

CLASSIC ARTICLE

INTRODUCTION TO A.M.A. AUBRÉVILLE'S ARTICLE

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A well-known botanist, André Marie A. Aubréville (1897-1982) was already a decorated veteran of the trench warfare in France during World War I before he ever discovered forestry. After the war, he found his way to the tropics, serving as a forest engineer throughout the French Empire's vast array of African colonies. His extensive travels and studies would result in his gaining great knowledge of the region's botany and keen insights about how climate and land-use dynamics interact to create and slowly change vegetated landscapes throughout Africa.

Having risen to the government position of Inspector-General of Waters and Forests, while simultaneously serving as President of the Botanical Society of France, Aubréville retired in 1955, only to take up a new career as a professor at France's Natural History Museum, where he directed the Laboratory Phanérogamie. In this new capacity, he travelled even more broadly, studying vegetation throughout the tropics. Aubréville was an extremely productive scientist, publishing more than 300 papers and 20 books on studies conducted throughout Africa, southeast Asia, South America, and New Caledonia. He is often remembered for his work addressing desertification: the progressive degradation of relatively dry land regions that become increasingly arid due to a combination of climate change and human land use practices, eventually losing water bodies, vegetation cover, and wildlife. He did not coin the term, but Aubréville (1949) was key in popularizing desertification as an important ecological process. Desertification is now viewed as a serious global environmental problem.

In addition to his many other works, Aubréville (1947) also documented the central role of fire in shaping the distribution and ongoing degradation of equatorial Africa's rainforests. The fire ecology of these wet forest ecosystems that are, by their very nature, inimical to the very existence of fire, plays out slowly over large landscapes. Fire-rich savannas and fire-absent rainforests exhibit an ebb and flow of dominance over millennia, as climate shifts to favor one or the other. Aubréville noted that human activities were causing forests to be eroded by frequent fire incursions, despite prevailing climate conditions that should favor the encroachment of forests into the surrounding savannas.

Although he didn't have our current terminology for describing what he observed, Aubréville clearly understood the dynamics of forest fragmentation, continuity of available fuels, and effects of fire frequency. He knew that the prevalent land management strategy of near-annual burning was both longstanding and slowly eating away at the region's forest cover in a manner that would eventually shape his ideas on desertification. He observed that fire was insidiously thinning and removing forests all along central Africa's extensive forest edges at rates that were regionally important but that occurred slowly enough locally that most contemporaries did not even realize that it was happening. While other people erroneously described the few odd instances of forests taking over grasslands as invasions, Aubréville comprehended that these locations were actually the unusual cases in which chance reductions in fire frequency had simply allowed forests to begin recolonizing some of their natural extent.

The magnitude of what Aubréville was saying is still poorly understood. Fire has obvious evolutionary importance in modulating the relative dominance of savanna and forest ecosystems across landscapes, but it is human agency through fire use during recent millennia that has vastly diminished the forest cover of both central and western Africa. Fire wielding people have intentionally deforested some regions but have greatly reduced regional forest cover primarily as a by-product of their land management practices in adjacent savannas. The profound change that we have wrought can be glimpsed in the recent work of Bond *et al.* (2005), who modeled potential natural vegetation cover in the absence of fire on a global level. Although forest cover would be expected to double globally, forest cover would potentially more than quadruple in Africa. Human fire use is not responsible for all of this forest cover discrepancy, but Aubréville was among the first to understand the critical importance of fire in shaping tropical landscapes.

LITERATURE CITED

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