we never were as holistic as we claim to have been in the early days. However, a different interpretation can be drawn from his data, consistent with the original goal of this current issue: to foster increased holism within anthropology by highlighting the one area that may seem to some as the most dangerous or irrelevant of the subfields, biological anthropology.

UNSETTLING STATISTICS . . . OR JUST SETTLING IN?

Borofsky found it "unsettling" that only 9.5 percent of all articles published in the AA over a 100-year period possess substantive "subfield collaboration," despite 100 years of anthropologists advocating and promoting the benefits of holistic approaches (2002:464). In addition, according to his data, even the good old Boasian days of holism never existed, for in each decade prior to the 1960s, the percentage of articles he defines as holistic never exceeded nine percent. However, from the 1970s onward, the percentage never fell below 12 percent and reached as high as 18 percent. Although Borofsky may be justified in his assertion that anthropologists have never "walked the walk" of holism, I choose a more optimistic viewpoint: It is taking anthropologists a long time to crawl before walking holistically. And, perhaps unexpectedly to many, using Borofsky's own data, biological anthropologists appear to be at the forefront of the trend rather than acting as biological isolates in the anthropological world.

Prior to reading his article, I had done my own quick review of articles published in the AA during the 1990s, a data set so completely dwarfed by Borofsky's efforts that thankfully there is no need to include it. However, what immediately struck me was the number of articles in his holistic list that I recognized in my listing of biological anthropology articles. By my own estimates, only ten percent of all major articles published in the AA during the 1990s were written by biological anthropologists. If only 6.5 percent of members of the American Anthropological

Association (AAA) identify themselves in the biological subfield (Evans 1998), perhaps ten percent of all articles published in the flagship journal of the AAA is more than fair. But, more importantly, in his appendix 1, six of the articles in Borofsky's "holistic" list overlap with the 25 articles written from 1990–98 that I noted as "biological," just under one-quarter of my total and twice the overall average of 12 percent for the time period. Similarly, but based on the entire 100-year time frame, Jane E. Buikstra, Jason King, and Kenneth Nystrom (this issue) closely examined articles they classified under bioarchaeology and forensic anthropology that were published in the *AA* since 1899, and of those 29 articles in their reference section, I noted that over 27 percent (eight articles) appear in Borofsky's appendix 1. Like Borofsky, I recognize that others might bicker with how we derived these estimates. However, biological anthropologists seem to be doing a better job in their attempts to present more holistic research compared to the overall average for the discipline, at least as measured through the pages of the *AA*.

I am not sure, however, that biological anthropologists are any more holistic in their research publications that appear outside of the *AA*. On the contrary, perhaps because the *AA* is often perceived to be more of a "cultural journal" (see Ward this issue), it is possible that those biological anthropologists who view their work as more holistic are more likely to target the *AA* to send their manuscripts. Others may contend that biological anthropologists who submit articles to *AA* have been held to a different standard by past editors to illustrate the holistic value of their work. I have absolutely no evidence of the existence of such an editorial double standard, but if it indeed has been the case, I am in favor of keeping the bar raised high for everyone, rather than relaxing the expectations of biological submissions. Every subfield has its own specialized outlets for publication, so each should be expected to meet the holistic goals of the *AA*, at least at the estimated 25 percent level of biological anthropology. In addition, editors can only do so much with what they are sent, and my guess is that if only those manuscripts that met the high holistic standards espoused by the journal were accepted, 90 percent of manuscripts would have been rejected. Thus, rather than dwell on past, present, or future editorial decisions, anthropologists and anthropology would be better served by submitting more manuscripts attempting to meet the holistic goals of the *AA*.

In this special issue I asked all authors to clarify why anthropologists in other subfields would find their article relevant, again, a standard I believe to be reasonable for every article in the *AA*. No article is likely to achieve that high expectation in the eyes of every reader, but the goal itself (not simply of this current issue but of the *AA* for over one hundred years) is a good one. Indeed, it is important to remember that even while referring to holistic anthropology as largely a myth, Borofsky concluded that we should seek and encourage new forms of holism. Being

only ten percent of the way along the road to holism is a start, not the end.

WHY BIOLOGICAL ANTHROPOLOGISTS SHOULD BE CONCERNED

While attending the AAA's Annual Meetings in recent years, several biological anthropologists expressed concerns that some graduate programs in biological anthropology are not really training students as anthropologists nor as biologists. After noting that most faculty positions still require a broad background in anthropology given the range of courses new faculty are expected to teach, Linda D. Wolfe stated the following: "We do our biological anthropology graduate students a disservice when we do not foster their identity as broad-based anthropologists and do not encourage them to participate in AAA meetings" (2001:52). She also suggested that "the desertion of biological anthropologists from the AAA has harmed biological anthropology . . . and has perhaps resulted in fewer academic positions" (2001:52). AAA conferences still present great opportunities to keep the anthropology in biological anthropology, as well as highlight and reinforce the importance of keeping the biology in anthropology.

Further, based on my years of teaching and advising at the undergraduate level, I have long felt that students who migrate from biology into anthropology programs commonly do so because of the "cultural connection" to their biological interests, even though they may not prefer their cultural course requirements. Anthropology offers something more to them than biology alone. Similarly, although few cultural-leaning students take more than the absolute minimum in biological anthropology to complete the major, often the very best ones do, especially when they expect that the courses will examine some biological connections to their interests. Although faculty may not always get along across the subfields, it is neither appropriate nor beneficial to discourage undergraduate students from the four-field approach (especially those students who have difficulty choosing a particular area for graduate school because they enjoy each subfield).

Fearful that my personal sense of why students migrate into biological anthropology seems merely anecdotal, I remembered that the *American Journal of Physical Anthropology (AJPA)* began each monthly issue in the year 2000 with reflective articles by prominent biological anthropologists regarding the discipline. It is critical to note that, unlike my comments in this article, there was no underlying agenda to promote holism, and that the commentaries appeared in a journal specifically targeting biological anthropologists. However, one might never realize it by the articles themselves, since the majority of authors not only independently mentioned the importance of a holistic approach but also seemed to confirm my own views about my students and early interests in anthropology. For example, as an undergraduate, Christopher Ruff was drawn to the work of a human geneticist "because he

had written widely on cultural-biological interactions" (2000:1), and, as a professional, Ruff admits that the engineering component to his research in biomechanics "would have been wasted without the full anthropological (including cultural) context" (2000:2). Emöke Szathmáry's early attraction to anthropology and eventually human population genetics came not during but *after* the biological component of a course she was taking, when "biological and social perspectives came together for me at that moment" (2000:150). Primatologist Linda Fedigan wrote: "I have seriously considered a career in each of the major subdisciplines of anthropology" (2000:451), and "what always reaffirms me as an anthropologist is the biosocial or biocultural perspective, the broad but integrated (cross-disciplinary) possibilities of anthropology" (2000:453). And, finally, Phillip Walker, whose research into dental wear expanded into "a broad range of issues relating to human biological and cultural change" (2000:147), offers perhaps the best characterization of why many people initially find anthropology. Walker candidly admits his interest was piqued after discovering "a department that gives classes on archaeology, monkeys, and people from weird places" (2000:145), a pleasant reminder that many of us once entered anthropology because we thought it was, dare I say it, fun. Personally, it is easy to see why skeletal biologists, geneticists, and primatologists would be drawn to anthropology for similar reasons, since anyone so intrigued by human biological diversity to make a career in it also seems likely to find human cultural diversity both fascinating and highly relevant to their interests. Although none of the monthly *AJPA* commentators was asked to do so in their assignment, nine of 12 authors made specific references to the importance of the interaction of culture and biology in establishing their initial interest in anthropology, or in their current research, or both.

Given our great interest in the interaction of culture and biology, we clearly learn from members of each subfield. True, biological anthropologists may not want to constantly hear that all research is biased, but reminders and examples of that message continually benefit our research (see Strier this issue). "Indeed, critics are essential to a vibrant science, and harsh criticism should not make osteologists timid" (Armelagos and Van Gerven this issue), nor should it frighten any other anthropologists. If those critics are not simply and irrevocably antiscience in general (see Cartmill 1994; and more on this later) and do not view research bias as hopeless or the unstated political agenda of all scientific research, but, instead, as something to be made explicit and to be minimized as much as possible, then there is hope. It is clear throughout numerous articles in this issue that we need and benefit greatly from our critics. Let's face it, the history of biological anthropology and all of anthropology is far from one to point to with unabashed pride, and we are still paying for mistakes made in past assumptions that affect current conclusions. Lessons learned in one subfield on how to recognize or

minimize our biases can be shared to the advantage of the field as a whole.

If, as a biological anthropologist, you feel you are unwillingly being pushed out of anthropology, my recommendation is simple: Quit whining, don't drop out, push back, and help satisfy your biological needs by shaping the future of anthropology in directions you deem appropriate.

WHY ALL ANTHROPOLOGISTS SHOULD BE CONCERNED

Name one species studied today for which the biology of that species is considered unimportant. Humans are indeed behaviorally unique in many ways, there is no doubt about that fact. Even those who argue that some nonhuman primates possess culture or language agree that those primates are not nearly as culturally or linguistically complex as modern humans. However, such cultural and linguistic complexity has biological bases that permit us to be uniquely different from other species, each of which is uniquely different from us. To ignore biology is tantamount to invoking a creationist perspective on humanity, believing that at some point during our evolutionary history, our evolutionary history no longer mattered.

How can any discussion of the problematic concept of race, as perhaps the most obvious example, be satisfactory without some consideration of human biological variation? Doing so would be as ludicrous as addressing the concept without any reference to cultural views on race. Clear recognition of the important cultural and biological bases (or, in this example, the lack of biological bases for race) of an issue is exactly what anthropologists should bring to the table in most discussions of human behavior, thereby providing a comprehensive point of view lacking in most other disciplines. Anthropologists do tend to unite on one viewpoint: that is, that no one listens to our unique perspectives as much as we think they should. But if people want to learn about their own society without taking biology into consideration, they can consult sociologists or even the newspapers. If their interest is purely biological with little if any consideration of culture, they can listen to biologists or ask their physicians. Yet, for similar reasons as to why many of the best undergraduate students choose anthropology as a major, many people are most stimulated by work that is relevant to both their biology and their culture, and no one should be more equipped to do that work than anthropologists.

The choice is yours. You can: (1) completely ignore human biology as part of your understanding of what makes us human; (2) get your biology from those in other departments who think only of snakes when they see Boas; or (3) interact with your departmental biological anthropologist for your mutually beneficial education. Anthropology's distinctive approach to the study of biology is a direct result of the contributions from each subfield that have enhanced our understanding of human biology.

WHAT HAPPENED IN THE 1990S IN THE AA?

My personal impression is that many biological anthropologists felt abandoned by much of anthropology during the past decade, or eagerly exited on their own, and felt that their work was no longer desired in the pages of the *AA*. If the latter is true, it certainly was not reflected in the published editorial comments of the *AA*. In 1990, when Janet Dixon Keller assumed the role as editor-in-chief, she commented that “the core of today’s research cuts across the subdisciplines and creates novel and interesting overlaps” (1990:585). After noting the historical role of the *AA* as a “centralizing journal” in anthropology, she stated: “In the face of proliferating specialization and cross-disciplinary ties, we are confident the *American Anthropologist* can highlight both unifying themes and diverse perspectives through the publication of significant research and theoretical reflection on questions within the discipline” (1990:585).

Four years later, Barbara Tedlock and Dennis Tedlock wrote: “There are terrific tensions in anthropology, and we want the [*American Anthropologist*] to be a place where they can be worked out in a constructive fashion, not in a shoot-out” (1994:521). They also contended, “It is time we stopped fighting and got on with the work of showing our neighbors on both sides that they haven’t even begun to deal with the full range of human diversity and that no one knows how to do that better than anthropologists” (1994:521).

Four years after Tedlock and Tedlock’s call for unity, Robert Sussman promised to “follow the mission statement and goals of the AAA by advancing anthropology as the discipline that studies humankind in all its aspects, involving archaeological, biological, linguistic, and sociocultural research” (1998:605). He also added that “anthropology has a great deal to say about current worldwide events and problems” (1998:605) and looked toward “expanding interdisciplinary communication and including individuals with current research interests in all areas of anthropology” (1998:606).

Whether or not each of these editors succeeded in the mind of each AAA member is unimportant compared to the relevance and the consistency of the statements made in print. The holistic nature of the *AA* has always been important to the discipline and has been further reinforced and strengthened by the current editors (see Mascia-Lees and Lees 2001). To help achieve greater holism, we as contributors must make greater efforts to submit manuscripts more suited to the goals of the *AA* and, when doing so, speak a familiar language. Again, although it is good to reflect on the past for many purposes, in this regard I would argue it is simply better to focus on the future. The door is wide open for biological anthropologists (and all anthropologists) to participate in the AAA and publish in the *AA*, as clearly illustrated by recent attempts by AAA officers to enhance our participation at conferences, by the current editors contacting the American Association of Physical

Anthropologists (AAPA) (see Lees and Mascia-Lees 2001) regarding contributions to the journal, and by the interest and support of the current *AA* editors to publish an issue such as this one. Biological anthropologists need to “walk the walk” through that open door.

SPEAKING IN TONGUES

Returning to comments of previous editors through the 1990s, Keller asked contributors “to reflect and write for the profession at large” (1990:585). Similarly, Tedlock and Tedlock stated: “All our authors should set the goal of tempting readers in neighboring fields to cross over into their own. This will require authors to give a foretaste of what is most interesting and engaging about their work right up front and to demystify specialized jargon” (1994:521). Again, the same message was driven home by Robert Sussman: “I believe that clarity of writing and minimal use of jargon are necessary in order to allow individuals from all subfields and fields outside of anthropology easy access to articles and reviews within the journal” (1998:606).

The *AA* continues to be remarkably consistent in its pledge to “encourage contributions written in a language that we all, as trained anthropologists, can understand” (Mascia-Lees and Lees 2001:9). However, once again, editors can only do so much, and I believe that whether the *AA* succeeds or not at these goals ultimately depends more on the contributors. We may publish a lot within our specialties, but, in general, we do not write nearly as well for larger audiences, and then we often admonish those outside the field (e.g., Stephen Jay Gould, Jared Diamond) who attempt to represent our work. Before we complain about people outside of the discipline not listening to us more, we should at least be able to write so that people within the discipline can listen and learn from what we are saying. In the process, I believe this would not only benefit anthropology as a whole but also each subfield individually. There are numerous places to publish articles regarding the various specialized components of biological anthropology, and it makes good sense to publish in those specific, targeted journals. But the best data and the best research also need both the attention, as well as the critique, of a broad anthropological audience, and the further dissemination of that well-grounded, more holistic research to an even wider nonanthropological audience.

COMMON GROUND?

In 1997, Barbara Ehrenreich and Janet McIntosh recounted an exchange between social psychologist Phoebe Ellsworth and a very tough audience. After Ellsworth noted that some good things had resulted from scientific experiments, such as the discovery of DNA, the conversation abruptly ended when someone replied, “You believe in DNA?” (Ehrenreich and McIntosh 1997:11). Biological anthropologists should and do listen to good critiques of their work from their colleagues within the discipline, and

the best in the field try to do whatever they can to understand and minimize bias in the assumptions, language, and methodology of their research (see Strier this issue). However, we can only go so far. If the only response to the paper on population genetics is that DNA is simply found in the imagination of hegemonic white males, the conversation is over. More broadly, if our biology does not matter at all in regarding what makes us human, there can be no common ground at all. As much as I obviously favor holistic anthropology at this time, if large segments of the discipline make no room for scientific approaches to understanding humankind, then biological anthropology deserves a new home.

Fortunately, there is good news for both biological and cultural anthropologists on at least two fronts. First, as illustrated by their own publications, oral presentations, and personal comments, many cultural anthropologists are as frustrated as we are by the antiscience rhetoric within the discipline and value the scientific research principles that we so dearly embrace (such as hypothesis testing, explicit methodologies, systematic data collection and analysis). Biological anthropologists can assist in attempts to empirically assess and understand human sociocultural variation, which as a result will continue to help our attempts to comprehend human biology. Second, as I believe the articles in this forum indicate, today's biological anthropology is not your great grandfather's physical anthropology so often feared and legitimately distrusted by those in the social sciences and humanities. It is unfair to equate any discussion of possible biological bases of behavior with "biological determinism," a concept that biological anthropologists detest and dismiss as much as anyone in any subfield (see Caspari this issue), and, perhaps, with greater understanding as to why it does not work.

As one example, I return to Ehrenreich and McIntosh, who went on to comment:

By the mid-1960s, any role for biological commonalities in cultural anthropology was effectively foreclosed when Clifford Geertz remarked that "our ideas, our values, our acts, even our emotions are, like our nervous system itself, cultural products." [1997:12]

Well, stop the foreclosure proceedings, because Geertz was actually right. But he was only half right. Our nervous system is indeed a product of our culture, for certainly any individual's brain would have developed differently if that person were raised in different times, places, families, and conditions. However, despite the highly variable cultural influences, that brain would be ready to perform some uniquely human functions, predisposed but far from destined to lead to certain behaviors, as well as some more general primate and mammalian functions. Thus, I have no problem with Geertz's quote, as long as one also agrees that by substituting the word *biological* in place of *cultural*, the sentence would also be right, yet still only half right. To be more parsimonious with words and more accurate, I would paraphrase his quote by adding only three letters:

"Our ideas, our values, our acts, even our emotions are, like our nervous system itself, *biocultural* products." Cultural determinism is not the appropriate antidote for biological determinism.

Today's biology recognizes that biology does not equal genetics, and that genetics does not equal destiny nor inflexibility, and not because we are unusually complex life forms but because of our similarities to other animals. In the classic example of honeybee queens, who at the larval stage were fed "royal jelly" and as a result led enormously different lives than their worker sisters (who consumed a more generic diet as larvae), genetics does not make a female bee a queen bee. Genetics, with the required dose of environment (or vice versa), can lead to remarkably different biologies, both behaviorally and morphologically. Genes do matter, since male larvae will not become egg layers, but those genes of one female permit astoundingly different lifestyles under differing environmental conditions.

Despite the divisions and the tensions between biological anthropology and primarily cultural anthropology, as we learn more about the complexities of human behavior and biology, I do not think we should be so far apart. In many ways the gaps in how we look at the world are narrowing, but the perception of those gaps lags behind and is often still portrayed in outdated and useless "nature versus nurture" dichotomies. Biological anthropologists have learned a lot in the past 100 years, and some of that learning process is reflected in the pages of this issue. Common ground should not be difficult to achieve, and to do so, solid scientific research must be viewed as an important contribution to our understanding of what makes us human.

ONE EXAMPLE

Chimpanzees just cannot catch a break. Just at the time when biological anthropologists proclaim that there are cultures of chimpanzees, cultural anthropologists argue there are no cultures of humans. As the odd, rather reverse human-nonhuman dualism continues, so does the need for increased communication across subfields.

I understand why many "postmodernists" dislike the term *culture*. It is basically the same reason why many "bioanthropologists" have problems with the term *population*. The term *culture* tends to create an "essence" out of great diversity, changing something highly fluid into something boxed-in and static, thus creating "types" where no types exist. Thus, cultures can do exactly what populations can do to continuous human variation (see Armelagos and Van Gerven this issue; Caspari this issue). Yet it is tough to get postmodernists and biological anthropologists to talk to each other about the same problem, even though we seem to be independently working on the same solution. Despite difficulties with the term *culture*, a possible remedy is to examine "cultural" differences without defining essentialist "cultures." Also, despite the misuse of

populations in ways characteristic of essentialist races, “populational” thinking is the ultimate goal for biological anthropologists, as well as postmodernists.

There, two major problems solved by changing word endings to “al.” When combined with my remedy of Geertz’s controversial quote by adding the prefix *bio* to *cultural*, that makes three thorny issues solved by using only seven letters. Before being reviled as a crazed reductionist, I must make it clear that I do not mean to trivialize the extremely important points that anthropologists are making about cultures and populations, because how we examine these “groups” is absolutely critical to the value of our research perspective (again, see Armelagos and Van Gerven this issue; Caspari this issue for ideas on improving our research directions). However, we should also keep in mind that to the vast majority of the world, endless debates alone on the subject simply sound like we are arguing “to-may-to, to-mah-to” at a time when cultures and populations are killing each other and when we want others to pay attention to us. Borofsky (2002) also reached a similar conclusion in his call for a new holism within anthropology. Thus, far from trivializing the individual arguments, my point is that enhanced communication within anthropological subfields can increase mutual understanding of very similar and important concerns, hopefully resulting in better usage of the research derived from those ideas to benefit and educate nonanthropologists.

Interestingly, one of the best articles relating to the subject of populational thinking, in my opinion, was not written by a biological anthropologist, although not surprisingly it appeared in the pages of the *AA*. John H. Moore’s (1994) “The Ethnogenetic Critique of Cladistic Theory” should be required reading for anyone analyzing relationships within one species, human and nonhuman alike. His biological and ethnographic analogies are relevant to comparisons of populations, cultures, and languages, and to every article in this special issue. At the end of his article, Moore also made a pitch for holism by suggesting that the Human Genome Project, highly controversial within biological anthropology itself, has the potential to bring the subfields of anthropology back together.

Indeed, perhaps where we disagree the most is where the overlap is greatest and communication most needed. Given the immense complexity of the interactions of biology and culture, we need all the help we can muster to understand it. Where there is intellectual overlap, there can and should also be a two-way street of methodological overlap (see Leslie and Little this issue; O’Rourke this issue; Strier this issue).

PALEOANTHROPOLOGY AS A WHOLE MODEL?

Can the holistic research of an author be measured in a single article? In articles written with holism in mind, I would say yes. However, long ago I first learned of how modern paleoanthropology was greatly advanced by researchers, such as F. Clark Howell, who realized that one

person cannot do it all in the field and, instead, brought numerous specialists to their sites. Sure, it is important for a paleoanthropologist to have a strong background in many different areas of study but unreasonable to expect a Ph.D. in anthropology to do a better job at unlocking the geological secrets of a site than a well-trained geologist. The same can be said for botanical descriptions, or extracting DNA if present in the fossils, and so on. Paleoanthropology became more holistic by being more multidisciplinary, a trend found in all the articles of this issue, as anthropologists sought links to their research outside of anthropology. In this sense, to be holistic means to make excellent, coherent use of all the specialized, relevant information provided from experts, both in the field and in published literature (see Ward this issue and Hawks and Wolpoff this issue). Often such an approach is not reflected in each individual research article, such as a description of new fossil material, nor should it be. Highly specialized articles in specialized journals are still very important, necessary articles when they are the products of good data and excellent research. Thus, there is ample room in anthropology for those who want to be specialists, where, just as in medicine, advances could not be made without highly focused research. However, in both cases, the value of the work is minimal unless it is communicated beyond those doing the research.

In addition, some articles and ideas have major impacts on more than one subfield without being holistic themselves, or even being located within the field of anthropology. For example, early defining work in radiometric dating revolutionized parts of biological anthropology and archaeology without gracing the pages of anthropology journals. Similarly, within anthropology itself, research could be clearly located within a particular subfield yet have a significant impact across subfields, provided that others have reason to read in different areas and authors write so that others can understand.

Finally, although holistic research sounds good, it is obviously difficult and not everyone is capable of doing it well. Clearly it is unreasonable to expect a human geneticist interested in migration patterns of Pacific Rim populations to substantiate his or her work by also expertly excavating relevant archaeological sites, while observing daily life and deciphering the linguistic connections among all groups for which he or she has DNA samples. (Not to mention the graduate program requirements needed to produce such a scholar, in which Ph.D. candidates in anthropology might be in graduate school for 25 years instead of only 15.) And, according to Borofsky (2002:474), even Boas, Kroeber, Steward, Sapir, and Hrdlička were not good at writing holistic articles, thus providing the first opportunity for me to include my name among that illustrious list. Yet scholars from each subfield can point to Boas, for example, for important lessons learned, both good and bad, in their particular area. Indeed, the fact that Boas’s name appears in numerous articles in this issue, which would be true regardless of which subfield was focused on,

may be a better indicator of his holistic tendencies than the fact that only two of his articles appear in Borofsky's holistic appendix. But even if anthropologists are more holistic than it appears in Borofsky's data, we reach the same conclusion: The discipline can do better. While every article published in anthropology need not register as holistic, I would argue that most, if not all, that appear in the *AA* should do so.

A BEGINNING, NOT THE FINAL WORD

Given the nature of how journal issues such as this are assembled, many voices that deserve to be heard will not be heard, and even the breakdown of topics of individual papers can be debated. Clearly it is impossible to exhaustively cover and reflect on 100 years of any subfield of anthropology, with an eye toward the future, in a short series of articles. Thus, I ask all anthropologists to view this as only a beginning toward increased efforts to share information across the subfields, not as the final word on the matter nor the best or only way to proceed. Hopefully the unsettling statistics that Borofsky reported will eventually be transformed into a long-term, positive trend toward increased holistic research within an increasingly integrated discipline of anthropology.

As illustrated by the articles comprising this issue and as noted earlier, our insights and perspectives into the important question of who we are as a species have come a very long way in the past 100 years. As one example, Carol Ward notes that not only did most everything we know about our origins arise during the past century but also the question of becoming "human" is now different from how we became the early bipeds she refers to as "hominins." Moreover, as Dennis O'Rourke points out, data sets contained in a single article in genetics today can dwarf all that was known on the subject prior to 20 years ago. Within each area of the subfield, empirical data have grown at an exploding, exponential pace, so much so that it is often difficult to keep up with the current literature, much less review the past 100 years or more.

However, as members of a discipline enamored with investigating the past, it would be both inconsistent and naive to ignore what was "known" long ago, or think that it has little or no relevance to our ways of thinking today. Indeed, several articles in this issue (see Armelagos and Van Gerven this issue; Caspari this issue; Hawks and Wolpoff this issue) might be accompanied with a cautionary warning to readers: Detested theories in your rearview mirror may be larger in your current research than they appear. Each area has a complexly interwoven theoretical past that influences our questions, interpretations, and approaches of today. Thus, it is unwise to invoke history only to raise some "crazy ideas" of the past as foils for what we now think we know, while ignoring how many of those ideas advanced or perhaps still impede our understanding of key issues today. Plus, for our own selfish interests, I am not sure how long it takes for state-of-the-art

research to be transformed into a crazy idea of the past, but, hopefully, 100 years from now there will be anthropologists taking time to recognize the value behind the ideas expressed in this issue. After all, if the discipline is still healthy in 2103, both 1903 and 2003 will commonly be lumped together as a time when we knew relatively little and were technologically impoverished by comparison but had some important ideas that advanced the discipline.

Along those lines, George Armelagos and Dennis Van Gerven clearly remind us that "Where we are today is very much a reflection of our past" (this issue). Similarly to the article by Leslie and Little, they give credit to holistic approaches for advancing parts of the subfield, in their case noting that the linkage of archaeology and skeletal biology has made it possible to better answer significant questions concerning the adaptation of ancient populations. Further, according to the authors, required in any bioarchaeological study is the recognition of culture as an environmental force affecting and interacting with biological adaptation.

Throughout her article on race, Rachel Caspari examines both the scientific and the social influences on how anthropologists have viewed, and now view, the race concept. She concludes that although we like to dismiss race as a biological reality in favor of populational thinking, parts of biological anthropology are still plagued, often unknowingly, by typological models and thought. Indeed, Armelagos and Van Gerven not only reach a similar conclusion about work related to skeletal biology but also lament the unexpected and possible increase of typological work in recent decades.

Jane Buikstra et al. maintain a more favorable view of current research in forensic anthropology than do Armelagos and Van Gerven and also comment that bioarchaeologists today work on a great array of subjects, such as "the body, gender, violence, ethnicity, agency, and sacred landscapes" (this issue). Given only that list, I doubt anyone could identify a subfield that has sole ownership of interest in those topics. This, of course, is just a partial list, to which one could add nutrition, ecology, language, cognition, technology, death, and many more areas of mutual interest across the subfields. Yet the authors also express concern about parts of subfields becoming so specialized that "they are of interest only to their practitioners" (Buikstra et al. this issue), which as already noted can echo throughout all of anthropology. Buikstra et al. suggest "a return to tolerance and inquisitiveness on the part of all anthropologists, including both bioanthropologists and our postmodern colleagues, would create an atmosphere conducive to 21st-century debates and the exchange of new ideas" (this issue).

Karen Strier presents another case for unity of the discipline, and, perhaps, from one of the areas least expected. According to Strier, 20 years ago research in primatology seemed irrevocably heading into biology departments and away from anthropology. Yet today she characterizes

primatological research as returning to ethnographic approaches, notes contributions made by cultural anthropologists (particularly in areas of social transmission and social negotiations), and discusses points of convergence between subfields and the ways that primatology might contribute methods to cultural anthropology. Interestingly, better populational thinking in primatology was also enhanced by conservation biologists, who seemed better at it than many anthropologists. Thus, Strier provides an excellent example of the benefits of both multidisciplinary and increased intradisciplinary work to advance our knowledge within a particular research area.

Carol Ward also recognizes the importance of multidisciplinary approaches on paleoanthropology, while still commenting that “the future of paleoanthropology, as with all branches of anthropology, will be more integrative” (this issue). Ward sees human origins research as the foundation of anthropological research, stating that “When we do not read and consider the breadth of approaches to understanding humans we lose the nature of our discipline, and lose our ability to accurately understand ourselves” (this issue). Clearly, our evolutionary history does matter to Ward, specifically in the kinds of questions we ask throughout all areas of anthropological research.

Dennis O'Rourke presents information regarding advances in genetics that, again, stagger the mind. Right from the start, he notes that genetics is now a part of our “popular culture.” Heavily influenced by multidisciplinary approaches, and often discussed among specialists in almost a necessary language of its own, anthropological genetics is as tough to keep up with as it is important to track. Anthropologists of all areas need to keep pace with new developments in human genetics given their widespread interest and relevance to our students and to the public, and anthropological geneticists should not only be best equipped to keep us informed but also able to benefit from the critique of the entire anthropological community. O'Rourke also notes how methodologies used by geneticists have been adopted by others, and discusses the impact of genetic research on modern human origins (in ways that would not please everyone in this issue).

Paul Leslie and Michael Little's article also provides evidence of just how different some areas were not that long ago. As a primary example, they note that during the 1950s and 1960s, a fundamental assumption of many physiologists was that all humans will respond in similar ways to environmental stress. They specifically attribute biocultural studies of human groups, with strong influences from sociocultural anthropological traditions, as playing a major role in overturning faulty assumptions about the nature and extent of variation, in large part by studying a wide range of non-Western populations. They also argue that work across disciplines should travel in both directions, such as between human biology/ecology, and political ecology/economy. In their eyes, they see a future of human biology as having an increased basis in evo-

lutionary theory combined with an increased awareness of socioeconomic and historical contexts.

Finally, John Hawks and Milford Wolpoff illustrate that articles that have appeared in *AA* on the subject of human origins during the past century have been characterized by their integrative approaches rather than disengagement from anthropology. Similarly, elements of all articles in this issue (genetics, skeletal biology, race, etc.) are woven into their discussion of human origins, just as all subfields of anthropology have had contributions to make on the subject. Hawks and Wolpoff contend that even though human origins research has been advancing at a remarkable pace in terms of fossil discoveries, it has not been nearly as agile in terms of theoretical developments and, instead, has been plagued by frequent reformulations of older, scientifically unsound ideas.

As an important clarification, and in fairness to each contributor, it must be made clear that authors were not asked to focus on the need for holistic research in their articles. The fact that my own article emphasizes holism is largely a direct response to Borofsky's (2002) important article, which appeared after the authors had submitted their drafts, and also because of the introductory nature of this article. Nonetheless, some attempt was made by each author to discuss their areas of interest in ways that would hopefully be useful across the discipline.

BACK TO THE FUTURE

Three years ago at a conference, I made the case that large data sets based on skeletal samples are often melted down into a single summary statistic, and that “centroid” is then typologically and erroneously used to represent the entire population. I was very proud of that small pearl of wisdom. Armelagos and Van Gerven (this issue) note that Boas wondered how the average of skeletal measurements can represent the norm, if averages are derived from the sum of deviations. Now I take great pride in the fact that both Boas and I came up with basically the same idea around the turn of the century. Reflecting on the past often reminds us that for better or for worse, that ground has often been covered before, and, even more importantly, may have influenced us in ways we do not realize.

Regarding our past, future, and the four-field approach, Christopher B. Ruff perhaps summarized the thoughts of many in anthropology when he wrote the following: “I have not done a formal survey, but my impression is that this tradition is fading . . . in some prominent cases this has led to the actual breakup of departments” (2000:2). Indeed, in addition to Borofsky's (2002) important article, attempts to assemble my thoughts on keeping anthropology together were further complicated by numerous e-mail messages regarding the splintering of another department of anthropology at a major university. According to these reports, some are suggesting that biology and anthropology just do not mix, that biological anthropology is dead (a view that was also expressed 31 years ago at the

annual AAPA meeting and is still being made despite the subdiscipline being stronger than ever in terms of Biological Anthropology Section [BAS] membership and attendance at AAPA conferences), and that outside of community colleges, the notion of a four-field anthropological approach has been recognized as "useless." As an anthropologist, and as a current member of the BAS Executive Committee, I could not disagree more with the characterization of four-field anthropology as a "useless myth."

Nonetheless, I have wondered if the four-field approach is outdated or nonexistent, since it seemed like one department after another is accepting that notion and splitting. However, when I checked the *AAA Guide 2001–02*, I was surprised to find that those "prominent" departments that split are about the only programs to have done so. Of the 88 Ph.D. programs in anthropology, only Duke, Cornell, and Stanford appear to have split their cultural and biological sides (although Boston University has long maintained a separate archaeology department, Columbia appears on the verge of splitting, and the University of Chicago has drastically reduced their commitment to biological anthropology). Other departments that I am unaware of may be splitting soon, but that would not change the fact that the vast majority remain intact.

This is not to say that all faculty currently are happy with their department of anthropology still being together. But even many of those who have split recognize the importance of biocultural work, as clearly stated by Matt Cartmill at Duke in another of the aforementioned 2000 *AJPA* commentaries: "The study of modern cultures and societies needs to be an integral part of our efforts to reconstruct the past" (2000:146). Cartmill (1994) has characterized the dissatisfaction among biological anthropologists in recent years much better than I could possibly do, and I recommend his address in *AJPA* for coverage of that ground. Yet his views clearly remain consistent with those expressed by, for example, Clark Spencer Larsen, in yet another *AJPA* commentary that did not need to address the topic of holism. When Larsen commented that "the strength of our discipline lies . . . in our distinctive approach to the study of biology" (2000:2), he was referring to biological anthropology as "our discipline," but the same holds true for anthropology in general. Anthropology provides a distinctive approach to biology, and vice versa. According to Larsen, "our science understands the importance of culture in influencing the various behaviors that impact our biological world," and "our holistic approach has important practical implications" (2000:3).

After years of listening to both rancor and rumor about biological anthropology's place within anthropology, the 100th Annual Meeting of the AAA seemed an important time to try to put some of the pieces back together for the next 100 years, especially given that so many of my experiences did not match the divisive rhetoric. Anthropological archaeologists and anthropological linguists have always seemed adept at and interested in bridging culture and biology in their subfields, and most biological

and cultural anthropologists that I know seem to favor the four-field approach despite the tensions. My reading of personal commentaries and the articles comprising this issue, all from prominent biological anthropologists, has only solidified and substantiated my viewpoint. True, James Wiseman (2002) has recently made his case for why archaeology at Boston University has flourished as its own department. However, I could easily counter that not only archaeology but anthropology in its entirety would be nonexistent at Loyola University Chicago (and I would imagine many other programs across the country) if anthropologists would have been divvied up into different departments 20 years ago, which almost happened. Instead, the program is now stronger than ever. In general, it is a very hard sell to nonanthropology departments to ask current faculty members to replace an anthropologist incorporated into their program years ago with another anthropologist, and, thus, very risky in the long term to divorce over what may be more of a two-decade spat than truly irreconcilable differences. (Again, note Strier's comments on primatology, 20 years ago and today.) Rather than splitting, the majority of anthropology programs should be more concerned with strengthening the four-field approach on our campuses, including anthropological linguists in all departments of anthropology, not just someone who happens to have a related interest in language and culture. As this issue plainly illustrates, staying together does not and should not be interpreted as a retreat from multidisciplinary approaches or all specialized research. On the contrary, holism should enhance both our desire to be multidisciplinary and our attractiveness as a discipline for others seeking our input.

Although some may be dissatisfied with a simple definition of anthropology as "the study of humankind, both biologically and culturally, throughout time and geographic space," can anyone disagree with the importance of such a field of study? It is sadly ironic that anthropologists have such great pride, love, and respect for cultural and biological diversity yet show considerably less tolerance for intellectual diversity within the discipline. Anthropology, holism, and the goals of the AAA and AA are all great ideas, and always will be, whether they survive the next 100 years or not. If in reality anthropology today is not very holistic, it should be, and we should continue to "talk the talk" of holism, even if we stumble in our attempts to "walk the walk." Similar to the fact that the human brain is a biocultural product, constructed through the complex interaction of genes and environment, humanity itself is a biocultural product, best understood through biocultural approaches.

Given the admirable goals of anthropology, but the still-clumsy execution of those goals, perhaps the main problem today is not "anthropology" at all, but "anthropologists." The definition and the holistic goals of anthropology can remain intact and can work, but anthropologists need to change to make anthropology work, and to do that we must first communicate better with each other

and then more effectively communicate our ideas to non-anthropologists. Hopefully this special issue will play some minor role in advancing and encouraging more biological anthropologists, cultural anthropologists, linguistic anthropologists, and archaeological anthropologists to “walk the walk” of holistic anthropology this century.

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NOTES

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