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Author(s): Vassiliki Betty Smocovitis
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Humanizing Evolution

Anthropology, the Evolutionary Synthesis, and the Prehistory of Biological Anthropology, 1927–1962

by Vassiliki Betty Smocovitis

In this paper I explore the various attempts to integrate anthropology—and anthropologists—within the wider synthesis of evolution in the interval of time between 1927 and 1962 by tracking intersecting individuals and groupings at critical junctures such as conferences, commemorative events, and collaborative publications. I focus on the discipline as a unit of historical analysis and on a series of rhetorical arguments used to discipline and bound areas of study that grounded the secular philosophy of evolutionary humanism. I trace the beginnings of an originary narrative and offer a kind of prehistory of what was first referred to as "human evolution" and then "biological anthropology," an area of study that brought humans into the discipline of evolutionary biology. I examine the key roles played by "architects" of the evolutionary synthesis—such as Theodosius Dobzhansky, Julian Huxley, G. G. Simpson, and Ernst Mayr—and their relations with the anthropologists Sherwood Washburn, Ashley Montagu, and Sol Tax at pivotal meetings such as the Cold Spring Harbor meeting of 1950, the Darwin centennial at the University of Chicago in 1959, and a number of Wenner-Gren symposia culminating with the Burg Wartenstein symposium (no. 19) that saw the emergence of the new "molecular anthropology."

For nearly two centuries anthropology and biology have developed almost independently, although both have been profoundly influenced by such fundamental discoveries as Darwin's theory of evolution and his finding that man is a part of nature. In our century, the development of genetics, which studies the phenomena of heredity and variation, has caused a gradual drawing together of biological and anthropological research. (Demerec 1950)

So we come to a science which proclaims itself the "study of man," yet views culture as though it were not part of man; which studies the evolutionary process and traces the origin of man through the fossil record, yet steadfastly separates man from all other animals; generally denies social and cultural evolution, yet uses the word "primitive"—apologetically—for most of the living peoples and cultures it studies. (Sol Tax, "The Celebration: A Personal View")

We can understand why Darwin did not say much about human evolution in 1859: he knew little about it, and it was after all a delicate subject to raise in the context of a controversial theory.[1] But what are we to make of the fact that it also did not appear during the synthesis of Darwinian selection theory and the newer science of genetics nearly 100 years later? The "evolutionary synthesis," or the "modern synthesis," or "neo-Darwinism," whatever term we employ, was supposed to account for the origins and maintenance of biological diversity. It was supposed to bring to consensus a range of different and frequently conflicting perspectives, resolve a number of persistent problems in evolutionary theory, and provide a more secure footing for the new discipline of evolutionary biology. It was supposed to integrate a variety of disciplines informing evolution—from the newer genetics to the older systematics and paleontology to the even older and more amorphous discipline of botany—using a wide range of organisms, extant and extinct, from fruit flies to weeds, birds to mammals, and even a genetically engineered *Raphanobrassica* (a new species hybrid resulting from a radish crossed with a cabbage).[2] It was, in short, supposed to offer one coherent universalizing and unifying narrative of life's

1. He famously devoted only one sentence to humans in his *On the Origin of Species*, published in 1859. Darwin later revealed his thoughts on humans in 1871 in his *Descent of Man, and Selection in Relation to Sex*.

2. I am here summarizing a broad range of interpretations of a much contested "historical event." The literature is vast and draws on approaches from history, philosophy, and sociology of science. For a representative sample, see Provine (1971), Mayr and Provine (1980), Smocovitis (1992, 1996), and Gayon (1998). For nationalist histories of the synthesis, especially in Germany, see Junker and Engels (1999).

Vassiliki Betty Smocovitis is Professor in the Department of Biology and the Department of History, University of Florida (P.O. Box 118525, Bartram Hall, University of Florida, Gainesville, Florida 32611, U.S.A. [bsmocovi@ufl.edu]). This paper was submitted 27 X 10, accepted 31 VIII 11, and electronically published 20 II 12.

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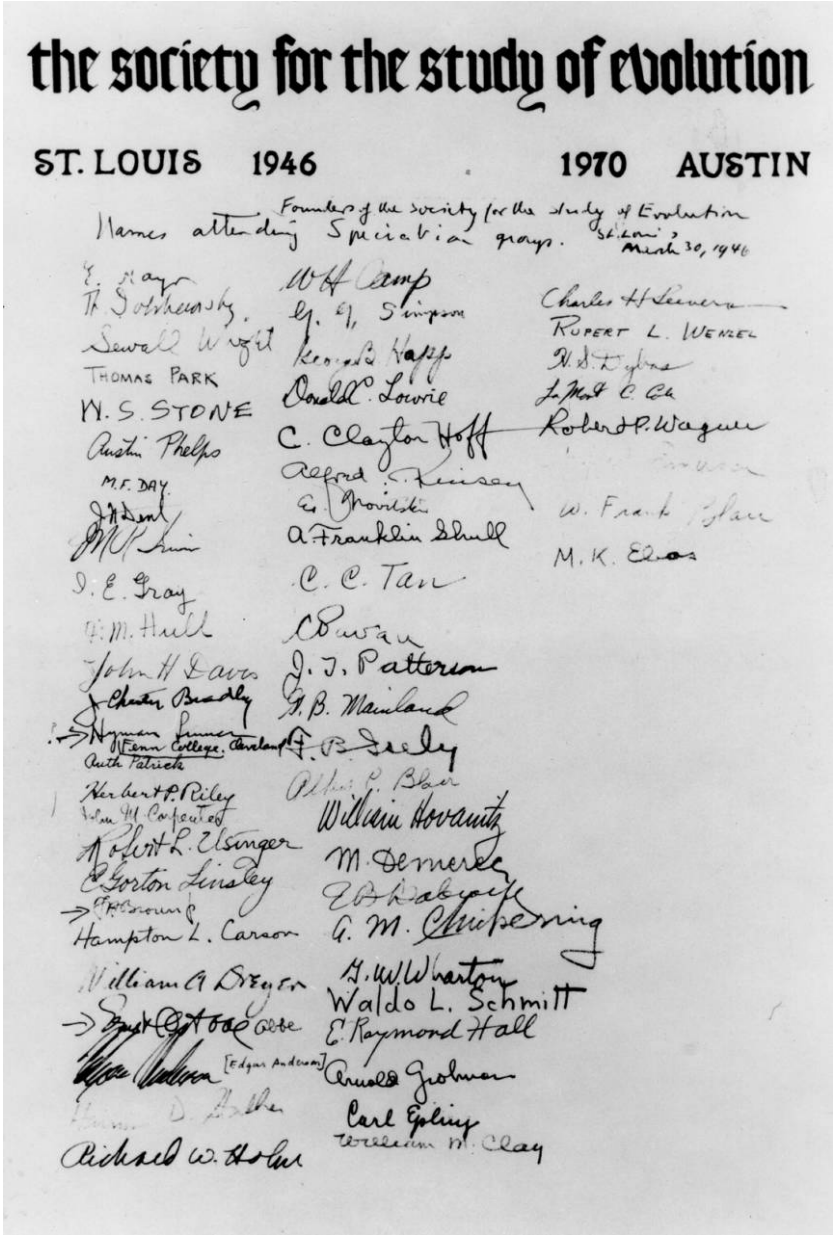

Figure 1. Signatories for the founding of the Society for the Study of Evolution, 1946. This copy (in author's possession) was reproduced for the 1970 meetings in Austin, Texas, and distributed to members. Courtesy of James Crow.

origins encompassing all life on earth and indeed elsewhere in the universe (Smocovitis 1992, 1996).

The fact was that anthropology, the discipline that dealt most immediately with human evolution, had been curiously removed from organizational and intellectual efforts to synthesize evolution in the 1930s and 1940s. No major texts associated with humans were part of the synthesis, no major journal articles, and no significant evolutionary insights associated with humans were part of the emerging consensus. There were no signatories representing human evolution in 1946, when a group of evolutionists came together to found a new international society, the Society for the Study of Evolution (SSE), and only two anthropologists out of 72 participants attended the famous meetings at Princeton University in 1947, at which time evolutionists celebrated the birth of what they termed the "synthetic types" of evolutionists (Muller 1949:421; figs. 1, 2).[3] By the late 1940s, the absence of anthropology—and anthropologists—at the new SSE meetings and the difficulty of securing suitable manuscripts for

3. It fell to J. B. S. Haldane to represent the topic of human evolution, its past and future, at the 1947 meetings (Haldane 1949).

Figure 2. Photograph of participants at the 1947 Society for the Study of Evolution meetings in Princeton. Photograph reproduced from the edited publication of the proceedings (see Jepsen, Simpson, and Mayr 1949). Identification of the all-male participants included therein.

issues of *Evolution* (the new international journal for evolutionary study) had been noted by key figures in organizing *Evolution*, such as Ernst Mayr. Though he tended toward the orthodox in his inclusionary criteria as the first journal editor, Mayr worked energetically at soliciting articles from anthropologists and at recruiting anthropologists to his new journal and society (Smocovitis 1994). Nonetheless, only one out of the first 22 articles was devoted to the subject in the first volume of the journal, and only three out of some 332 articles appeared in the first 10 years of the journal.[4]

The absence was especially noteworthy as anthropology logically had to be brought into agreement with the larger evolutionary synthesis. Humans were, after all, animals whose evolutionary history was encompassed by the new fusion of genetics with selection theory; and the architects of the evolutionary synthesis had already begun to envision it as part of the synthesis as early as the 1940s in their bid to promote the new unified science of evolutionary biology that unified biology and indeed all knowledge. The paleontological record of humans mattered, as did genetics, of course, but so too did the cultural components of human evolution, the understanding of the evolution of something called "mind," and a set of concerns traditionally associated with culture, such as behavior, all falling within the domain associated with the social sciences. All had to be incorporated, integrated, or synthesized with the modern synthesis of evolution as the architects were conceiving it, and indeed promoting it, to increasingly wider audiences in the 1940s. George Gaylord Simpson, Julian Huxley, Ernst Mayr, and especially Theodosius Dobzhansky were actively paving that way and calling for such a synthesis by addressing the evolution of man, mind, and culture in their semipopular and popular works (Smocovitis 1992, 1996).

From the architect's point of view, therefore, the science that encompassed human evolution and human culture, namely anthropology, had to be included in what was emerging as a new evolutionary cosmology. The ultimate goal, not unlike that of their nineteenth-century analogues accommodating Darwinism, was determining "man's place in nature." But the path toward that unified perspective was difficult because anthropology, for a number of complex historical reasons, was programmed to avoid rank reduction to biology (Armelagos 2008, 2011; Barkan 1992; Cravens 1978, 2010; Silverman 2005; Stepan 1982; Stocking 1968; 1988*a*).[5] In this paper, I wish to explore various attempts to

4. The paper in the first volume was by Franz Weidenreich, then at the American Museum of Natural History (Weidenreich 1947). Volume 2 included a paper on blood groups (Lundman 1948), and volume 8 included a paper on prehominid dentition and hominid evolution (Robinson 1954). These papers generally upheld a typological view of humans.

5. Briefly stated, the influence of Franz Boas and his many students and protégés in America worked against the naive and destructive view of late-nineteenth-century evolutionary anthropology that emerged from

integrate anthropology—and anthropologists—within the wider synthesis of evolution in the interval of time between 1927 and 1962 by tracking intersecting individuals and groupings at critical junctures such as conferences and collaborative publications in the history of twentieth-century evolutionary biology and anthropology. I focus primarily on the discipline as my historical unit of analysis and on an unfolding of a series of rhetorical arguments used to discipline and bound areas of study as I begin the process of tracing part of an originary narrative—a kind of prehistory—of what was first referred to as "human evolution" and then "biological anthropology" in the latter half of the twentieth century that brought study of humans into the newer discipline of evolutionary biology (Smocovitis 1996). I begin my historical account with Dobzhansky, the key figure in establishing the science of evolutionary genetics and the architect who did the most to extend this domain to anthropology. I then work my way to the Darwin anniversary year of 1959 and to the very different figure of Sol Tax, a cultural anthropologist who sought to unify anthropology with the new evolutionary biology as part of a grand and ambitious program for modern anthropology. Organizing the single most successful celebration in honor of the 1959 centennial celebration associated with Charles Darwin and the publication of his *On the Origin of Species*, Tax used it as an opportunity to bring anthropologists into the fold of what appeared to be a unified evolutionary cosmology that would once again determine and define "man's place in nature" for an international postwar community of both elite intellectuals and the American public. I close with the Wenner-Gren Foundation symposium 19, held in 1962, that brought some of the same group of evolutionary biologists into an emerging new biological anthropology seen in molecular terms.

The Evolutionary Synthesis and Its Unifying Argument

Darwin of course knew nothing about genes and provided no convincing evidence for natural selection.[6] It took a small army of workers in the early years of the twentieth century to provide a framework for knowledge of the mechanism of heredity and proof of the efficacy of natural selection and then to align them in such a way as to make for a materialistic and mechanistic science that explained the maintenance and origin of biological variation. That was not easy. A number of individuals from varied disciplines, schools, methods, and even epistemic styles laid claim to Darwin's legacy (Bowler 1983; Provine 1971). All offered some means to amend his framework or to come up with the best fit of available data, but it took some time, new methods, new disciplines, and a turnover in personalities to provide a viable general theory of evolution. That theory had to be consistent with claims made in a number of diverse disciplines—from the newer genetics to systematics to paleontology and even to botany—to encompass a wide range of organisms and to employ the rigorous standards demanded of a positivistic science, namely observation and experimentation. It took, in short, the making of a new science of evolution, known as evolutionary biology, grounded in the mechanistic and materialistic principles familiar to the physical sciences.

The travails of evolution after Darwin are familiar lore and need not concern us greatly here.[7] What does matter is that a great deal happened in the interval of time between 1930 and 1950 to establish a "synthetic" science of evolution that set up a range of expectations for the relations between the disciplines of knowledge that demanded the inclusion of anthropology. Central to the relations in the disciplinary order was the belief in the unity of science—that all knowledge could be unified, usually through reduction to one universal language or protocol. Without getting too heavily into philosopher's categories of kinds of unification and whether or not a proper unification happened or even arguing specifics about the "influence" of positivist movements stemming from the Enlightenment and associated with figures such as Auguste Comte, Ernst Mach, or the Vienna Circle's "unity of science movement" in varied intellectual communities, I wish to argue instead that one outcome of the "evolutionary synthesis" was a strong argument for evolution as a unifying science within a unified view of biological science and a unified theory of knowledge (Smocovitis 1992, 1996). That argument was based on the following set of agreements: that the primary mechanism of evolution was natural selection; that it operated gradually and acted on small, individual differences; and that a continuum between microevolution (evolution below the species level) and macroevolution (evolution above the species level) existed. In other words, the mechanisms responsible for evolution were one and the same no matter what the level of selection might be: gene, individual, population, species, or higher-order group, including even opening the discussion to "mind" or "culture."

The continuum is crucial to understanding relations between the biological sciences and the social sciences. What it effectively did was to make possible the reduction of domains

and sustained racist and imperialist doctrines. For these reasons, the discipline of physical anthropology in the middle decades of the twentieth century had to distance itself from its own historical origins in such deterministic and racist doctrines. For the interplay of evolution, eugenics, race, and anthropology, see especially Cravens (1978), Marks (1995), Stepan (1982), Barkan (1992), and Armelagos (2004, 2011). For more on the history of American physical anthropology, see Haraway (1988) and Little and Kennedy (2010). See also the suite of papers devoted to the history of American physical anthropology in Spencer (1982). For an interesting philosophical account of the continued resistance to unification, the bounding between anthropology and biology, and the work of anthropologist Alfred Kroeber, see Kronfeldner (2010). See also Farber and Cravens (2009).

6. His evidence was indirect at best.

7. See the references in footnote 1, and see Bowler (2009) for a recent overview of the history of evolutionary thought.

associated with the social sciences to the biological sciences and ultimately to physics and chemistry. Thus, within that positivist ordering, the social sciences would logically be reducible to the biological sciences or at the very least would or should be in close relation to the science of biology. In other words, logically speaking, anthropology, the science of humans, whatever its manifestations (physical or cultural), had to be integrated or be "brought" to synthesis if in fact that synthesis were to follow its undergirding commitments to positivistic logic.[8]

It took a community—indeed a discipline—to craft this argument, but no one figure better represented it than Theodosius Dobzhansky. More than any other figure, it was Dobzhansky who was associated with the "synthesis" of genetics and selection and who argued explicitly for the continuum between microevolution and macroevolution.[9] It was also Dobzhansky who did the most to reach out to anthropologists and who provided the argument for the problematization of the concept of "race," which was used to bolster arguments for the synthesis between biology and anthropology.

Understanding the Synthesis: Dobzhansky and Evolutionary Genetics, 1927–1947

Dobzhansky's intellectual biography is by now well known.[10] Having trained in Russia, he early on came under the influence of populational approaches to systematics and genetics that placed emphasis on understanding geographic variation of natural populations (Dobzhansky was especially keen to work on the natural history and systematics of insects). Immigrating to the United States in 1927, he then trained with classical geneticist Thomas Hunt Morgan and his "fly" group. He broke with the preferred laboratory-oriented studies in *Drosophila melanogaster* and switched to *Drosophila pseudoobscura*, a species whose salivary chromosomes showed inversion frequencies (and other chromosomal traits) in particular patterns according to geographic locale. Tracking the inversion frequencies in varied populations of *D. pseudoobscura*, Dobzhansky and a cohort of workers inferentially recreated the phylogenetic history of the species and some of its relatives in an influential series of publications known as the "Genetics of Natural Populations," or the "GNP" series (Lewontin et al. 1981).

Dobzhansky was initially aided in his efforts by mathematician Sewall Wright, whose theoretical models postulated that selection would be most efficacious in small subdivided populations (Provine 1986). Wright in turn was enabled in his theoretical constructs by the well-known theorem developed earlier and widely known as the Hardy-Weinberg principle, which described the conditions under which evolutionary equilibrium would be maintained (i.e., conditions under which changes in gene frequencies do *not* take place).[11] By demonstrating how the "variables" of natural selection, genetic drift, and mutation could theoretically interact in natural populations, Wright and other theorists, such as R. A. Fisher and J. B. S. Haldane, worked in tandem with fieldworkers such as Dobzhansky in formulating experimental designs to demonstrate the efficacy of natural selection operating in wild (or nonlaboratory) populations in a way that made it measurable and quantifiable (Provine 1986; Smocovitis 1992, 1996).

The gene had been constructed to particularize and individuate and at the same time to limit the rate of change, while mutations were made to be the determinants of evolutionary change. Dobzhansky's "synthesis" offered an account of evolutionary change that would therefore limit and make deterministic the rate of evolutionary change. From then on, measures would be taken to calculate and determine evolutionary change, while evolution, in turn, would simply be defined as change in gene frequencies. Viewed as a problem in accounting for change, the Hardy-Weinberg principle, which effectively set the conditions under which there would be no evolutionary change, converted the variables of natural selection, mutation and population structure, random genetic drift, migration, and systems of mating into causal explanations for evolutionary change.

Genetics (and the physical world of the gene) thus was used as the grounding for the new "evolutionary genetics" (a new term for the synthesis of evolution and genetics) and formed the basis for Dobzhansky's belief in the continuum between microevolution and macroevolution (which stretched from the gene to the human and to human culture). The title of Dobzhansky's well-known *Genetics and the Origin of Species* (1937) reflects this grounding, which deliberately set itself as the genetical basis for Darwin's "incomplete" the-

8. Elsewhere I explore the history of this undergirding positivist logic and argue that it can be understood as a kind of epistemic package (Smocovitis 1996). The argument for unification should sound familiar; it undergirds the unifying vision of contemporaries such as Edward O. Wilson (1998) of *Consilience* fame and even more benign manifestations by thinkers such as David Sloan Wilson (2010), as in his famous "evolution for everyone" argument. The "domains" of biological knowledge were represented explicitly in diagrammatic form in E. O. Wilson's *Sociobiology: the new synthesis* (1975). Belief in the unity of knowledge undergirds traditional narratives of the history and philosophy of scientific knowledge originating with pre-Socratic philosophers such as Heraclitus. See also Rena Lederman (2005) for another exploration of the intersection of positivism, evolution, and anthropology.

9. In arguing for the continuum between microevolution and macroevolution, Dobzhansky had drawn on the insights of Sergei Chetverikov and the Russian school of population genetics that was later dispersed or destroyed by Lysenkoism. For more on Chetverikov's influence and on the school of population genetics that had influenced Dobzhansky, see Adams (1968, 1980, 1994).

10. For biographical treatments of Dobzhansky, see Provine (1981), Levine (1995), Adams (1994), and Kohler (1994); and see Glass (1980).

11. This is variously known as the Hardy-Weinberg equilibrium or the Hardy-Weinberg equilibrium principle or even the Hardy-Weinberg law. It has also been termed the Castle-Hardy-Weinberg principle, acknowledging the contributions of W. E. Castle. "Gene" frequencies have been replaced by the more precise "allelic" frequencies.

ory (it was incomplete because it did not offer understanding of the mechanisms of evolution in genetical terms). It offered a framework that brought together the material basis for evolution through the work of geneticists such as Dobzhansky with causo-mechanical explanations for evolutionary change made possible by the work of the mathematical modelers. But most importantly for us here, this mechanistic and materialistic framework grounded in genetics, and ultimately in the Hardy-Weinberg principle, could also account for higher-level phenomena—which included the origin of humans, of mind, of behavior and culture—now unifiable and reducible to lower-level phenomena.

Although the levels appeared unifiable and reducible, Dobzhansky and the other architects who followed in his wake also took measures to avoid complete reduction to the physical sciences; a complete reduction to genetics led to genetic determinism and the end of free will as well as the complete elimination of belief in a purposeful, progressive, and meaningful life. It also meant that biology as a discipline itself would literally become subsumed or engulfed or reduced to the physical sciences so that an argument for the autonomous status of the biological sciences could not be supported. As a group, or discipline, more accurately, the architects of this evolutionary synthesis negotiated and struck just the right balance between mechanistic materialism and physicalism and some form of emergentism to avoid complete reduction to the physical sciences. Hence, properties and phenomena deemed "emergent" were often evoked to argue against complete reduction to the physical world. This was the case with Dobzhansky and Ernst Mayr. Mechanistic materialism was upheld by George Gaylord Simpson, who argued that chance events and historical contingency—processes associated with history—introduced a kind of indeterminism into evolution and thence to biology, which made it unlike the physical sciences.[12]

Dobzhansky's argument was additionally convenient because it enabled him to engage the eternal question of "what is man?" and to locate "man's place in nature." Descended from a family of Russian Orthodox priests (hence the name Theodosius) and an observant follower of the Russian Orthodox church, Dobzhansky was obsessed with metaphysics through much of his life. He wrote a number of essays and books after 1940 that explicitly addressed the "phenomenon of man" (to use Teilhard de Chardin's term, which he approved of greatly), tackling the subjects of the meaning of life, death, and questions of meaning and existence (Dobzhansky 1967). He also fought vigorously against genetic determinism, arguing that though an animal, "man" could escape its own brute nature through use of "mind." "Man" as the "Pinnacle for Evolution" was a constant theme that appeared from his textbooks, as in *Evolution, Genetics and Man* (1955:373), to "Man," in his final chapter of the "Center of the Universe," as he noted in *Mankind Evolving* (1962). These were inconsistent if not contradictory assertions, of course, given the fact that selection was a deterministic, materialistic, and mechanistic force, at least as the architects had been construing it. Indeed, mechanistic materialism was supposed to undercut teleology, but they characterized much of Dobzhansky's thinking from the evolutionary synthesis on.

Dobzhansky's intellectual contortionism was not unique; virtually all the major evolutionists in the 1940s and onward frequently engaged such heady topics in their semipopular and popular essays and works, which were read widely in the middle decades of the twentieth century. This was certainly true for Julian Huxley, who famously introduced Teilhard de Chardin's 1950 *Phenomenon of Man*, extolling progress and the advancement of humans and human "improvement" at the same time he promoted the mechanistic materialism of natural selection in the book that heralded the synthesis and gave it its name: *Evolution: The Modern Synthesis* (Huxley 1942). This was also true of G. G. Simpson, who waxed metaphysical about the mechanistic and materialistic science in *The Meaning of Evolution: A Study of the History of Life and of Its Significance for Man* (1949), *This View of Life: The World of an Evolutionist* (1964), as well as in his textbook titled, auspiciously, *Biology and Man* (1969).[13] Progressive evolution—a serious contradiction in terms—grounded much of this worldview.[14] Best expressed in Huxley's *Evolution: The Modern Synthesis* (1942) and echoed by others such as Simpson, H. J. Muller, Dobzhansky, and an entire generation of evolutionists, the argument linking progress with selectionism and metaphysical materialism went something like this: humans were "unique" in their capability to modify their environment; in other words, technology was what made humans unique (small wonder humans became defined as special creatures because of an opposable thumb). Through the same technology, humans were able to control their own development through conscious wilful—and disciplined—use of intelligence. This same intelligence would also be able to generate human values, such as "morality, pure intellect, aesthetics, and creative activity." "Man" was therefore unlike any other animal forms. Evolution was thus as "much a product of blind forces as is the falling of a stone to earth or the ebb and flow of the tides," but purpose itself would only come from human will. Strikingly, Huxley wrote "purposes in life are made, not found" (Dobzhansky 1955; Huxley 1942:576; Muller 1949). A true celebration of humanism, albeit of a

12. Stephen J. Gould has echoed Simpson in his use of historical contingency; see Gould's *Wonderful Life* (1989) for one example of this use of historical contingency in evolutionary philosophy. I am here focusing on the discipline or group rather than exploring individual opinions or tracking their evolution over time. In keeping with the positivist trajectory of the discipline, I am therefore stressing the unity rather than the diversity of opinion. See Smocovitis (1996) for more historiographic discussion on the advantages and disadvantages of the discipline as a historical unit of analysis.

13. Simpson, it should be noted, inspired a great deal of the lyricism seen in his intellectual heirs, such as Stephen J. Gould.

14. See Nitecki (1988), especially the paper by Provine in the collection; see also Ruse (1996) and Haraway (1988, 1989).

secular kind, such a progressive worldview enabled the human to be a creature subject to selection but also able to override its evolutionary destiny through conscious wilful use of its mind. "Man," according to Huxley, could therefore "stand alone."[15] So influential were works of Huxley in tandem with the works of Dobzhansky, Simpson, and others—all of which were associated with establishing a new scientific, evolutionary, or secular humanism—that intellectual historian and critic John Greene deemed these "sacred" texts and referred to them as the "Bridgewater treatises of the twentieth century" (Greene 1981:163).[16]

This evolutionary worldview would do one more thing: it would help stabilize an ideology. Most clearly expressed at the end Huxley's 1942 book, Huxley revealed his fears of the politics of the 1930s and of the great collectives that threatened to lead to the "subordination of the individual" or of leading a life whose purpose would be fulfilled in "a supernatural world" (Huxley 1942:578). In his view, the struggle between these two opposing extremes was the challenge facing the modern world. His vision of progressive evolution would help provide solutions to a number of growing global problems of concern to the growing community of international intellectuals. With selection acting on the individual, the individual could be unique at the same time that it existed in a social group or collective. Neither totally mechanistic or materialistic (thus avoiding left-wing extremism in communism and atheism) nor too vitalistic/mystical/spiritual (thus avoiding right-wing fascism, Nazism, and religious fundamentalism), this evolutionary framework balanced mechanistic materialism with purpose and progress to sustain and justify a moderate liberal ideology. As the war ended and as the horrors of the Holocaust, the cold war, and the nuclear nightmare took center stage, belief in selection and the adaptability of life as it was being articulated by the architects that offered a sense of progress, a liberal ideology, and an optimistic and coherent worldview with humans as the agents of their own evolution intensified. Such a view would also help account for, justify, and enable the inexorable progress of the atomic age and then of space-age technology. Human "control" of evolution, in a non-"Hitlerian" manner avoiding "negative eugenics," would again elevate humanity from its dark past as it moved into the future, assuming the creature did not destroy itself through the development of the new atomic weapons (Haldane 1949; Muller 1949).

With the end of the war, Julian Huxley formally took his interest in solving global problems into the political realm by serving as the first secretary general to UNESCO in 1946 (Waters and Van Helden 1992). At his and Joseph Needham's insistence, the *S* for science was formally included in the name of the new organization. His new cosmology, "scientific humanism" (later termed "evolutionary humanism"), which substituted evolution for conventional religion as a source of knowledge or ethics, grounded his new political philosophy (Blue 2001; Smocovitis 2009). Drafting a 60-page report, Huxley wrote what amounted to a document that was part political philosophy, part evolutionary manifesto, setting forth the policies of the organization. It drew more than a bit of criticism for its rank atheism, requiring a small slip to be included stating that the contents were those of the author alone and not of the organization. In 1950, just after stepping down as the first director general, he played an active role in helping to draft the UNESCO statement on race challenging the existence of the innate biological differences between different human races. That statement on race, which included a number of other contributors such as anthropologist Ashley Montagu, was inspired by a view of race fundamentally shaped by the new evolutionary genetics, which grounded its claims on Dobzhansky's views on speciation (Barkan 1992, 1996; Gayon 2003; Haraway 1988, 1989; Stepan 1982).[17]

Bring on the Anthropology

Like the other architects, Dobzhansky shared Julian Huxley's liberalism and a similar kind of ethical system (an "ethos") grounded in evolution. Crucial to our purposes, his evolutionary genetics did one more thing to enable the integration of anthropology and biology: it drew attention to mechanisms of speciation, to geographic variation, and to isolation that "moved" or rendered dynamic the process of species formation, ultimately giving shape to the modern definition of the biological species concept as a population of actually or potentially breeding individuals. Dobzhansky's views were based on his experiences with geographic races in the natural populations of *Drosophila pseudoobscura*. As is now well known, by redefining race in terms of populations, Dobzhansky "loosened" the boundaries of the term to locate it in time, place, and space; in other words, speciation and race formation were rendered processual. As he himself defined it, race was a "tool for description, not of individuals, but of subdivisions of species," and the system for race was "open" and therefore fluid, unlike the species system, which he viewed as "closed" (Dobzhansky 1941, 1944:138).[18] Dobzhansky's

15. Huxley wrote an entire book arguing for the uniqueness of humans titled *The Uniqueness of Man* in 1940. The American edition was titled *Man Stands Alone*.

16. For an especially insightful discussion that explores the redefinition of humanity in light of technology and its evolutionary past as "man the hunter" in the wake of the evolutionary synthesis and the work of Sherwood Washburn, see Donna J. Haraway's essay "Remodelling the Human Way of Life" (1988) and see Haraway (1989). For more on Dobzhansky's international influence, especially in Brazil, see Araújo (1998, 2004).

17. A great deal has been written on the history of the UNESCO statement on race. In addition to Haraway (1988), Barkan (1992, 1996), and Gayon (2003), see also Marks (2008, 2010) and Michelle Brattain (2007). See also Montagu's own exegesis in Montagu (1972).

18. See Farber (2009) for a precise explanation of Dobzhansky's view of "race." For a philosophical perspective, see Gannet (2000). In 1947 Dobzhansky collaborated with his Columbia colleague L. C. Dunn on a widely read book exploring heredity and the newer meaning of race (Dunn and Dobzhansky 1947). See also Melinda Gormley (2009) for a discussion of race in Dunn and Dobzhansky (1947) that focuses on Dunn.

view of evolution as a whole placed emphasis on populational rather than typological approaches to the natural world, to use Ernst Mayr's celebrated distinction (Mayr 1980). The populational recrafting enabled the de-essentializing of the term that had been most responsible for enabling the bounding—and separation—of anthropology and biology.

Dobzhansky's redefinition had emerged from his work in insects (Dobzhansky 1937; Dobzhansky and Epling 1944), but he did not hesitate to recognize its significance for humans; he made the deliberate effort to promote the new biological meaning of the term (Dobzhansky 1941) and took it formally to physical anthropologists in 1944 with an article on human evolution that appeared in the *American Journal of Physical Anthropology*, which had just undergone an editorial change. The argument set forth in 1944 later reappeared in the 1950 UNESCO first statement on race. But even before 1944, Dobzhansky's redefinition was seized on by a younger generation of physical anthropologists, such as Ashley Montagu and Sherwood Washburn, keen to integrate it with biology.

In 1940 Montagu presented a paper at the American Association of Physical Anthropologists laying out the new biological, populational, and de-essentialized meaning of the term based on Dobzhansky's *Genetics and the Origin of Species* (1937). Like the dynamic evolutionary understanding gained in *Drosophila*, so too would a similar approach be used to understand evolution in humans: human species could be seen in terms of populations subject to the same evolutionary parameters determined for any species—they were subject to mutation, selection, migration, mating, and random genetic drift. Race was just a population of individuals subject to the same kinds of forces. Going beyond Dobzhansky and building on the work of others—such as Julian Huxley (Huxley and Haddon 1936), who had argued that the concept of race was a mythic construct—Montagu proposed the substitution of the term with "ethnic group" (Montagu 1942*a*). In 1942, he rolled much of this growing concern with race and biology together into a monograph that he subsequently published as his enormously influential *Man's Most Dangerous Myth: The Fallacy of Race* (1942*b*). He also explicitly collaborated with Dobzhansky to reach an audience of scientists in 1947 (Dobzhansky and Montagu 1947). Though the two shared fundamental points of agreement, they increasingly disagreed on the use—and reality—of the term because Montagu increasingly argued that it was a social construct that emerged from an attempt to subordinate historically significant groups. For Dobzhansky, the term "race" continued to preserve a biological reality and taxonomic utility; he refused to abandon its use and sparred with Montagu all through the 1940s about the topic (Farber 2009).

Despite such differences, the two came together on numerous occasions, and in 1950 they were part of one of the first attempts to bring together formally geneticists with anthropologists at a large Cold Spring Harbor symposium of 1950. That meeting was orchestrated by the geneticist Milislav Demerec, but the program for the symposium had been organized by Dobzhansky and his anthropological collaborator Washburn. Like Montagu, Washburn had instantly appreciated the emphasis on populational thinking that delegitimated typological thinking about race. This enabled him and like-minded physical anthropologists to ground physical anthropology in the new discipline of evolutionary biology without fear of evoking essentialistic views of race at the same time it allowed him to extend his own work in functional comparative anatomy and behavior (Haraway 1988, 1989). Washburn had assimilated the tenets of the evolutionary synthesis as they were emerging from Dobzhansky but especially from the work of mammalogist and paleontologist G. G. Simpson (1944), and he eagerly sought to bring anthropologists into the fold. Indeed, citations of the "new systematics" and of the zoological literature were generous in Washburn's written work. He wrote, "the meeting of genetics, paleontology, and evolutionary zoology created a new systematics (neozoology), just as the impact of the new evolutionary theory is creating a new physical anthropology" (Washburn 1952:715). To that end, Washburn orchestrated a number of meetings and publications, of which the 1950 Cold Spring Harbor symposium was the largest and most visible.

The edited volume of the symposium, titled ambitiously as *Origin and Evolution of Man*, listed no less than 129 paid attendants, including nearly all of the major anthropologists, geneticists, and evolutionists active at the time. The most important aspect of the symposium for our purposes here is what the organization of the program reveals, namely, the fundamental argument for the unification of anthropology with biology grounded in a view of evolutionary genetics as applied to solving long-standing problems of human evolution. Beginning with population genetics or "population as a unit of study," the topics moved to the "origin of the human stock" to the "classification of fossil men" (a rather transparent elimination of "fossil women") to no less than three entire sessions dedicated to the "genetic analysis of racial traits" known to that time. Then, working from the topic of "race concept and the human race" to the final topic called "constitution," the program reflected the narrative of synthesis and unification between two disciplines that had been kept apart (as Milislav Demerec's foreword to the edited volume reveals in the opening epigraph here). Whatever the differences in participant's individual views, which the papers reveal were abundant, and no matter how heated the exchanges, the meeting reflected the undergirding logic of unification within a unified theory of knowledge. Most importantly, it offered prescriptives for future research.

Reflecting on the meeting over 30 years later, Ernst Mayr recalled that the most memorable session was the one titled "origin of the human stock," which included the paper given by Sherwood Washburn titled "The analysis of primate evolution with particular reference to the origin of man." According to Mayr, Washburn "discussed certain evolutionary processes using the word *population* in just about every second or third sentence. After Washburn had finished, Hooton

[Ernest A., the influential Harvard anthropologist with whom Washburn had trained] got up and said 'I hate the word population.'" Mayr added "I am afraid he [Hooton] fought a losing battle. By 1950, population thinking had established a well-entrenched beachhead in anthropological thought."[19] Mayr's own sense of the importance of the meeting was summarized as "the occasion that the study of fossil man was integrated into the evolutionary snythesis [sic]" (Mayr 1982: 231).

In this, Mayr was likely right; no less than one year later, Sherwood Washburn proclaimed the birth of a "new" physical anthropology in a famous 1951 paper that "codified" what historian Donna Haraway described as "the polemic and research program joining physical anthropology to the evolutionary synthesis" (Haraway 1988:224; Marks 2008, 2010; Stepan 1982; Washburn 1951). Washburn himself continued to promote the "new" physical anthropology and especially the emerging area of primatology through not only his own publications but also through his numerous students and protégés as well as by organizing conferences and symposia, especially through the New York–based Wenner-Gren Foundation, which changed its name from the Viking Fund in 1951. Its first director, Paul Fejos, had become a professional friend after Washburn had moved to Columbia. Between 1945 and 1952, while first secretary of the American Association of Physical Anthropologists and then president of the group, Washburn organized a number of summer seminars and ensuing publications that were funded by the Wenner-Gren Foundation. In 1951, just over 10 years after the founding of the organization, Washburn was part of the planning team "to assess the accomplishments of anthropological science to date and to solicit answers on what direction future research would be likely to take" (Fejos 1953:v). In his own contribution to the Wenner-Gren symposium of 1952, the published proceedings of which became *Anthropology Today*, Washburn further extended the argument developed in 1951 in a paper titled "The Strategy of Physical Anthropology" (Washburn 1952). Along with the 1951 paper, it heralded the "new" physical anthropology that not only looked to the achievements of the evolutionary synthesis but that also announced a revolutionary break with the older version popular in the late nineteenth century that had been plagued by essentialism, racism, and biological determinism. Both papers were reprinted and cited heavily by the new generation of anthropologists, who entertained a revivified science of human evolution as seen in the abundant publications, conferences, and projects in the area (Haraway 1988).

The 1953 volume itself—a behemoth at just under 930 pages of written text—was edited by Alfred L. Kroeber and subtitled *An Encyclopedic Inventory*. It was the most ambitious attempt to bring together diverse representatives and perspectives that had both grown but that had also diversified enormously in the postwar period and to "hammer" what Kroeber described as "a vast array of knowledge" into "a set of coherent interpretations" (Kroeber 1953:xiv). For Kroeber, that unifying principle was the concept of "culture," but the collection as a whole additionally signalled the transformation of the "new" physical anthropology and included not only perspectives from Washburn but also William C. Boyd, whose "The Contributions of Genetics to Anthropology" drew on the view of races articulated in *Drosophila* spp. by Theodosius Dobzhansky and Carl Epling (1944) applied to human blood groups (Boyd 1953). Such edited collections—based on workshops or research projects that encouraged interdisciplinarity and that enabled dialogue between the increasing numbers of anthropologists all over the world who shared commitments to the problematization if not the complete elimination of something called "race"—thus proved crucial to the emergence of what increasingly came to be known as "biological anthropology" or later termed the "biocultural perspective" (Armelagos 2008). Between 1951 and 1961, for example, the Wenner-Gren Foundation alone sponsored some 47 research projects (or some 61% of its research budget) on paleoanthropology or on additional support for conferences on "early man" or the publication of results (Baker and Eveleth 1982).

Celebrating Darwin in 1959: The Unifying Vision of Sol Tax and Anthropology at the University of Chicago

Clearly, by the middle decades of the twentieth century, a growing number of anthropologists were entertaining evolutionary approaches to their field that combined knowledge of genetics, paleontology, and systematics as it had emerged from the evolutionary synthesis the previous decade. The same extension of the evolutionary synthesis to the social sciences was also seen in areas such as psychology, which began to integrate mind, culture, and behavior with newer postsynthesis areas such as ethology (Burkhardt 2005). Formal conferences and meetings to bring psychology into the fold took place in 1955 and 1956 and were sponsored by the American Psychological Association and the SSE. George Gaylord Simpson and his spouse, psychologist Anne Roe, were prominent players in these meetings, but so too were the other architects of the synthesis such as Ernst Mayr and Julian Huxley along with anthropologists such as Sherwood Washburn (Roe and Simpson 1958).

Such grand and ambitiously interdisciplinary and often international meetings that attempted to unify biology with social sciences such as psychology and anthropology were part of a growing trend to unify all knowledge. By the middle decades of the twentieth century, the drive to unify all knowledge was made apparent by the frequent appearance of terms such as "culture," "discipline," "unity," and "diversity" in both elite and popular discourse (see Tagliacozzo 1962). In 1954, for example, an enormous meeting took place that brought an astonishing number of social scientists, biologists, and physical scientists together with humanists in a conference

19. A variant of this story is retold by Marks (2010).

Figure 3. Sol Tax at the final evolution session at the Darwin centennial at the University of Chicago, 1959. Archival photographic files (apf3-00592), Special Collections Research Center, University of Chicago Library. Reproduced with permission.

titled "The Unity of Knowledge" at Columbia University (Leary 1955). It included a number of the same architects of the evolutionary synthesis along with a number of prominent anthropologists and psychologists.[20] But that drive for unification between the sciences of evolution, biology, and anthropology was nowhere more apparent than in making the preparations for the anniversary year of 1959, which celebrated the twin events of the 150th anniversary of Charles Darwin's birth, and the 100th anniversary of the publication of his magnum opus, *On the Origin of Species*.

Bringing biology and anthropology together through evolution and the occasion of the great anniversary became the brainchild of Sol Tax, a social and cultural anthropologist at the University of Chicago best known for his studies of some North American and Latin American indigenous cultures (fig. 3). It was in fact the perfect opportunity to draw attention to anthropology and to the University of Chicago, which Tax thought was especially well positioned for the celebration; when it came to anthropology and the social sciences, Chicago had always seemed a special "world unto itself" (Bulmer 1984; Silverman 2005:272; Stocking 1979). At the height of his career, Tax was a talented organizer, an editor, an effective networker, and best of all, a visionary keen to bring it all off (Rubinstein 1991; Stanley 1996; Stocking 2000; Wax 2008). He was already predisposed to the subject of "bioanthropology," having written an honors paper while still an undergraduate at the University of Wisconsin on animal behavior and culture (Haraway 1988), and he was directly involved in coediting the "encyclopedic" *Anthropology Today* with Alfred L. Kroeber, Loren Eiseley, Irving Rouse, and Carl F. Voegelin.

Recounting the origin of his idea in his memoir of the celebration, Tax admitted that it came to him in 1955 while current editor of *American Anthropologist* and while in the library of the Wenner-Gren Foundation in New York attending a "supper conference" with William W. Howells as the featured speaker on physical anthropology. Looking up the anniversary date of the publication of Darwin's *Origin*, November 24, he noted it was a "good season" for academics and that it would be grand to celebrate at his home institution, which was founded 10 years after Darwin's death. Stressing the "purely intellectual and scientific" interest in the occasion,

20. See especially part three of the edited collection titled "The Knowledge of Man" that included contributions by Julian Huxley, Gardner Murphy, and Alfred L. Kroeber. The conference included participants such as Teilhard de Chardin, Theodosius Dobzhansky, Margaret Mead, B. F. Skinner, Willard Van Orman Quine, Ernest Nagel, and Phillip Frank.

Figure 4. Darwin centennial committee; standing, from left to right: H. Burr Steinbach, Everett C. Olson, Ilza Veith, Sol Tax, Alfred E. Emerson, and Chauncy Harris. Archival photographic files (apf3-00598), Special Collections Research Center, University of Chicago Library. Reproduced with permission.

Tax also stated clearly that it would be a perfect way to unite the fields of biology and anthropology. As he pointed out in his recollections, for historical, sociopolitical, and intellectual reasons, twentieth-century anthropology had seen the "complete separation" of "man as an organism from man as a member of society and bearer of culture." "Culture" and "evolution," which had been united in the thoughts of Darwin and his "bulldog" Thomas Henry Huxley (Julian's grandfather), had gone their separate ways in the twentieth century as cultural anthropologists railed against overly rigid, deterministic, "evolutionary" explanations for culture. As a result, anthropology had become a science with a "split personality" (Tax 1960:271–272, 1988).

Tax realized that the University of Chicago had already begun to heal that rift. Within the anthropology department, a graduate-level course called Human Origins (the first segment of a three-part course, numbered Anthropology 220) taught by Robert Braidwood, Wilton M. Krogman, Robert Redfield, and Sol Tax had attempted to integrate approaches from biology and anthropology beginning in 1945. With the addition of Sherwood Washburn to the department in 1947, an integrative perspective on evolution and culture was already in place. Washburn had instantly begun to inject his own understanding of genetic mechanisms and paleontological insights into that class with reading lists that included the works of Dobzhansky and Simpson, and because Tax had worked with Washburn in that course, both had developed a shared vision of the discipline's newer directions. The time was clearly ripe for such a celebratory event that would recognize the new integrative directions in anthropology, and Chicago was the perfect place to showcase the new union of biology and anthropology. With a small interdisciplinary group of colleagues including Everett Olson (a paleontologist) and Alfred E. Emerson (an insect systematist), Tax began the planning in earnest shortly thereafter. Two of the committee members, Karl P. Schmidt and Robert Redfield, died in the interim, so the final committee was comprised of Everett Olson, Chauncy Harris (a geographer), Alfred E. Emerson, Ilza Veith (a historian of medicine), and H. Burr Steinbach (a zoologist; fig. 4).

With the ambitious goal of opening discussion into the varied meanings of the term "culture," Tax set out to target distinguished anthropologists for his meeting. He invited Clyde Kluckhohn from Harvard University, A. Irving Hal-

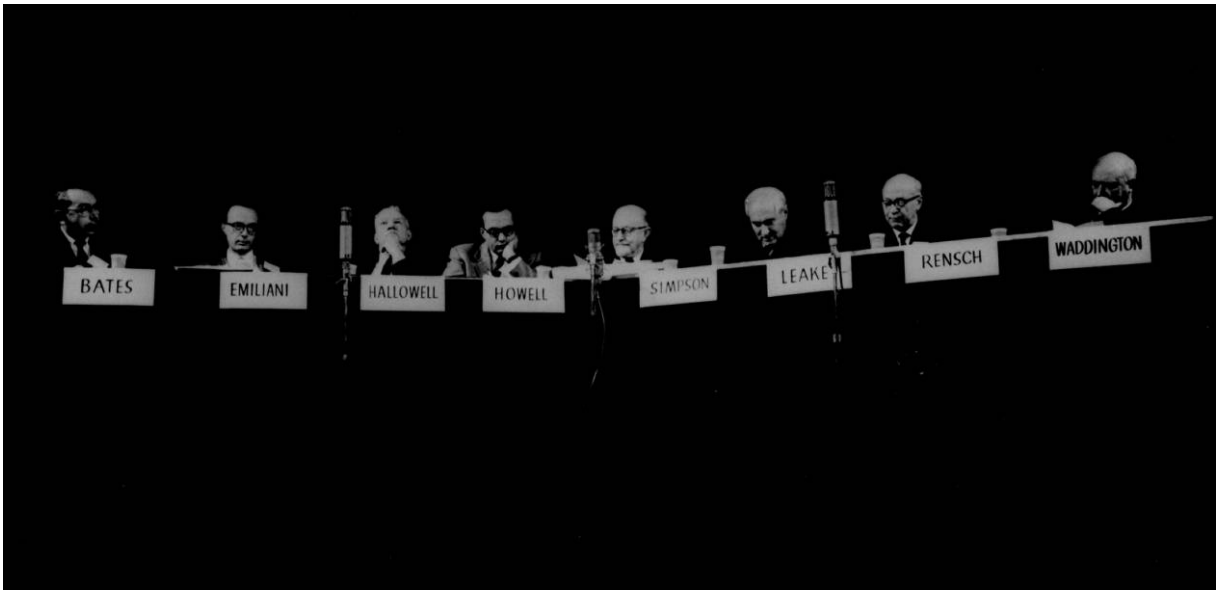

Figure 5. Darwin centennial, panel 3, "Man as an Organism." A transitional panel, bringing anthropological concerns to evolutionary biology, it included evolutionary biologists with an interest in human evolution and biographically trained anthropologists and paleontologists. Marston Bates, Cesare Emiliani, A. Irving Hallowell, Louis B. Leakey, Bernhard Rensch, and C. H. Waddington. The chairs were George Gaylord Simpson and F. Clark Howell. Darwin Centennial Papers (negative number T 0861226), Special Collections Research Center, University of Chicago Library. Reproduced with permission.

lowell from the University of Pennsylvania, and Alfred Kroeber from the University of California, Berkeley, all of whom joined the impressive list already assembled at the University of Chicago, which included F. Clark Howell. Tax studiously worked to provide funds for each of them, working with the Wenner-Gren Foundation for Anthropological Research. He did not confine his anthropological invitation list to the narrower domain of academic anthropology. In a brilliant strategic move, he extended the anthropological sphere of influence and drew the attention of the wider public by obtaining special funds from Wenner-Gren to invite Louis B. Leakey, an anthropologist with increasingly broad popular appeal. Taking the opportunity to visit the United States for the first time and further promote his research, Leakey brought the latest of his sensational fossil hominids, *Zinjanthropus boisei* ("Zinj"), with him to the celebration (2009 marked the fiftieth anniversary year of "Zinj" it will be recalled). Both Leakey, his wife Mary, and "Zinj" served as major highlights of the celebration conference, drawing attention to anthropology as a central study in evolution. Indeed, some of the most well-known iconic images of the celebration featured Louis and Mary Leakey and the fossil find.[21]

Elsewhere I have described in detail the happenings in Chicago orchestrated by Sol Tax in honor of the Darwin centennial of 1959 (Smocovitis 1999). For our purposes here, I draw attention to the centerpiece of the celebration festivities, a series of five panels with a number of participants formally arranged.

Panel 1. "The Origin of Life." Biochemists and astronomers discussed cosmic evolutionary processes on Earth and other suitable planets. The participants were Sir Charles Galton Darwin, T. Dobzhansky, Earl A. Evans Jr., G. F. Gause, Ralph W. Gerard, H. J. Muller, and C. Ladd Prosser. The chairs were Harlow Shapley and Hans Gaffron.

Panel 2. "The Evolution of Life." Evolutionary biologists discussed current understanding of evolutionary processes with natural selection as the dominant process. This panel included many of the architects of the evolutionary synthesis: Daniel I. Axelrod, T. Dobzhansky, E. B. Ford, Ernst Mayr, A. J. Nicholson, Everett C. Olson, C. Ladd Prosser, G. Ledyard Stebbins, and Sewall Wright. The chairs were Julian Huxley and Alfred E. Emerson.

Panel 3. "Man as an Organism." This was a transitional panel, bringing anthropological concerns to evolutionary biology. It included evolutionary biologists with an interest in human evolution and biologically trained anthropologists and paleontologists. The participants were Marston Bates, Cesare Emiliani, A. Irving Hallowell, Louis B. Leakey, Bernhard Rensch, and C. H. Waddington. The chairs were George Gaylord Simpson and F. Clark Howell (fig. 5).

Panel 4. "The Evolution of Mind." This panel brought together psychologists and physiologists to discuss currents of

21. See, e.g., the photograph of Louis and Mary Leakey and "Zinj" reproduced for the Web site of the University of Chicago's 2009 celebration: http://darwin-chicago.uchicago.edu/50th-anniversary.html (accessed May 20, 2011).

Figure 6. Darwin centennial, panel 5, "Social and Cultural Evolution." This panel represented the bridge between biological and cultural evolution. Robert M. Adams, Edgar A. Anderson, Sir Julian Huxley, H. J. Muller, Fred Polak, Julian H. Steward, Leslie A. White, and Gordon R. Willey. The chairs were Clyde Kluckholn and Alfred L. Kroeber. Archival photographic files (apf3-00595[2]), Special Collections Research Center, University of Chicago Library. Reproduced with permission.

thought on the evolution of mind. The participants were Henry W. Brosin, Macdonald Critchley, W. Horsley Gantt, A. Irving Hallowell, Ernest Hilgard, Sir Julian Huxley, H. W. Magoun, Alexander von Muralt, and N. Tinbergen. The chairs were Ralph W. Gerard and Ilza Veith.

Panel 5. "Social and Cultural Evolution." This panel represented Tax's bridge between biological and cultural evolution and brought together anthropologists and behavioral ecologists. It included Robert M. Adams, Edgar A. Anderson, Sir Julian Huxley, H. J. Muller, Fred Polak, Julian H. Steward, Leslie A. White, and Gordon R. Willey. The chairs were Clyde Kluckholn and Alfred L. Kroeber (fig. 6).

Like the Cold Spring Harbor symposium of 1950, the ordering of the panels is telling. It reveals to us again Tax's vision of the unification of the disciplines and the location of each discipline within the positivist ordering to knowledge. From physics to chemistry and cosmology to evolution and biology and to the social sciences (including here psychology and anthropology), the panels offered a narrative of unification locating "man's place in nature." Unlike the meeting at Cold Spring Harbor, however, the unification was much broader in nature, extending the reach of evolution not only to the reductionistic, mechanistic, and materialistic physical sciences but also directly to the social sciences, opening discussion into the evolution of not only human origins and culture but also behavior and even "mind." Examined broadly, the panels represented the big picture of the unification of scientific knowledge so as to answer once again the question of "what is man" and locating "man's place in nature." More immediately for Sol Tax, the panels—and the celebration—offered a visual and very public demonstration of the union of biology and anthropology that had been torn apart by bankrupt anthropological and evolutionary theories that made up an older "evolutionary anthropology." As he wrote later in his reflections, "So, for me, the Centennial brought Darwin and evolution back into anthropology, not by resurrecting analogies, but by distinguishing man as a still-evolving species, characterized by the possession of cultures which change and grow non-genetically." He further added an escape clause: "Human evolution includes the addition of culture to man's biology; 'cultural evolution' at the human level is quite

a different matter. Anthropologists accept the first without question; they are divided about the second" (Tax 1960:282).

Tax's celebration was not the only such forum bringing anthropologists together with evolutionary biologists. The 1959 Cold Spring Harbor symposium in honor of the centenary once again brought students of evolution from the fields of "genetics, anthropology, and paleontology" to "join forces" for the second time in a decade at the same place (Demerec 1960). The program of the symposium was planned by Dobzhansky with the assistance of anthropologist Carleton S. Coon, plant evolutionary biologist G. Ledyard Stebbins, and geneticist Bruce Wallace. In contrast to the meetings of evolutionists in the 1930s and 1940s, therefore, anthropologists and the subject of human evolution had become fairly standard fare at meetings devoted to general views of evolution.

Nonetheless, divisions existed and indeed in some instances were magnified in the next decade of research. The number of self-identified biological and evolutionary anthropologists, however, continued to increase as human evolution proved an increasingly productive and very popular area of inquiry.[22] In 1962, for example, an entire Wenner-Gren meeting was devoted to the subject of human evolution, bringing together some of the same evolutionary biologists with a background in animal systematics with some of the new physical anthropologists. Organized by Sherwood Washburn and titled "Classification and Human Evolution," the meeting was the first such Wenner-Gren symposium devoted expressly to "human evolution" and to discussion of human phylogenetic history, or human systematics. It was designated as the Burg Wartenstein symposium (after the Viennese-castle-turned-conference-center for the Wenner-Gren Foundation). The symposium brought Washburn's "new physical anthropology" to an even newer direction as it sought to integrate the newer techniques coming from molecular biology to human systematics by bringing together evolutionists such as Ernst Mayr, Theodosius Dobzhansky, and George Gaylord Simpson together with psychologist Ann Roe; anthropologists Sherwood Washburn, Louis Leakey, and Irven de Vore; and Emil Zuckerkandl and Morris Goodman, who had backgrounds in biochemistry and serology relying on molecular techniques.[23] Taking place just at the peak of what E. O. Wilson termed the "molecular wars" of the early 1960s that followed the emergence of molecular biology (Wilson 1994), it brought to light the tension between the newer reductionist molecular approaches and older antireductionist approaches that had also grounded evolutionary humanism.[24] The new placement of humans in a phylogenetic category alongside chimpanzees and gorillas based on these molecular techniques and the declaration that a new discipline called "molecular anthropology" had emerged (Goodman 1962; Zuckerkandl 1962) did not sit well with the same architects of the evolutionary synthesis who had done so much to argue for the special or unique status given to humans and who had worked hard to preserve the delicate balance between the unity of science and the autonomy of biology with a view of a central unifying science of evolutionary biology. No strangers to controversy or vitriolic attacks, the architects fired back as fireworks ensued and continued throughout the decade of the 1960s as molecular data on primate classification increasingly pointed to the relatedness of humans, gorillas, and chimpanzees (Goodman 1996).[25] That explosive mix of integrative argument—and reductive methodology—continued well into the 1990s and culminated with the Human Genome Project, which launched a full-scale human biodiversity project. By the end of the 1990s, as "biology" and "anthropology" were overlapping to an unprecedented extent, arguments began to emerge for the division of anthropology, with independent and indeed departmental status given to "biological anthropology" and even something called "human evolutionary biology" (Leslie 2000; O'Toole 1998; Shea 1998; Troianovski 2005). By then, however, and just as the voices of the architects had begun to wane, a number of anthropologists, more precisely, human evolutionists, had begun to adopt the evolutionary synthesis as part of their own historical narrative of origins (Bowler 1986; Cela Conde and Ayala 2007; Delisle 2007; Goodrum 2009; Tattersall 2000).

Analytical Perspective and Closing Thoughts

In this brief paper I have tried to follow efforts to unify anthropology with evolutionary biology following the "modern synthesis" of evolution that took place between 1930 and 1950 and the establishment of evolutionary genetics as it

22. See, e.g., the increasing emphasis given to topics such as primatology and paleoanthropology in the pages of *National Geographic* in the 1960s and in other popular venues such as television specials.

23. Participants included Josef Biegert, Bernard G. Campbell, Irven DeVore, Theodosius Dobzhansky, Irenaus Eibl-Eibesfeldt, Morris Goodman, K. R. L. Hall, G. Ainsworth Harrison, Harold P. Klinger, L. S. B. Leakey, Ernst Mayr, John Napier, Jean J. Petter, Adolph Schultz, George Gaylord Simpson, William L. Straus Jr., Sherwood Washburn (who served as organizer), and Emile Zuckerkandl. The signature book of the Wenner-Gren Foundation located at the foundation office also includes Ann Roe as one of the signatories, accompanying her spouse George Gaylord Simpson. The meeting was held between July 8 and 21, 1962. See also the collection of papers to come out of the symposium (Washburn 1963).

24. For a historical account of the complex disciplinary negotiations that ensued from the origins of molecular biology as a scientific discipline whose methods pushed the biological sciences further into reductionism and determinism, see Smocovitis (1992, 1996), and see Beatty (1990) for a brief historical and philosophical treatment of the "DNA bandwagon effect." For more on the conflicts surrounding the introduction of molecular techniques in evolution, anthropology, and in the origins of molecular anthropology, see Dietrich (1998), Morgan (1998), Hagen (1999, 2009), Aronson (2002), and Sommer (2008).

25. See, e.g., a similar series of vitriolic exchanges with biochemists and astronomers over "exobiology" and the argument for the nonprevalence of "humanoids," first by G. G. Simpson and then Ernst Mayr. These exchanges, I have argued, were also part of the complex negotiations between related disciplines of knowledge that preserved the boundaries, giving enough unity between related disciplines that also preserved autonomous status (Smocovitis 1996).

emerged through the work of Theodosius Dobzhansky. I have also explored his fellow architects, who grounded their claims in evolutionary genetics and then attempted to create or build an evolutionary cosmology within a unified theory of knowledge, and how the architects functioned as "the unifiers" of knowledge, balancing and preserving enough of the autonomy of the sciences but also making possible reduction to the physical sciences. Humans in this worldview, denoted by the phrase "evolutionary humanism," made "man" a biological creature, one that set "him" apart from all others. That continued well into the second half of the twentieth century and expanded in scope. By the early 1960s, even George Ledyard Stebbins, a plant evolutionary biologist and architect of the synthesis but far removed from human evolution, began to chant the theme of "man" in a humanized evolution as he extended this unifying vision of the life sciences to improve the condition of "man" in his leadership of the International Biological Programme and the International Union of Biological Sciences (Stebbins 1962). It continued in courses of biology instruction all over the world, but it was best seen in the biological sciences and curriculum study textbook series "blue" version titled *Molecules to Man*. And it was used to ward off antievolutionist attacks that were galvanized by the very public success of evolutionary biology in 1959 (Smocovitis 1992, 1996, 1999). Evolution increasingly was thought to be the "central" science that unified biology and that then extended itself to the social sciences—as an entire generation of biologists followed Dobzhansky's famous dictum, "nothing in biology makes sense except in the light of evolution" (Dobzhansky 1964:449, 1973)—and into the social sciences and indeed into the humanities (D. S. Wilson 2010; E. O. Wilson 1975, 1998). It continued through the decades of the 1980s and 1990s even as challenges to the synthesis and the synthetic theory were mounted from within as the next generation of evolutionary biologists amended that framework to accommodate molecular evolution, paleobiology, and what resulted from the fusion of evolution, genetics, and development, the "new science of evo-devo." For evolutionary biologists, the synthesis continues to serve to varying extents as a narrative of origins, though that also begins with the figure of Charles Darwin, who should more appropriately be considered a naturalist (the word "evolution" does not appear in his *Origin*, and the term "evolve" appears only as the final word in the text).

From another direction, they were joined by a number of evolutionary anthropologists, paleoanthropologists, human geneticists, and newer biological anthropologists who grounded their claims in the synthesis and who adopted a similar narrative of origins for their own discipline variously termed the "new physical anthropology," "biological anthropology," "paleoanthropology," "evolutionary anthropology," and even "human biology" or "human evolutionary biology"; such was the "biocultural synthesis" that took place by the late 1950s grounded in "the modern synthesis" of the preceding two decades. The extent to which cultural anthropologists uphold, resist, or subvert that narrative remains a lively and at times heated topic for discussion as well as the extent to which biological anthropologists properly "unite" with evolutionary biologists today.[26] Though there are deep points of resonance and shared commitments to something termed "biology," biological anthropologists preserve some measure of autonomy through their own societies, publication venues, and appointments usually located in departments of anthropology or in medical schools and not in departments of biology. Journals such as *Evolution*, the primary publication venue for evolutionary biologists, still do not include significant or broad coverage of human evolution (including here human genetics or paleoanthropology), though these are of course within the intellectual purview of the journal.

As a category of scientific knowledge, moreover, biological anthropology (indeed "anthropology" itself) continues to make an intriguing distinction: it is the only such disciplinary category allying itself as part of the life sciences devoted to the study of one species. To drive home my point, let me ask, what would an equivalent biological scientific category devoted to fruit flies look like? (Would that be "drosophilology," or more specifically "*Drosophila melanogasterology*"?) And what are we to make of the fact that primatology, which boomed in the wake of Washburn's influence in the 1950s, is a category of scientific study devoted to primates but which not only excludes humans but is also a subset of the larger anthropology instead of the reverse, as biological logic would dictate? Clearly, the existence of anthropology in general and biological anthropology in particular in some measure still preserves the special or "unique" status given to humans despite the fact that humans are animals. From a proper biological perspective, this is of course profoundly anthropocentric, as we might expect of an area devoted exclusively to humans. Given this etymological confusion, should we perhaps rethink the meaning of the category of "anthropology," so heterogeneous that it has become the locus for interdisciplinarity, as something even more inclusive but amorphous, such as "human studies"? And what would then be the relationship to the age-old category of "the humanities"?

Finally, let me close this paper by stating that what it has offered is a kind of prehistoric originary narrative of the attempt to "humanize" evolution that was part of a growing area of study that came to be known as "biological anthropology." It remains unclear to me precisely when that term gained widespread currency or when precisely it began to

26. See, e.g., Lederman (2005), and see the collection edited by Segal and Yanagisako (2005) that "unwraps the sacred bundle," a phrase alluding to a paper by George Stocking titled "Guardians of the Sacred Bundle: The American Anthropological Association and the Representation of Holistic Anthropology" (Stocking 1988*b*). The "sacred bundle" refers to the traditional "four fields" or quadrants comprising American anthropology: archaeology, biological anthropology, sociocultural anthropology, and linguistic anthropology. See Silverman (2005) for explication on the history and organization of anthropology in the United States. For a critical backlash, see D'Andrade (2000).

serve as a disciplinary substitute for physical anthropology and for whom. It is for this reason that I deem my narrative prehistoric; it is that part of the story that remains unwritten, or uninscribed, as of yet. My sense is the introduction of something called "biological" anthropology followed shortly after or alongside the phrase "human biology" sometime in the late 1960s or 1970s and was adopted by those whose original training and whose primary allegiance remained with anthropology rather than biology, especially those working within departments of anthropology in America, at least. The narrative I offer here has also followed a postpositivist historiography that sees science as discourse and culture. In this view, the drive for unification and the need to create a mechanistic and materialistic narrative for human origins that accounted for the unity of life and the diversity of life was scripted by historians and philosophers of science upholding the Enlightenment project of the unity of knowledge with a positivistic worldview. The extent to which such historical scripts are written and rewritten and the extent to which they drive us to performance and tell us who we are remains a lively discussion topic for historians and philosophers as well as, of course, anthropologists.

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