

# What Happened to the

# MOA?

by Barney Brewster

**W**hat happened to the moa? One thousand years ago this remarkable bird was the dominant animal of the New Zealand landscape; now we find it only in museums and crossword puzzles.

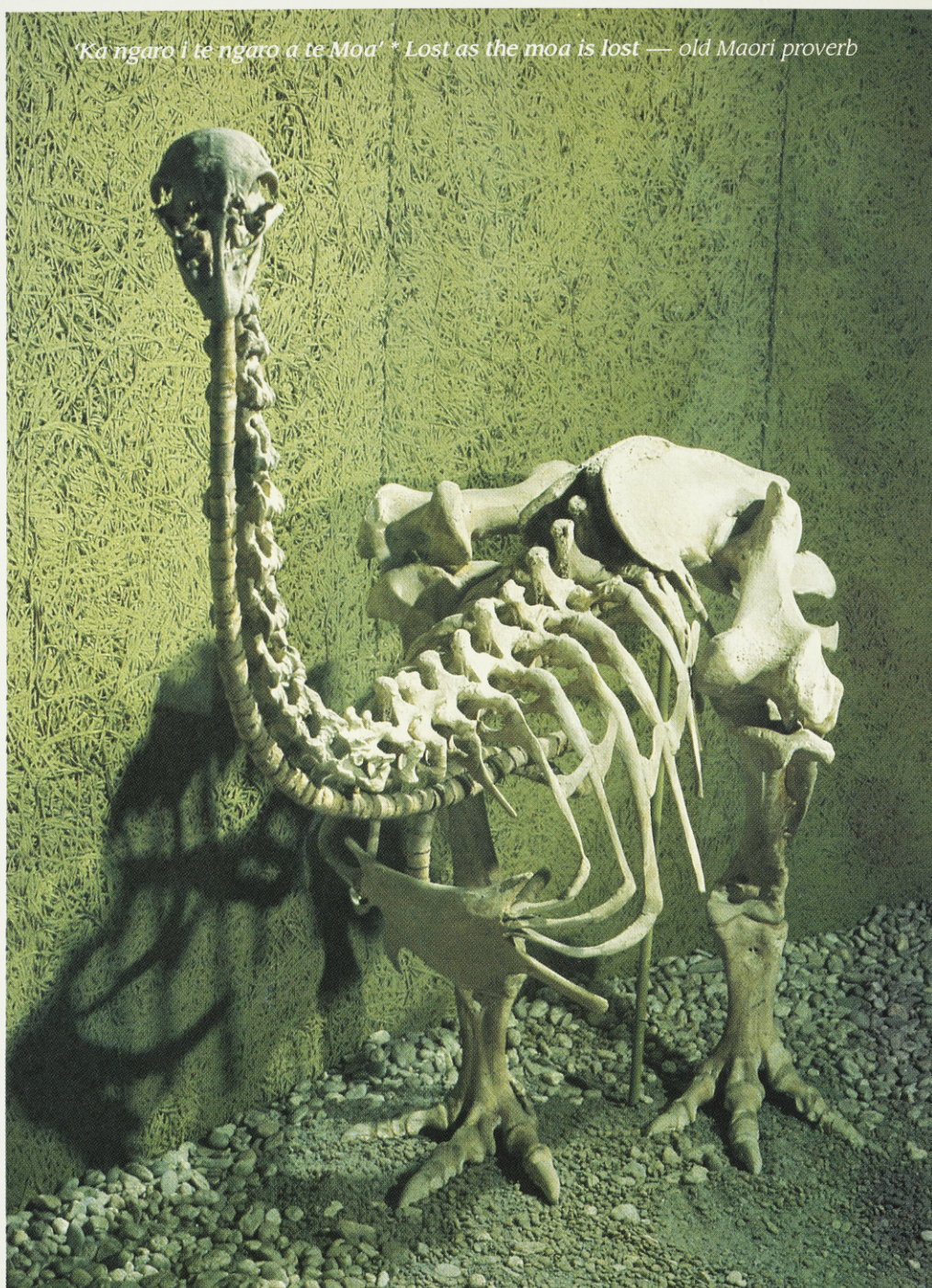
Moa extinction was the great controversy of New Zealand science last century; this century the disappearance of the moa has been firmly linked to the arrival of the Polynesians, but resistance to this idea was previously strong, and some novel and now quite amusing theories were put forward to explain the demise of the moa. Mass tutu poisoning, the shrinking of southern mossbeds on which the bird was supposed to feed, and the clean sweep of glaciers across the land each had their advocates as the primary cause of extinction.

Other writers put the death of the moa down to a general biological malaise. James Drummond, columnist and biology professor at Canterbury University, pontificated in 1907: 'In the moa, at any rate, we can see the result of laziness and neglect. Life was so easy in New Zealand that it first refrained from flying and then lost the power of flight. It is the emblem of stagnation and decay, and its fate is a shocking example to all who are inclined to give way to slothful habits'.

In the 1950s and '60s some scientists talked of the moa having reached the end of its evolutionary life. But it was surely an impossible coincidence that such a large number of other native birds species – and so many of them flightless – had attained old age and extinction over the same period. According to modern biology, species do not simply die out through lack of interest or vigour. Any decline in a species must relate to unfavourable changes in the creature's habitat.

## Reluctant to blame

Not all early European observers were blind to the coincidence of the moa's decline with the arrival of the Maori, their kuri (dog) and kiore (rat). But even to the present day, some have refused to recognise that Polynesian settlers were the most likely cause of the moa's extinction. As Sir Charles Fleming commented in 1962, 'it seems we are reluctant to blame our fellow men for a pre-historic offence against modern conservation ideals and would rather blame climate or the animals themselves'.



A Canterbury Museum reconstruction of a medium sized moa, *Euryapteryx gravis*, from bones found in Pyramid Valley north of Christchurch. The prevailing scientific theories last century held that Polynesians were not largely responsible for the moa's demise, but that it was either a declining species, it had been affected by glaciation, or even that the giant bird had suffered mass tutu poisoning. Photo: QE II National Trust

"On a world-wide scale, there is incredibly strong evidence in New Zealand that the extinction of the moa had human causes," says archaeologist Richard Cassels. "The human hand is implicated to a fantastic degree." He points out that the case for the human destruction of the many giant marsupials which once roamed Australia is supported by only two archaeological sites, yet a human cause for these extinctions, dating from around fifty thousand years ago, has become generally accepted.

Excavations in the Oparara caves in the 1980s, and at other places, have added further to the picture of life in New Zealand before human disturbance. Extinct birds found in these caves include the flightless goose, the NZ swan, a flightless duck, the giant flightless rail (*Aptornis*), other extinct rails, the flightless coot, the giant NZ eagle (*Harpagornis*), the NZ goshawk, the NZ owl-nightjar, and the NZ crow, as well as moa species. Subfossil bone discoveries else-

where show that the nesting or breeding of other animals, such as sea birds and seals, has been restricted. On the Coromandel Peninsula and in the far north, for example, the bones of fur seal pups predate the arrival of European sealers.

## The Path to extinction

Of New Zealand's original animals, ground-nesting moa were highly visible and vulnerable to new immigrants from Polynesia. That a technologically primitive people, whose numbers seemed tiny compared with the extent of the islands they occupied, could have such an impact on birdlife is at first hard to credit. Joseph Banks, Cook's naturalist, observed in 1770 that over most of the country 'the number of inhabitants seems to bear no kind of proportion to the size of the country'. In Cook's time the Maori population was concentrated in the northern North Island, but by far the greatest number of moa hunting sites have been