

manage vocal imitations. One serious and painstaking attempt was made to train a young chimpanzee to speak, but with remarkably limited success. The animal was reared in a house under conditions identical with those for an infant of our own species. By combining food rewards with manipulations of its lips, prolonged attempts were made to persuade it to utter simple words. By the age of two-and-a-half the animal could say 'mama', 'papa' and 'cup'. Eventually it managed to say them in the correct contexts, whispering 'cup' when it wanted a drink of water. The arduous training continued, but by the age of six (when our own species would be well over the 2,000 word mark) its total vocabulary extended to no more than seven words.

This difference is a question of brain, not voice. The chimpanzee has a vocal apparatus that is structurally perfectly capable of making a wide variety of sounds. There is no weakness there that can explain its dumb behaviour. The weakness is centred inside its skull.

Unlike chimpanzees, certain birds have striking powers of vocal imitation. Parrots, budgerigars, mynah birds, crows, and various other species can reel off whole sentences without batting an eyelid, but unfortunately they are too bird-brained to make good use of this ability. They merely copy the complex sequences of sounds they are taught and repeat them automatically in a fixed order and without any reference to outside events. All the same, it is astonishing that chimpanzees, and monkeys for that matter, cannot achieve better things than they do. Even just a few simple, culturally determined, words would be so useful to them in their natural habitats, that it is difficult to understand why they have not evolved.

Returning to our own species again, the basic instinctive grunts, moans and screams that we share with

other primates are not thrown out by our newly-won verbal brilliance. Our inborn sound signals remain, and they retain their important roles. They not only provide the vocal foundation on which we can build our verbal skyscraper, but they also exist in their own right, as species-typical communication devices. 100