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First direct dating for the construction of three temples in Angkor, Cambodia

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Architecture represents key evidence of dynastic practice and change in the archaeological world. Chronologies for many important buildings and sequences, including the medieval iconic temples at Angkor (Cambodia) are based solely on indirect associations from inscriptions and architectural styles. Establishing direct techniques to verify construction episodes is complicated by the lack of datable remains from secure contexts. Iron crampons are the most consistently available material both in Angkorian and pre-modern architectural traditions however previous attempts at radiocarbon dating were fraught by methodological difficulties.

Using a newly-developed approach based on AMS radiocarbon dating to directly date iron crampons integrated into the structure we present the first direct evidence for the history of three major temples in Angkor: the Royal Palace, the Baphuon and the Preah Khan. The Baphuon is particularly crucial both for the context and date of its construction and the period when its western façade was modified into a gigantic Reclining Buddha. The first absolute dates recovered from these temples provide important, new insights into the developmental history of Angkor. Accurately dating iron with relatively low carbon content is a decisive step to test long-standing assumptions about architectural histories and political processes for states that incorporated iron into buildings.