

## Burmese days: primate paleontology in the Union of Myanmar

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Myanmar (formerly known as Burma) was part of British colonial India in the early part of the 20th Century. British geologists working for the Geological Survey of India began exploring the paleontological potential of central Myanmar prior to the First World War. Their work in the Pondaung Formation, of late middle Eocene age, yielded a diverse mammalian fauna including one primate, *Pondaungia cotteri*. Subsequent work in the Pondaung Formation by the celebrated American paleontologist Barnum Brown led to the discovery of a second fossil primate from the Pondaung Formation, *Amphipithecus mogaungensis*. Both *Pondaungia* and *Amphipithecus* were originally thought to be early members of the anthropoid lineage (which today consists of monkeys, apes and humans), although their anthropoid status has subsequently been challenged. Scientific exploration in Myanmar was significantly disrupted by World War II and the geopolitical isolation of the country following its independence from Great Britain in 1948.

Following decades of scientific quiescence, a new phase of exploration of the Eocene Pondaung Formation began in the late 1990s. This renewed activity has generated a wealth of new fossil material documenting the ancient primate fauna of the Pondaung Formation, but many scientific controversies continue unabated. The new information about the ancient primates of the Pondaung Formation fall into two major categories. First, we have greatly expanded the number of extinct primate species and higher-level taxa that is known from the Pondaung Formation. In addition to *Pondaungia* and *Amphipithecus* (which are very closely related, and may, in fact, be the same taxon), we now know that central Myanmar was home to a small endemic radiation of amphipithecoid primates, ranging in size from *Pondaungia* (~9 kg) to *Ganlea* (~2.5 kg) to *Myanmarpithecus* (~1.8 kg). In addition to amphipithecoids, we have also recovered primate fossils pertaining to two other higher-level taxa, the lemur-like sivaladapids (represented by *Paukkaungia* and *Kyitchaungia*) and the eosimiid anthropoid *Bahinia*.

The second category of new information we have gained about the ancient primates of the Pondaung Formation is insight regarding their lifestyle and evolutionary relationships. Postcranial remains of Burmese fossil primates have proven to be extremely rare, and their interpretation is highly contentious. However, large primate ankle bones recently discovered in the Pondaung Formation appear to belong to *Pondaungia*, and these fossils indicate a monkey-like mode of locomotion for this animal. The unique pattern of dental wear found in Pondaung amphipithecoids suggests that these animals were ecologically specialized hard-object feeders, like the modern South American saki monkeys of the Amazon Basin. Both the postcranial anatomy and the unique dental wear of amphipithecoids support the view that these Burmese primates were early anthropoids. Indeed, the Burmese amphipithecoids appear to be more closely related to living anthropoids than is *Eosimias* and other primitive anthropoids known from Asia.

Future field work in Myanmar, which remains scientifically isolated from much of the world, promises to teach us a great deal about our distant evolutionary history.