



History of Anthropology Newsletter

Volume 39
Issue 2 December 2012

Article 3

1-1-2012

Conversions, Dreams, Defining Aims? Following Boas, Malinowski, Physics and Anthropology, Through Laboratory and Field

Richard Staley

This paper is posted at ScholarlyCommons. <http://repository.upenn.edu/han/vol39/iss2/3>
For more information, please contact repository@pobox.upenn.edu.

Conversions, Dreams, Defining Aims? Following Boas and Malinowski, Physics and Anthropology, through Laboratory and Field

Richard Staley, University of Wisconsin–Madison, rastaley@wisc.edu

Founding Figures

Anthropology's founding figures were academic travelers, who brought skills that were honed in a variety of fields to their new enterprise. Two such figures were Franz Boas, born in Minden, Westphalia in 1858, and Bronislaw Malinowski, born in Kraków, Galicia, in 1884. Both were recognized for helping to establish anthropology in their respective adopted homes of the United States and Britain. Both are associated with the development of participant observation, the fieldwork method requiring anthropologists to immerse themselves in the everyday lives of the peoples of other cultures.¹ Both were initially trained in physics (amongst other subjects), and many historians stress that both traveled a considerable intellectual distance from the grounding their early work provided. Boas, in particular, is conventionally described as having journeyed from physics to ethnology (Stocking 1982). Unlike others, however, I judge that in some senses Boas and Malinowski did not have to turn away from physics; significant elements of its inheritance remained not only in their dreams, but also in their defining aims.² Appreciation of the relevance of their intellectual backgrounds enlarges our understanding of them, and also represents a new perspective on the history of physics.

Both Boas and Malinowski pursued several educational threads and undertook formative fieldwork. Boas heard lectures from Clausius, Kirchhoff and Bunsen in Heidelberg before going to Bonn and then to Kiel, where the physicist Gustav Karsten supervised his 1881 PhD thesis on the absorption of light by samples of water and he also worked closely with the geographer Theobald Fischer (Stocking, 1982; Bunzl, 1996; Cole, chapter 3; Stocking 1982). From 1883 to 1884, Boas lived with Inuit while surveying Baffinland, later observing that both his education and his first field experience entailed compromises. In his "Anthropologist's Credo" of 1938, Boas said that his *emotional* connection with the world's phenomena led him to geography, but that his *intellectual* interests inclined him to mathematics and physics; he also observed that he had a less direct means of exploring the relations between the *subjective* and *objective* worlds in Baffinland than he would have had if he had undertaken psychophysical research into mental and physical processes.³ Such dualisms were important throughout Boas's career, although he represented them in subtly different ways in different periods. They affected his treatment of the differences between primitive and modern humans, and of the relations between sciences, as well as his self-understanding. Boas described two other formative experiences: shocks to his

¹ For their disciplinary importance, see Darnell; Firth; Stocking, 1986. On fieldwork, for which Malinowski is especially important, see Kuklick's recent study, which contrasts the often deliberately personal style of field research and the affective neutrality normative in the laboratory.

² Many early anthropologists came from scientific backgrounds—the medically-trained psychologist W.H.R. Rivers and the biologist Baldwin Spencer are just two examples—and their training shaped their research as well as their understanding of their new discipline. Kuklick emphasizes the importance of the natural history sciences in the development of fieldwork and notes that later generations came to understand fieldwork in particular, and anthropology in general, rather differently, in part because fieldwork methods were regarded as un-teachable and therefore not scientific.

³ Originally published in *The Nation* in 1938, Boas's "Credo" was published in revised form in 1939.

sense of independence from tradition and to his early materialism, which he received from a fellow student and his sister, respectively.⁴

Recalling his early career (e.g., Boas, 1939), Boas emphasized how new perspectives had overshadowed old interests, and his students often interpreted his 1883 trip as watershed and conversion experiences—as early fieldwork should be. But Stocking's study of Boas's correspondence led him to conclude that Boas's intellectual reorientation predated his journey to Baffinland. Nevertheless, Stocking charted a gradual shift from physics to ethnology that culminated in Boas's commitment to historical methods; and Boas's later writings provide much support for Stocking's narrative, which was slightly qualified and elaborated by Douglas Cole.⁵ Analyses of Boas's work have consistently stressed his importance in reshaping understandings of culture and of race, but assessments of his legacy have changed dramatically over time in the hands of such figures as Alfred Kroeber and Leslie White. There has been notable debate over the extent to which Boas was committed to science or historicism. This issue remains worth disputing.⁶

Boas's most important early confidant was his uncle Abraham Jacobi, an erstwhile revolutionary who in exile became professor of pediatrics at Columbia University (Viner). Over the course of several years, Boas wrote to him about earlier conversations, contemplated his future, and insisted that the diverse elements of his life fulfilled a plan. In the very letter in which Boas described his shifting attitude towards physics, mathematics, and geography, and noted that he had abandoned the materialism natural for a physicist, he also stated that physics had determined the direction of his work, and that his life's underlying question was: "How far may we consider the phenomena of organic life, and especially those of the psychic life, from a materialistic point of view, and what conclusions can be drawn from such a consideration?"⁷ In other letters he described his aim as investigation of the mechanism of the life of organisms, and especially of peoples, which led him to focus on the relations between the organic and inorganic, and above all on those between the life of a people and their physical environment.⁸ His Baffinland work convinced him that such effects were real but relatively trivial, and that attention to historical circumstances was

⁴ The intellectual legacy of the first shock is clearly reflected in much of Boas's work; in contrast, even early on he described his investigations of materialism as a goal that had to be kept distant both because of immediate career needs and the methods it would require. See Franz Boas to Abraham Jacobi, 2 January 1882, Franz Boas Papers, American Philosophical Society (APS).

⁵ Stocking, 1982, discusses Boas's students' views and argues that Boas had subordinated his physical interests to historical cosmological concerns by 1887; Cole dates Boas's repudiation of the scientific approach earlier, in 1885, when he made "his new field of geography an entirely 'historical' discipline possessing a legitimacy equal to the sciences"; chapter 7, quote on 122.

⁶ See Lewis, 2001, including the responses to his paper and his response to them. Interpretations of Boas's views are still used to endorse particular directions in current anthropology. See, for example, the papers in Bashkow et al.

⁷ "In wie weit dürfen wir die Erscheinungen des organischen Lebens und zumal die des psychischen Lebens vom mechanistischen Standpunkt aus betrachten und welchen Schlüsse können aus dieser Betrachtungsweise gezogen werden." Franz Boas to Abraham Jacobi (draft), 10 April 1882, Boas Papers, APS.

⁸ Boas's discussion of his goals recurs throughout letters sent from 1880 to 1885; on mechanism see especially Boas to Jacobi, 2 January 1882 and 2 May 1883, Boas Papers, APS.

necessary to understand more subtle questions, which he sought to pursue in research on Vancouver Island. In 1887, he famously described geography by outlining contrasts between different scientific approaches: those dominated by law (like physics) or by description (like geography), and those determining general elements (like physics) or investigating particular wholes (like history). It is revealing that physics recurs as a contrastive pole; but it is also significant that he thought a full science of geography required all of these approaches, a judgment often thought also revealing of his conception of anthropology.⁹

So what place did physics have in his later work and views, and did he remain true to his early objectives? I cannot yet venture a full answer, but want to note two points. The first is that as Stocking (1982) and Schaffer have shown, his early psycho-physical work on perceptual differences gave Boas a reflexive understanding that allowed him to critique the character of earlier ethnologists' linguistic evidence, and to read it as reflecting the cultural perspective of the researcher rather than the linguistic paucity of the subject. Specific techniques he learned as a student became irrelevant to much of his later research, though he trained his students in statistics throughout his career. But Boas's conceptual understanding of physics may have been integrated into the particular vision he developed of the relativity of culture, and this is my second point. Boas is famous for arguing that our understanding of truth goes as far as our civilization. But he described general differences between primitive and modern cultures in terms that I will relate to his self-understanding.

In his 1911 classic *The Mind of Primitive Man*, Boas stated that reasoning becomes more logical with advancing civilization. This is not because the capacity of individuals has changed, "but because the traditional material which is handed down to each individual has been thought out and worked out more thoroughly and more carefully." (206) He thought the subjective impressions associated with phenomena by primitive peoples—concepts related to emotional states—were gradually replaced by causal conceptualization, which produced scientific method. Linking resistance to change to emotional values, Boas argued that moderns—whose actions often served rational ends—were much more ready to change than primitives. This was not true, however, in the case of "the fundamental lines of thought and action which are determined by our early education, and which form the subconscious basis of all our activities." (Boas, 1911: 239-40; quote on 240) Boas thought that an utterly logical future was unattainable, and stated that one needed to respect the sacred ideal of the dreamer living in a world of musical tone. (Boas, 2008 [1932], 116) He might well have added an injunction to respect the emotional wellsprings of youth. That is, Boas explained the continuing significance of elements from his early days in his own thought; and physics remained his exemplar of causal science, retaining a place in the arc of his anthropological understanding of primitives and moderns.¹⁰

⁹ Boas, 1887, reprinted in Stocking, 1996. Arguing that Boas remained committed to geography until he found employment as a docent in anthropology at Clark University in 1889, Koelsch has criticised the teleological narrative found in many analyses of Boas's early career, which feature his Baffinland conversion to anthropology.

¹⁰ This particular strand of Boas's thought as well as full treatment of his changing views are usually omitted from discussions of Boas that judge him from the standpoint of later anthropologists. In exploring this aspect of Boas's work I am not attempting to revive Kroeber's argument that Boas made little use of history, attributing characteristic features of Boas's approach to the heritage of the exact laboratory

Cole suggests that Boas's intellectual maturation was a relatively straightforward task: he had to recognize that there was no future in psychophysics, and to repudiate the backwater physics he got from Karsten, who was as interested in meteorology and the local marina as in matter.¹¹ But the few physicists who taught through the 1860s and 1880s often sought to satisfy immediate organizational needs, as Karsten did; moreover, a nexus between surveying, studies of perception, and geography both had Humboldtian roots and significant pragmatic value. By the turn of the century, however, meteorology and geophysics had started to find separate institutional homes, and laboratory physics was settling on subatomic matter as its proper subject.¹² Yet the tradition of psychophysics had played an important role in the work of the Austrian physicist Ernst Mach, who studied the perception of sound and light, and offered widely influential critical historical perspectives on heat and mechanics in which he attacked absolutes in favor of relative measures, and even commented on the anthropology of Tylor.¹³ This was the physics that Malinowski found in Krakow, writing his doctoral dissertation in 1906 on the positivism of Avenarius and Mach, favoring Mach's understanding of science as simply the most economic description of nature that we have.¹⁴

Malinowski's concerns were philosophical. He focused on the mathematical concept of function, noted that ideas of economy had no place in fully deterministic systems, and critically examined the consistency of Mach's position. Malinowski worked hard in the laboratory, but it was the intellectual continuum he saw between Mach's thought and theoretical issues in anthropology that proved significant for him.¹⁵ Mach had insisted that the manual work of primitive man was pragmatically adaptive and instinctively

sciences. In response to Kroeber, Boas stated that in his 1887 discussion he had aligned himself "with those who are motivated by the affective appeal of a phenomenon that impresses us as a unit, although its elements may be irreducible to a common cause. In other words the problem that attracted me primarily was the intelligent understanding of a complex phenomenon. When from geography my interest was directed to ethnology, the same interest prevailed. To understand a phenomenon we have to know not only what it is, but also how it came into being. Our problem is historical." (Kroeber, 1935; Boas, 1936, quote on 137) Nevertheless, Boas's emphasis on history should not prevent us from recognizing the ground common to each side of the contrasts invoked (his sentiments might well have been shared by the physicist Ernst Mach, for example).

¹¹ Cole, 54-55; note especially footnotes 46-47. For an excellent study of pioneers in psychophysics, see Heidelberger. On Karsten and Kiel see Jungnickel and McCormack, vol. 1, 218, and Schmidt-Schönbeck.

¹² We have excellent studies of critical theoretical developments in fields like meteorology and geophysics, but despite Jungnickel and McCormack's valuable overview and Morus's cultural perspective we lack a clear understanding of the full range of work in physics in the last quarter of the century. Note that Theobald Fischer, Boas's mentor in geography, complained that Karsten sat in too many saddles and refused to give up teaching physical geography, a clear indication of the broad conception of physics that Karsten held. And see Theobald Fischer to Hermann Wagner, 16 January 1880, cited in Cole, 55.

¹³ Mach argued Tylor was right to think there were traces of fetishism in current scientific conceptions of "force"; Mach, 435. On Mach see Banks; Blackmore, 1972; and Blackmore, 1992.

¹⁴ Although he took lecture courses in mathematics and physics (outlined by Sredniawa), his thesis is best described as philosophy of science; see also Malinowski, 1993.

¹⁵ Young (82-5) describes Mach's work as having a durable effect on Malinowski's theorizing. See also Thornton and Skalnik, esp. 26-38. It is worth noting that Mach offered an energetic understanding that Malinowski would later also find in Rivers; see Kuklick, esp. 27-28.

rational—only needing to be lifted into consciousness to become scientific. While he thought science incompatible with religious preconceptions, he understood the scientific method to be shared across disciplines, argued against privileging any particular approach to phenomena, and focused on the need to understand the assumptions underlying our own theoretical perspectives.¹⁶ After completing his dissertation, Malinowski went to Leipzig to study economics with Karl Büchner and psychology with Wilhelm Wundt. He also developed an interest in anthropology, provoked, he claimed, by his reading of J. G. Frazer's *The Golden Bough* (which would lead him to study at the London School of Economics). He read Baldwin Spencer and F. J. Gillen's accounts of Australian aboriginal customs. He examined the theoretical views of J. G. Frazer and Émile Durkheim—both of whom (in different ways) drew on Spencer and Gillen's work and represented the Aborigines as the most primitive of humans—and judged that Aborigines' totemic practices were not so much primitive as means to satisfy needs found in all societies.¹⁷

Malinowski's approach thus illustrated a critical theoretical reflexivity that is akin to Boas's ability to recognize cultural preconceptions underlying perceptions. While doing several bouts of fieldwork in the Trobriand Islands at the time of World War I, he was able to make of the field a kind of laboratory. That is, he translated the investigations of psychophysics into reflections on his own experience:

Now I often have the feeling of being “at the bottom of consciousness”—the feeling of the physical foundation of mental life, the latter's dependence on the body so that every thought that flows effortlessly in some psychic medium has been laboriously formed inside the organism.¹⁸

And when he reached an understanding of the ring of exchanges that was the Kula, finding the constant and essential in the mix of what had seemed incoherent, he said: “the Ethnographer has to *construct* the picture of the big institution, very much as the physicist constructs his theory from the experimental data, which always have been within reach of everybody, but needed a consistent interpretation.” (Malinowski, 1961 [1922], 84)

It is notable that after Malinowski's death, Radcliffe-Brown strongly critiqued his functionalism for what he regarded as its biological reductionism. Recently, Matti Bunzl (2004) has responded to the currently widespread perception that Malinowski's image of the ethnographer's scientific role inscribed a problematic othering strategy, arguing that anthropologists should modulate Malinowskian fieldwork with a neo-Boasian interest in a rigorously historical understanding of culture, coupled with critical recognition of the secondary rationalizations of traditions accepted in our own and other cultures. These observations highlight two important points. First, even when controversial, the legacy of both of these founding fathers has been immensely important in shaping the development of their discipline; and second, a more nuanced understanding of the historical context within which each worked is surely required to generate a clear

¹⁶ Malinowski drew in particular on Mach, 1896 and Mach 1896 [1882].

¹⁷ See the discussion in Thornton and Skalnik.

¹⁸ Malinowski, 1967, 294, entry of 28 June 1918.

understanding of the consequent relationships at issue across the sciences and the humanities. I hope that exploring the relations between physics and anthropology will contribute to that goal, but it can only do so by striving for critically comprehensive perspectives. In contrast, most treatments of Boas are concerned with showing what new elements his body of work contributed to anthropological practice—and might contribute to current practice; and treatments of Malinowski are often similarly selective and presentist. Here I have begun to integrate some of the better-known strands of their thought into broader approaches to their intellectual lives, showing, for example, that Boas's self understanding was developed in the same register as his understanding of peoples. To use a metaphor of lines and lives, I ask whether this historical work operates like a fishing line, hooking what will soon be an object on a plate? Or does it describe the movement of the fish itself? (See Ingold 2007 and 2011) I think to fish with Boas we need to understand better how ready he was to live with compromise in pursuing a life's task, while to cross the oceans with Malinowski we should examine his interest in the physical foundations of the inner life. And to fish with a discipline or two will take working with the rigor of diverse lives. This essay can only be described as a beginning.

Works Cited

- Banks, Erik C. 2003. *Ernst Mach's World Elements: A Study in Natural Philosophy*. Dordrecht: Kluwer.
- Bashkow, Ira et al. 2004. "A New Boasian Anthropology: Theory for the Twenty-First Century." *American Anthropologist* 106: 433-494.
- Blackmore, John T. 1972. *Ernst Mach: His Work, Life, and Influence*. Berkeley: University of California Press.
- Blackmore, John T., ed., 1992. *Ernst Mach--A Deeper Look: Documents and New Perspectives*. Dordrecht: Kluwer.
- Boas, Franz. 1887. "The Study of Geography," *Science* 9: 137-141
- Boas, Franz. 1911. *The Mind of Primitive Man*. New York: Macmillan.
- Boas, Franz. 2008 [orig. 1932]. *Anthropology and Modern Life*. New Brunswick: Transaction Publishers.
- Boas, Franz. 1936. "History and Science in Anthropology: A Reply." *American Anthropologist* 38: 137-141.
- Boas, Franz. 1939. "Franz Boas." Pp. 19-29 in Clifton Fadiman, ed., *The Personal Philosophies of Certain Eminent Men and Women of Our Time*. New York: Simon and Schuster.
- Bunzl, Matti. 1996. "Franz Boas and the Humboldtian Tradition." Pp. 17-78 in George W. Stocking, Jr., ed., *Volkgeist as Method and Ethic: Essays on Boasian Anthropology and the German Ethnological Tradition*. Madison: University of Wisconsin Press.
- Bunzl, Matti. 2004. "Boas, Foucault, and the 'Native Anthropologist': Notes toward a Neo-Boasian Anthropology," *American Anthropologist* 106: 435-442.
- Cole, Douglas. 1999. *Franz Boas: The Early Years*. Seattle: University of Washington Press.

- Darnell, Regna. 1998. *And Along Came Boas*. Amsterdam/Philadelphia: John Benjamins.
- Firth, Raymond, ed. 1957. *Man and Culture: An Evaluation of the Work of Bronislaw Malinowski*. London: Routledge and Kegan Paul.
- Gross, Feliks. 1986. "Young Malinowski and His Later Years." *American Ethnologist* 13: 556-570.
- Heidelberger, Michael. 2004. *Nature from Within: Gustav Theodor Fechner and his Psychophysical Worldview*. Pittsburgh: University of Pittsburgh Press.
- Ingold, Tim. 2007. *Lines: A Brief History*. London/New York: Routledge.
- Ingold, Tim. 2011. *Being Alive: Essays on Movement, Knowledge and Description*. London/New York: Routledge.
- Jungnickel, Christa and Russell McCormack. 1986. *Intellectual Mastery of Nature: Theoretical Physics from Ohm to Einstein*. Chicago: University of Chicago Press.
- Koelsch, William A. 2004. "Franz Boas, Geographer, and the Problem of Disciplinary Identity." *Journal of the History of the Behavioral Sciences* 40: 1-22.
- Kroeber, A. L. 1935. "History and Science in Anthropology." *American Anthropologist* 37: 539-569.
- Kuklick, Henrika. 2011. "Personal Equations: Reflections on the History of Fieldwork, With Special Reference to Sociocultural Anthropology." *Isis* 102: 1-33.
- Lewis, Herbert S. 2001. "Boas, Darwin, Science and Anthropology." *Current Anthropology* 42: 381-394. Discussion by Darnell and others, as well as Lewis's response, 394-408.
- Mach, Ernst. 1883. *Die Mechanik in ihrer Entwicklung: historisch-kritisch dargestellt*. Leipzig: F.A. Brockhaus.
- Mach, Ernst. 1896. *Die Principien der Wärmelehre*. Leipzig: J.A. Barth.
- Mach, Ernst. 1896 [1882]. "Die ökonomische Natur der physikalischen Forschung," in *Populär-wissenschaftliche Vorlesungen*. Leipzig: J.A. Barth.
- Malinowski, Bronislaw. 1961 [originally 1922]. *Argonauts of the Western Pacific*. New York: Dutton.
- Malinowski, Bronislaw, 1993 [orig. 1906]. "On the Principle of the Economy of Thought." Pp. 89-115 in Robert J. Thornton and Peter Skalník, eds. *The Early Writings of Bronislaw Malinowski*. Cambridge: Cambridge University Press.
- Malinowski, Bronislaw. 1967. *A Diary in the Strict Sense of the Term*, translated by Norbert Guterman. Stanford: Stanford University Press.
- Morus, Iwan Rhys. 2005. *When Physics Became King*. Chicago: University of Chicago Press.
- Schaffer, Simon. 1994. *From Physics to Anthropology—And Back Again*. Cambridge, UK: Prickly Pear Press.

Schmidt-Schönbeck, Charlotte. 1965. *Jahre Physik und Astronomie an der Kieler Universität*. Kiel: F. Hirt.

Sredniawa, Bronislaw. 1981. "The Anthropologist as a Young Physicist: Bronislaw Malinowski's Apprenticeship." *Isis* 72: 613-620.

Stocking, George W., Jr. 1982. "From Physics to Ethnology." Pp. 133-160 in Stocking, *Race, Culture, and Evolution*. Chicago: University of Chicago Press.

Stocking, George W., Jr., ed. 1986. *Malinowski, Rivers, Benedict and Others*. Madison: University of Wisconsin Press.

Thornton, Robert J. and Peter Skalník, 1993. "Introduction: Malinowski's Reading, Writing, 1904-1914." Pp. 1-64 in Thornton and Skalník, eds. *The Early Writings of Bronislaw Malinowski*. Cambridge: Cambridge University Press.

Viner, Russell. 2004. "Abraham Jacobi and the Origins of Scientific Pediatrics." Pp. 23-46 in Alexandra Minna Stern and Howard Markel, eds., *Formative Years. Children's Health in the United States*. Ann Arbor: University of Michigan Press.

Young, Michael. W. 2004. *Malinowski. Odyssey of an Anthropologist, 1884-1920*. New Haven: Yale University Press.

Learning from the Past: Recreating Victorian Anthropometrics

Efram Sera-Shriar writes:

What lessons can we learn from nineteenth-century naturalists interested in human diversity? I am attempting to recreate a Victorian research practice, asking for responses to a questionnaire patterned after mid-nineteenth-century questionnaires. My aim is to see what we as historians can learn from the experience, to assess the strengths and weaknesses of nineteenth-century research techniques. For the questionnaire and further information about the project, visit the following website: <http://dissertationreviews.org/archives/2022>. Send responses to: esshriar@yorku.ca