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Global Histories, Vernacular Science, and African Genealogies; or, Is the History of Science Ready for the World?

*By Helen Tilley**

ABSTRACT

Scholars in imperial and science studies have recently begun to examine more systematically the different ways knowledge systems around the world have intersected. This essay concentrates on one aspect of this process, the codification of research into “primitive” or “indigenous” knowledge, especially knowledge that was transmitted orally, and argues that such investigations were a by-product of four interrelated phenomena: the globalization of the sciences themselves, particularly those fields that took the earth and its inhabitants as their object of analysis; the professionalization of anthropology and its growing emphasis on studying other cultures’ medical, technical, and natural knowledge; the European push, in the late nineteenth century, toward “global colonialism” and the ethnographic research that accompanied colonial state building; and, finally, colonized and marginalized peoples’ challenges to scientific epistemologies and their paradoxical call that scientists study their knowledge systems more carefully. These phenomena came together on a global scale in the decades surrounding the turn of the twentieth century to produce a subgenre of research within the sciences, here labeled “vernacular science,” focused explicitly on “native” knowledge.

Has, then, primitive man also his science? Certainly. He employs his senses and his brains, he observes shrewdly and draws correct conclusions. He thus creates a body of knowledge and a tradition of knowledge—that is, genuine science.
—Bronislaw Malinowski, “Science and Religion” (1930)

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IN THE OPENING LINES of an article on “magic, science, and religion,” published in 1925, the anthropologist Bronislaw Malinowski made a startling assertion: “There are no peoples however primitive . . . lacking either in the scientific attitude or in science, though this lack has been frequently attributed to them.” Survival in a “primitive community,” he continued, would not be possible “without the careful observation of natural process and a firm belief in its regularity, without the power of reasoning and without confidence in the power of reason; that is, without the rudiments of science.” Malinowski’s remarks were a direct rejoinder to the French theorist Lucien Lévy-Brühl, who had argued in 1922 that the “primitive mentality” was “pre-logical” and unable, as Malinowski put it, to “comprehend even the most elementary laws of nature.” Drawing on his fieldwork in the Trobriand Archipelago of Melanesia, Malinowski pointed to several domains of expertise, including agriculture, healing, warfare, astronomy, and navigation, that in his view refuted Lévy-Brühl’s arguments and demonstrated that the islanders possessed “systemic knowledge, methodically applied.” Referring especially to their navigation skills, he noted, “They have, in fact, a whole system of principles of sailing, embodied in a complex and rich terminology, traditionally handed on and obeyed as rationally and consistently as is modern science by modern sailors.” The difficulty with understanding what primitives knew, Malinowski averred, was that “the problem of primitive knowledge has been singularly neglected by anthropology.”¹

The kind of research Malinowski was recommending—and which, contrary to his own view, had already gathered considerable momentum both within and beyond anthropology—concentrated predominantly on knowledge transmitted orally. As he made clear, it had taken him years of sustained fieldwork, developing familiarity with the local language as well as a thorough understanding of Trobriand islanders’ social systems, to begin to describe the content of that knowledge. He was confident that his claims had “universal validity” for other “primitive cultures,” but he also felt that existing ethnographic data was still “piecemeal” and “indirect.” Closer scrutiny of “primitive” knowledge, he argued, would reveal its scientific foundations, thereby challenging the widely accepted view that only “civilized” communities could produce science. He even went so far as to address the objections of epistemologists who, he said, would insist on a narrower definition in which “the rules of science must be laid down explicitly, open to control by experiment and critique by reason.” “Even accepting this stricture,” he concluded, “there is hardly any doubt that many principles of savage knowledge are scientific in this sense.”²

Ironically, a full eighty-five years later, historians of science (and others in science studies, for that matter) continue to grapple with the philosophical implications and historical significance of Malinowski’s claims. Indeed, many contemporary discussions of science across cultures, of epistemic and medical pluralism, and of ethnoscience and indigenous knowledge run into the same kinds of conceptual problems, albeit using a different vocabulary, as Malinowski did in his day.³ It is therefore the purpose of this essay

¹ Bronislaw Malinowski, “Magic, Science, and Religion,” in *Science, Religion, and Reality*, ed. Joseph Needham (1925; New York: Braziller, 1955), pp. 21–84, on pp. 25, 31–32, 36. For the epigraph see Malinowski, “Science and Religion,” *Listener*, Oct. 1930, rpt. in Malinowski, *Sex, Culture, and Myth* (London: Hart-Davis, 1963), pp. 256–265, on p. 256.

² Malinowski, “Magic, Science, and Religion,” pp. 38–39.

³ See, e.g., Helaine Selin, ed., *Encyclopaedia of the History of Science, Technology, and Medicine in Non-Western Cultures*, 2nd ed. (New York: Springer, 2008); Selin and Hugh Shapiro, eds., *Medicine across Cultures: History and Practice of Medicine in Non-Western Cultures* (Boston: Kluwer, 2003); Helen Watson-Verran and David Turnbull, “Science and Other Indigenous Knowledge Systems,” in *Handbook of Science and Technology Studies*, ed. Sheila Jasanoff, Gerald E. Markle, James C. Peterson, and Trevor J. Pinch (London:

to examine some of the origins of scholarly interest in the science (and medicine) of “primitive man” and to juxtapose this interest to the history of scientific research and fieldwork in sub-Saharan Africa. Greatest emphasis is placed on the late nineteenth and early twentieth centuries, when scientific endeavors of all kinds were scaled up and when cross-cultural interpenetration increased dramatically. In order to draw attention to the constructed nature of “primitive knowledge” and to the fact that the parameters for its study were often defined explicitly in scientific terms, I conclude the essay by suggesting that scholars label these investigations “vernacular science,” a phrase that highlights, especially, translations between different epistemologies and ways of knowing.⁴

GLOBAL SCIENCE AND GLOBAL COLONIALISM

One way to understand the varied origins of our own specialty, the history of science, including its geographical and cultural imaginaries, is to pay close attention to the ways in which the sciences themselves became “uniquely global and uniquely powerful.”⁵ These processes received a strong push between the sixteenth and eighteenth centuries with European exploratory and colonial efforts in the Atlantic, Indian, and Pacific Ocean worlds. Yet it would be wrong to suggest either that a “global order of knowledge” was inevitable or that intercontinental networks originated with Europeans.⁶ In much the same way that there existed relative economic and political parity among various empire-building polities across Eurasia in this period, there also existed relative parity among knowledge systems around the world.

Not until the nineteenth century, and particularly the period after 1850, did scientific institutions and ideologies begin to attain worldwide preeminence. This corresponded in no small measure to Europe’s pursuit of “global colonialism,” which succeeded in bringing roughly three-quarters of the world’s surface under European rule.⁷ Yet a range of other factors also contributed to these globalizing trends, including the organization of international science congresses and networks, which established shared nomenclature and methods within disciplines and across nations; the professionalization of the biosciences and field sciences—such as geology, geography, evolution, archaeology, paleontology, zoology, botany, and anthropology—which took the earth and its inhabitants as their object of study; the inauguration of world fairs and science museums and their attendant exhibits comparing accomplishments in different parts of the globe and among different peoples; the development of international communication systems that allowed

Sage, 1995), pp. 115–139; and Arun Agrawal, “Dismantling the Divide between Indigenous and Scientific Knowledge,” *Development and Change*, 1995, 26:413–439.

⁴ For two different uses of this phrase see Pamela Smith, *Body of the Artisan: Art and Experience in the Scientific Revolution* (Chicago: Univ. Chicago Press, 2004), “Conclusion”; and Ron Eglash, “Introduction,” in *Appropriating Technology: Vernacular Science and Social Power*, ed. Eglash, Jennifer L. Croissant, Giovanna Di Chiro, and Rayvon Fouché (Minneapolis: Univ. Minnesota Press, 2004), pp. vii–xxi. Eglash uses the phrase “vernacular science” to refer to “the appropriation of science and technology by marginalized groups” (p. xvi). Smith uses it to characterize the expertise nonelites, or artisans, contributed to scientific knowledge in the early modern period. When referring to nonelite and especially orally transmitted knowledge, I prefer the label “vernacular knowledge.” Then the phrase “vernacular science” can be reserved for the *investigations* scientific elites, including anthropologists and technical officers, undertook into subaltern knowledge.

⁵ Here I am extending to all sciences a remark Roy Porter made about the history of biomedicine; see Roy Porter, *The Greatest Benefit to Mankind: A Medical History of Humanity* (London: HarperCollins, 1997), p. 6.

⁶ Kapil Raj, *Relocating Modern Science: Circulation and the Construction of Knowledge in South Asia and Europe, 1650–1900* (Basingstoke: Palgrave Macmillan, 2007), p. 13.

⁷ I am borrowing the phrase “global colonialism” from John Darwin, *After Tamerlane: The Global History of Empire since 1405* (New York: Bloomsbury, 2008).

much more rapid circulation of scientific journals and correspondence; and the standardization and proliferation of national and international laws regulating, and therefore also defining, science, medicine, and technology (including and especially patent laws). It was through these imperial and transnational pathways that scientific communities began to achieve a critical mass and sufficient professional power to enable them both to think and to act in planetary terms, a process that continues to this day.

To illustrate some of these patterns, we can consider briefly the history of the conquest and colonization of sub-Saharan Africa between 1860 and World War I. During these decades, the African continent came under more intense scientific examination than ever before.⁸ This should hardly be surprising when we remember that seven European states took formal possession of the bulk of African territories (circa 1885 to 1900), while several more, including Switzerland and the United States, played informal roles as patrons and instigators of new research. International geographical congresses and learned societies devoted considerable time and resources to discussing Africa's exploration and study. Museums and traveling displays across Europe drew attention to the races and cultures of the continent. Field expeditions received widespread coverage in journals and newspapers, touching on both sensational and scientific results (which were sometimes one and the same). Colonial states and imperial administrators sponsored investigations of each territory's natural resources, with varying thoroughness, and began the slow process of establishing centers for research on the ground (including botanical stations, agricultural and medical departments, and even ethnographic institutes). Scientific commissions and technical officers brought African samples—plant, animal, and mineral—back to European and North American sites for further study. And administrators established laws to regulate, among other things, who received medical licenses, what would constitute appropriate therapeutics, and how land was to be used, all of which impinged on existing African practices of healing and environmental management. A common refrain of the period, which both justified and explained colonial conquest, was that sub-Saharan Africa was a backward region of the world in need of both economic and social development.

To suggest, however, that this heightened scientific analysis and objectification—not just of Africa, but of most other regions of the world as well—was straightforward or simple, much less complete, would be misleading in the extreme. Despite concerted efforts on the part of scientific professionals to achieve global coverage, the density of individuals and institutions across continents, nations, and empires varied widely. This variation created what we might call strong and weak spots in the construction of a scientific world order, just as there existed strong and weak points in the emergence and spread of global capitalism. The relative paucity of technical officers and scientists in colonial Africa, for instance, made it a “global shadow.”⁹ This unevenness could have significant effects on geopolitical and epistemological debates over what constituted science in the first place.

Thanks to the work of regional and imperial historians, we now know a great deal more than we did even twenty years ago about the different ways scientific knowledge and experts themselves were transformed through transnational circulation and travel. Diffusionist theories have given way to interactive accounts in which knowledge grounded in European cultures,

⁸ For recent monographs on this phenomenon see the work of Johannes Fabian, Patrick Harries, Saul Dubow, Annie Coombes, and Lawrence Drietas.

⁹ James Ferguson, *Global Shadows: Africa in the Neo-Liberal World Order* (Durham, N.C.: Duke Univ. Press, 2006).

once transplanted, not only becomes hybrid—or, to switch from biological to linguistic metaphors, creole—but also affects research questions and institutional interests back in Europe. Close studies of these exchanges in the Americas, Asia, the Caribbean, Africa, and the Pacific have driven home the degree to which places and peoples outside Europe have served as important venues for and catalysts of theoretical innovation. They have also underscored just how often ideas and practices from other cultures have been assimilated into scientific epistemologies and appropriated by various specialists. All of these revelations raise interesting questions about just how “Western” Western science really is. It would be difficult, for instance, to do justice to the twentieth-century histories of tropical medicine, anthropology, demography, archaeology, racial science, and ecology and conservation biology without focusing on African, Asian, and Pacific research sites.

ANTHROPOLOGY, WORLD HISTORY, AND PRIMITIVE KNOWLEDGE

The push for history, and, by extension, the history (and philosophy) of science, to go global is hardly a new phenomenon. As early as 1874 the authors of the British Association’s *Notes and Queries on Anthropology* took historians to task for ignoring the bulk of humanity: “History has confined itself chiefly to the achievements of special races; but the anthropologist regards all races as equally worthy of a place in the records of human development.”¹⁰ There is no need to embrace their sense of racial hierarchies to recognize their wider point: only by refocusing historical emphasis away from Europe and Europeans would it be possible to produce a complete picture of humankind.

One of the ironies of the interplay between empire building and the global expansion of scientific research in the decades surrounding the turn of the twentieth century is that it had the unintended effect of generating widespread discussions about the epistemologies and cosmologies of colonized and marginalized peoples. That is to say, this process shone the spotlight on vernacular and subaltern knowledge, especially knowledge transmitted orally. Indeed, it was in this period, from about 1860 to 1940, that “primitive knowledge” began to be an object of scientific inquiry in its own right. Of course, naturalists and physicians had for centuries been encouraged by their patrons to pay attention to the ideas and practices of local populations during their travels. Whether these authors admired or denigrated their subjects’ explanations of the natural world, there is considerable evidence in the historical record of epistemological give and take across cultures well into the nineteenth century. What changed after, roughly, 1860 is that inquiries into “primitive knowledge” came to be more carefully defined and systematized. These investigations, in other words, began to take on the characteristics of a disciplinary subgenre of the sciences themselves. Thus questions about the usefulness, accuracy, and commensurability (with other sciences) of vernacular knowledge could be more actively debated. To understand this development we must return to the history of anthropology and to the kinds of research priorities expressed in publications such as *Notes and Queries on Anthropology*.

What made *Notes and Queries*, and its cognate questionnaires, guides, and periodicals, so significant was not merely that it sanctioned ethnographic interests that practitioners of other field sciences as well as administrators in colonial states were then beginning to embrace, but that it also inaugurated a tradition within anthropology of promoting investigations into the natural, technical, and medical knowledge of peoples “in uncivil-

¹⁰ British Association for the Advancement of Science, *Notes and Queries on Anthropology for the Use of Travellers and Residents in Uncivilized Lands* (London: Edward Stanford, 1874), p. iv.

lized lands.”¹¹ In the five different editions of *Notes and Queries* published between 1874 and 1929, academics and amateurs alike were asked to consider in ever-increasing detail how different groups made sense of and attempted to control the world around them. (In fact, Malinowski referred explicitly to the fourth edition from 1912, in which questions about the “natural sciences” appeared for the first time, when he made his claim that all peoples possess science.) Shortly after the first edition of *Notes and Queries* was published, one of its primary contributors, E. B. Tylor, then arguably the foremost specialist on “primitive cultures” in Britain, decided to include a chapter on “science” in his textbook *Anthropology*. Given his desire to survey societies all around the world, he felt free to generalize broadly about what “primitives” knew, noting that this encompassed geography, astronomy, botany, medicine, and even mathematics. Especially in the fields of zoology and botany, he remarked, “savages and barbarians” had skills that “astonishe[d] the European naturalist whom they guide through the jungle.”¹²

Yet the exact status of this knowledge—which was increasingly preceded by a modifier such as “traditional,” “primitive,” “local,” “native,” “aboriginal,” “folk,” “ethno,” or, more recently, “indigenous”—remained an open question. Ethnographers and their allies often related these categories to the construction of *scientific* knowledge, typically in terms of classification and use, but they could also see “primitive knowledge” as existing apart from science, as something epistemologically different. For an example of the instrumental perspective, we might consider remarks by Louis and Elizabeth Agassiz following their travels in South America in 1865–1866:

A large number of the trees forming these forests are still unknown to science, and yet Indians, these practical botanists and zoologists, are well acquainted, not only with their external appearance, but also with their various properties. So intimate is their practical knowledge of the natural objects about them, that . . . it would greatly contribute to the progress of science if a systematic record were made of all information thus scattered throughout the land; an encyclopedia of the woods, as it were, taken down from the tribes which inhabit them.

For an illustration of the comparative point of view, we can return to Tylor himself and his description of the “common” knowledge of “primitive man,” which he argued laid the foundations for “proper science”:

Science is exact, regular, arranged knowledge. Of common knowledge savages and barbarians have a vast deal, indeed the struggle of life could not be carried on without it. . . . In a rude way he [primitive man] is a physicist in making fire, a chemist in cooking, a surgeon in binding up wounds, a geographer in knowing his rivers and mountains, a mathematician in counting on his fingers. All this is knowledge, and it was on these foundations that science proper began to be built up, when the art of writing had come in and society had entered on the civilized stage.¹³

The study of primitive knowledge, much like the study of magic, could shed light on the history of science itself.

¹¹ This phrase stems from the title of the first edition (1874); it was dropped in the following four editions, published in 1892, 1899, 1912, and 1929.

¹² Malinowski, “Magic, Science, and Religion” (cit. n. 1), p. 32; and E. B. Tylor, *Anthropology: An Introduction to the Study of Man and Civilization* (New York: Appleton, 1881), pp. 329–330. See also Tylor, *Primitive Culture: Researches into the Development of Mythology, Philosophy, Religion, Language, Art, and Custom* (London: John Murray, 1871).

¹³ Louis Agassiz and Elizabeth C. Agassiz, *A Journey in Brazil* (Boston: Ticknor & Fields, 1869), p. 339; and Tylor, *Anthropology*, p. 309.

The scale of overseas empire building at the end of the nineteenth century without question contributed to this bifurcated nomenclature of primitive and modern knowledge, but nation building and the process of creating *informal* economic and scientific empires also played a key role, as we can see from a cursory examination of those North American authors who helped to define the new field of “ethno-botany.” As with the *Notes and Queries* example, the contours of ethno-botanical research were outlined by multiple authors and involved several anchor institutions, including the U.S. Bureau of Ethnology, which was founded in 1879. Their field of operations initially concentrated on North America but also gradually took in parts of Central and South America, focusing largely on “natives” or “aboriginals.” The anthropologist Stephen Powers, for instance, is credited, while investigating the Neeshenam people in California, with first using the phrase “aboriginal botany” in 1875 to designate the study of “all the forms of the vegetable world which the aborigines use for medicine, food, textile fabrics, ornaments, etc.” “Among savages,” he explained, “there is no systematic classification of botanical knowledge. . . . But it is not for a moment to be supposed that the Indian is a superficial observer; he takes careful note of the forms and qualities of everything that grows on the face of the earth . . . his nomenclature is remarkably full. . . . Nothing escapes him—he has a name for everything.” Examining these names and the attributes “Indians” assigned to them could reveal a great deal, Powers argued, about plants’ “real properties.” In the process, it would also provide a better understanding of the division of labor among men and women, particularly in terms of expert knowledge. “The Indians,” Powers concluded, “have names for all the internal organs of the human body; and their ideas of their functions, and of the operations of medicine, are at least as respectable as those of the Chinese.”¹⁴

The bridge between anthropology and other field sciences is evident in the synthesis on “ethno-botany” provided by John Harshberger twenty years later. Trained in botany at the University of Pennsylvania, Harshberger was an early convert to and proponent of both ecological and ethnographic studies in the Americas. In fact, he first outlined his definition of ethno-botany before an international audience at the 1893 World’s Columbian Exposition in Chicago.¹⁵ According to Harshberger, “The study of ethno-botany aids in elucidating the cultural position of the tribes who used the plants for food, shelter, or clothing.” It also, he elaborated, “throws light upon the past distribution of plants,” “helps us to decide as to the ancient trade routes,” and “is useful as suggesting new lines of manufacture at the present day . . . and new uses of plants of which we were in ignorance.” Such research would “stimulate greatly interest in Indian plants and at the same time . . . be of greatest scientific value.”¹⁶ These two motives—new scientific knowledge and utilitarian application (including commercial gain)—remain key justifications for ethnoscientific research to this day, which helps to explain why the issue of who “owns” indigenous innovations has increasingly come to the fore.

¹⁴ Stephen Powers, “Aboriginal Botany,” *Proceedings of the California Academy of Sciences*, 1875, 5:373–379, on pp. 373, 379.

¹⁵ He summarizes his findings in J. W. Harshberger, “The Purposes of Ethno-Botany,” *Botanical Gazette*, 1896, 21:146–154. For his early embrace of ecological studies see Harshberger, “A Botanical Excursion to Mexico,” *Science*, 1897, 6:569–572.

¹⁶ Harshberger, “Purposes of Ethno-Botany,” pp. 146, 148, 149, 152, 153, 154. See also Edward Casterter, “The Domain of Ethnobiology,” *American Naturalist*, 1944, 78:158–170; and Albert Hill, “Ethnobotany in Latin America,” in *Plants and Plant Science in Latin America*, ed. Frans Verdoorn (Waltham, Mass.: Chronica Botanica, 1945), pp. 176–181.

VERNACULAR SCIENCE AND AFRICAN GENEALOGIES

The question historians of science must ask is how we ought to refer to the studies that made various forms of “native” knowledge visible, credible, and mobile in the first place. Jorge Cañizares-Esguerra has recently pointed out that a significant consequence of early modern overseas empire building, and the subsequent proliferation of numerous new states in the Americas, was a turn toward *patriotic science*.¹⁷ Creole intellectuals and experts in the New World wished to connect nation and nature in ways that underscored the unique, even superior, qualities of their own land and its leaders. Studies of primitive knowledge, by contrast, could be called *vernacular science*, which suggests the translation and, more important, appropriation of select dimensions of vernacular knowledge into scientific worldviews. Such a label seems both relevant and necessary: relevant because the word “vernacular” signals the issues of linguistic and cultural specificity, while also reminding us of the various tensions between universal and particular truth claims; and necessary in order to highlight the role scientists, including anthropologists, played as intermediaries who defined the parameters of this research. If philosophers of science today grant that there is no singular knowledge system that can be grouped under the label “science” and that within the myriad sciences there are often competing and incommensurable epistemologies, then these claims should force historians to pay much closer attention to the changing and porous boundaries that have existed between science and nonscience during rapid and extended moments of cross-cultural interpenetration.

By the early twentieth century, the African continent was the largest colonial landmass in the world, and its tropical states were also, on average, the youngest. For the better part of the colonial period, little room existed for Africans themselves to join the ranks of scientific professions in anything but small numbers. Not only were there few institutions of higher education for scientific training in the tropical colonies (especially as compared to other imperial centers such as British India, South Africa, and the Dutch East Indies), but the racial underpinnings of colonial states often meant that Africans’ entry into scientific and medical professions was either deliberately blocked or slowed, for the simple reason that officials wished to avoid shaking up the social order too quickly. Having less direct access to the production of knowledge, Africans instead were often shunted into numerous indirect roles as assistants, informants, translators, and ethnographic subjects. This subordinate relationship, ironically, bolstered colonial states’ ethnographic interests and dovetailed with anthropologists’ concerns to investigate the content of Africans’ natural and medical knowledge. Had European-trained scientists existed in greater numbers in tropical Africa, it might have been easier to stamp out or ignore Africans’ cosmologies, but their relatively thin distribution and the bureaucratic weaknesses of colonial states mitigated against this, thus unintentionally sanctioning *scientific* interest in “indigenous knowledge.”

An early example of this process would be E. B. Tylor’s self-proclaimed pupil, Mary Kingsley, who journeyed in West Africa twice in the 1890s to examine “fetish beliefs” in the region. Guided by Tylor’s own publications and by the view that “careful and unprejudiced study of African beliefs and customs would lead to a true knowledge of the Africans,” Kingsley was among the first ethnographers to refer to practitioners of “African therapeutics” as “incipient scientists.” “The natives themselves you will find are very

¹⁷ See Jorge Cañizares-Esguerra, “New World, New Stars: Patriotic Astrology and the Invention of Indian and Creole Bodies in Colonial Spanish America, 1600–1650,” *American Historical Review*, 1999, 104:33–68.

clever at doctoring in their own way,” she declared in 1899, “by no means entirely depending on magic and spells . . . and on the whole it suits them very well.” She therefore recommended that European specialists “add your medical knowledge and your special drugs to theirs,” because she did not think it would be wise to displace their systems entirely.¹⁸ For Kingsley, as for many proponents of anthropology in this era, Africans’ knowledge occupied a liminal space; it was characterized variously as not-yet or not-quite (i.e., “incipient”) science that was nonetheless worthy of study.

Harry Johnston, who had served as Commissioner in Nyasaland (now Malawi) and Uganda in the 1890s and early 1900s, provides a parallel example of the way colonial officials developed their own ethnographic interests. When speaking at the inaugural meeting of Britain’s African Society in 1901, Johnston told his audience in no uncertain terms that “we should not be too proud to learn from . . . the Africans themselves. Our medical officers in Central Africa have increased their knowledge of therapeutics by studying the virtues of native drugs and ointments.” Johnston was not being disingenuous here: he had reported in his 1897 volume on British Central Africa that the indigenous populations “have much practical good sense about applying remedies.” “The genuine doctor or doctress,” he noted with some surprise, given his dubiousness about “mystic rites” and “magical value,” “has a considerable knowledge of drugs, and frequently effects remarkable cures by honest therapeutics.” “The whole subject of native drugs is a most important one which is being investigated by Europeans in the country.” He went on to identify a number of these drugs, which he reported were used as sedatives and for pain relief as well as for specific remedies in the case of asthma, burns, earaches, childbirth, and even madness. He also noted that populations in Central Africa made widespread use of massage, sweating cures, and cupping and quoted a resident physician in the northern part of the territory as telling him, “We have a lot to learn from the Wankonde [Ngonde] doctors.”¹⁹

By the interwar period, European scholarly interest in “African medicine,” as well as in “native agriculture” and botanical knowledge, had only increased among field anthropologists and members of the colonial technical services. Indeed, this corresponded to the large increase in colonial staff that took place in the 1920s, as well as to the creation and consolidation of a range of learned societies devoted to African subjects. Some studies, including Edward Evans-Pritchard’s landmark *Witchcraft, Oracles, and Magic among the Azande* (1937) of the Anglo-Egyptian Sudan, tried to place therapeutics within wider discussions of the rationality of magical beliefs; while others, including the ecological surveys of Northern Rhodesia (Zambia), which involved both anthropologists and ecologists, focused more on the soundness and viability of “native” knowledge of the land.²⁰ These types of studies were, in fact, directly influential in shaping the kinds of economic and social interventions colonial states pursued.

As we might expect given the transnational and cosmopolitan nature of these debates, African elites were part of the conversation from the beginning, often embracing the language of science (and biomedicine) to advance their own political and social aims.

¹⁸ Mary Kingsley, “The Fetish View of the Human Soul,” *Folklore*, 1897, 8:138–151, on p. 138; and Kingsley, *West African Studies* (London: Macmillan, 1899), pp. 163, 168.

¹⁹ Harry Johnston, in “The African Society Inaugural Meeting,” *Journal of the African Society*, 1901, 1:i–xx, on p. xvi; and Johnston, *British Central Africa: An Attempt to Give Some Account of a Portion of the Territories under British Influence North of the Zambezi* (New York: Edward Arnold, 1897), pp. 439–443. The Ngonde are also known as the Nyakyusa.

²⁰ I contextualize these developments in my forthcoming book: Helen Tilley, *Africa as a Living Laboratory: Empire, Development, and the Problem of Scientific Knowledge* (Chicago: Univ. Chicago Press, forthcoming).

They tended to frame their participation in the context of furthering ethnographic understanding. In 1903, for example, the Ghanaian barrister and political activist J. E. Casely Hayford observed in his book *Gold Coast Native Institutions* that “it might repay European medical men to study native therapeutics in its application to the treatment of diseases.” The Kenyan intellectual and nationalist Jomo Kenyatta, while a pupil of Bronislaw Malinowski, asserted before an audience at the 1934 Anthropological Congress in London that “African medicine is worth studying by European sciences.” And Nnamdi Azikiwe, an editor, Fellow of the Royal Anthropological Institute, and future president of Nigeria, posed a question in 1937 that was also reminiscent of Malinowski’s research agenda. In classifying Africans’ knowledge, he asked, was it correct to call it “superstition,” or might it better be labeled “super-science”? Azikiwe himself was hardly sure. “If an African would only study the science of the West,” he continued, “and try to correlate the same with African science, an important contribution could be made to the studies of science.”²¹ The interest on the part of African elites in comparing their knowledge systems with those imposed through colonial states helps to explain why, in the decades surrounding decolonization, studies of “traditional medicine” received such a tremendous boost.²²

Yet we must not forget that such scholarship often worked against the grain of state laws and official policies: medical licenses were granted only to practitioners of biomedicine (with a handful of exceptions toward the end of the colonial period), and most colonial (and postcolonial) states actively prohibited various dimensions of African healing through anti-witchcraft laws. In other words, even as a small number of scholars were championing the study of Africans’ knowledge—and, by extension, defining and justifying this research—other imperial and state actors were working to undermine it and, more to the point, its possessors.

CONCLUSION

By the middle of the twentieth century there existed an essential paradox surrounding the status of non-Western epistemologies. On the one hand, types of knowledge perceived to be outside the realm of “modern science” were increasingly relegated to the sidelines within both empires and nation-states. Yet, on the other hand, as empires and states faltered in the course of new political and economic rivalries, and as challenges to the epistemological supremacy and accuracy of scientific claims persisted, subaltern forms of knowledge were increasingly scrutinized for what they had to offer science. Studies of indigenous or vernacular knowledge thus owed their origins as much to intrinsic properties of the field and biosciences as to sociopolitical movements operating outside scientific epistemologies. What made and continues to make vernacular knowledge legible was a kind of vernacular science—one attuned to the compatibilities and symmetries (as well as the incompatibilities and asymmetries) of different knowledge systems. To drive the point home, the construction of indigenous knowledge via vernacular science deserves to be studied part and parcel with other histories of science.

²¹ J. E. Casely Hayford, *Gold Coast Native Institutions* (London: Sweet & Maxwell, 1903), p. 106; Jomo Kenyatta, comment after panels on “Witchcraft and Colonial Legislation,” in *Congrès International des Sciences Anthropologiques et Ethnologiques* (London: Royal Anthropological Institute, 1934), p. 230; and Nnamdi Azikiwe, *Renasant Africa* (Accra, [1937]), Ch. 22: “Superstition or Super-Science?” p. 141.

²² Ira Harrison and Sheila Cosminsky, *Traditional Medicine: An Annotated Bibliography of Africa, Latin America, and the Caribbean* (New York: Garland, 1976).